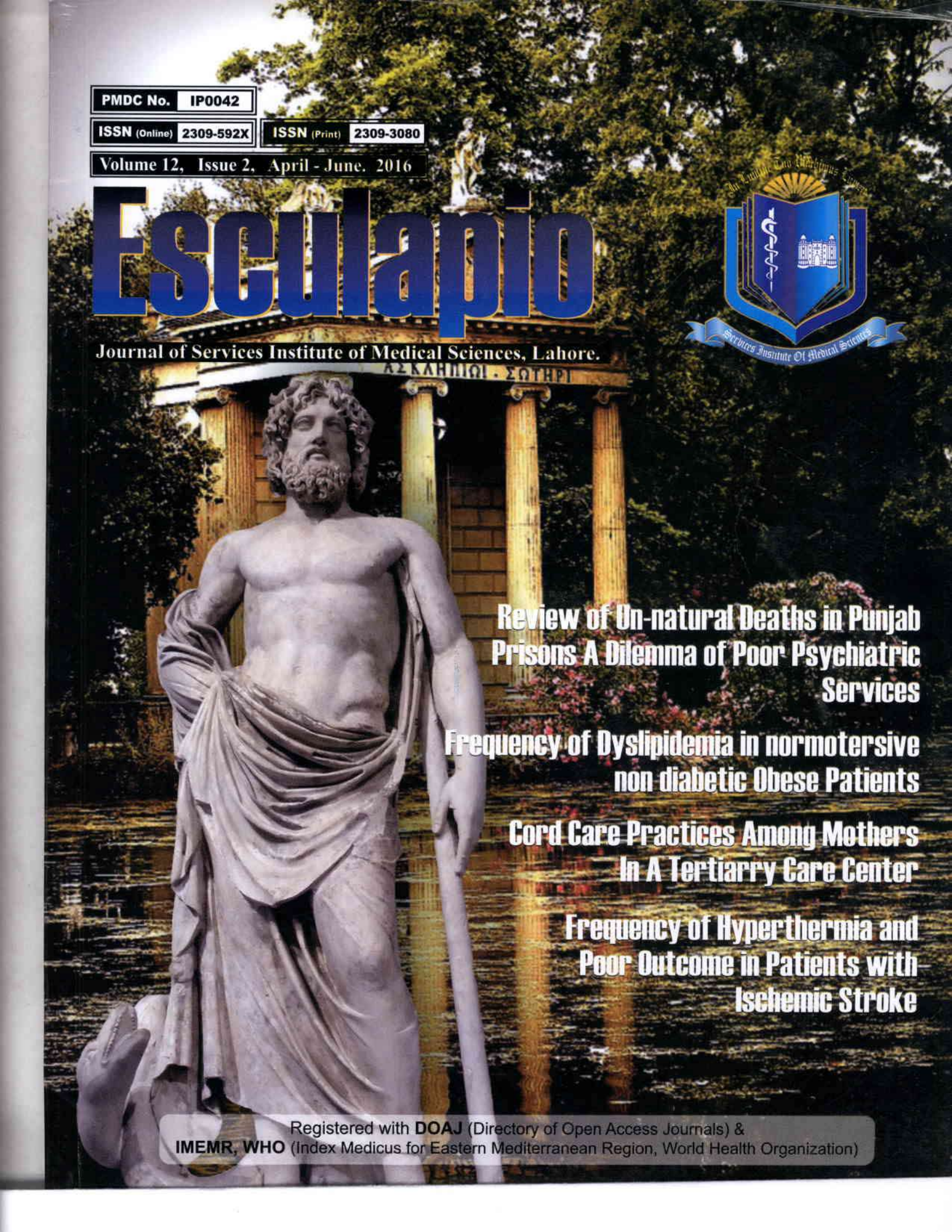
PMDC No. IP0042

ISSN (Online) 2309-592X ISSN (Print) 2309-3080

Volume 12, Issue 2, April - June. 2016

Esculapio

Journal of Services Institute of Medical Sciences, Lahore.



Review of Un-natural Deaths in Punjab Prisons A Dilemma of Poor Psychiatric Services

Frequency of Dyslipidemia in normotersive non diabetic Obese Patients

Cord Care Practices Among Mothers In A Tertiarry Care Center

Frequency of Hyperthermia and Poor Outcome in Patients with Ischemic Stroke

Registered with **DOAJ** (Directory of Open Access Journals) &
IMEMR, WHO (Index Medicus for Eastern Mediterranean Region, World Health Organization)

CONTENTS

ESCULAPIO

JOURNAL OF SERVICES INSTITUTE OF MEDICAL SCIENCES, LAHORE.

VOLUME. 12 APRIL - JUNE 2016 ISSUE. 02

PUBLISHED BY

SERVICES INSTITUTE OF MEDICAL SCIENCES, LAHORE.

ONLINE EDITION

VISIT THE WEBSITE FOR ONLINE ARTICLES AND SUBMISSION
WWW.ESCULAPIO.PK

Review Article

REGULATION OF BLOOD GLUCOSE DURING FASTING

Hamid Javaid Qureshi and Naila Hamid

Abstract : Muslims fast in the holy month of Ramadan, some also fast in Shawal and other months. After intake of sehri, blood glucose increases but as fasting continues, it falls. The main control of transition from feasting to fasting and vice versa is two pancreatic hormones, insulin and glucagon. Insulin is secreted from beta cells of pancreatic islets after sehri (food) intake and energy is stored. When blood glucose falls due to fasting, glucagon is secreted from alpha cells of pancreatic islets to release energy and blood glucose rises. During prolonged fasting, epinephrine released by sympathetic stimulation and cortisol released from adrenal cortex to maintain blood glucose level.

Keywords: Fasting, Blood Glucose, Insulin, Glucagon and Pancreatic islets.

Introduction

Fasting during the holy month of Ramdan is obligatory for all the Muslims. Some also fast during the month of Shawal and other months. There are metabolic responses leading to hyperglycemia after intake of sehri and as fasting continues, hypoglycemia develops that also leads to metabolic changes. The most important control of transition from feasting to fasting and vice versa is two pancreatic hormones insulin and glucagon.[1] After intake of food (sehri), insulin is secreted from beta cells of pancreatic islets. Insulin is a small protein having a molecular weight of 5808. Insulin is first formed as preproinsulin which is converted into proinsulin having a molecular weight of 9000. It consist of 3 peptide chains; A, B and C. Most of the proinsulin is further cleaved in Golgi apparatus to form insulin composed of A and B peptide chains connected by disulfide linkages and C chain peptide called connecting peptide (C-peptide). The insulin and C-peptide are packed in the secretory granules and secreted into the blood **Fig1**.

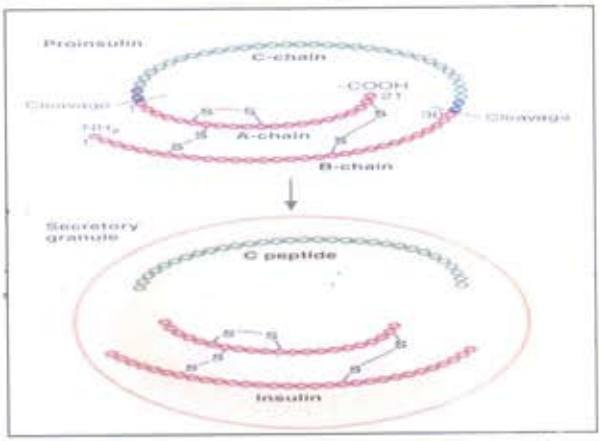


Figure-1: Structure of proinsulin and insulin.[2]

Functional activity of insulin depends upon intact disulfide linkages.[2] C-peptide concentration in the plasma can be measured by radioimmune assay and it indicates beta cells function in patients receiving exogenous insulin. Patients with type I diabetes usually have greatly decreased levels of C-peptide.[3]

Insulin secretion is stimulated by increased plasma glucose, gastrointestinal hormones like gastrin, secretin, cholecystokinin and glucose dependent insulinotrophic hormone, increased plasma aminoacid concentration arginine and lysine and hormones such as glucagon, growth hormone and cortisol.[2] Even before glucose has been reabsorbed, the gastrointestinal hormones reach the pancreatic beta cells through the blood to stimulate strongly insulin secretion. These hormones are called incretins.[1,4] After its secretion, Insulin circulates in the blood in an unbound form. It has an average plasma half life of 6 minutes, so it is mainly cleared from the circulation within 10 to 15 minutes insulin is degraded by the enzyme insulinase mainly in the liver, to a lesser extent in the kidney and muscles.[5] Insulin secretion is inhibited by potassium depletion, beta adrenergic blockers, fasting, alpha adrenergic activity and hypoglycemia.[3] When plasma glucose level is < 75 80 mg/dL, beta cells stop insulin secretio **Fig 2.**

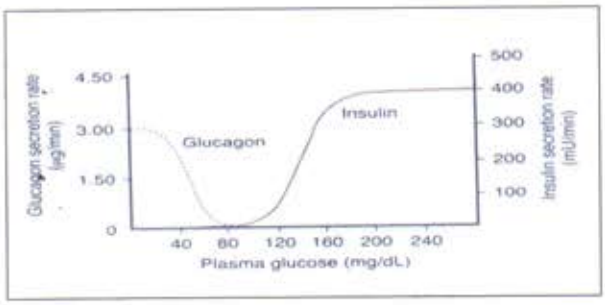


Figure-2: Effect of plasma glucose on insulin and glucagon Secretion.[3]

Fasting plasma insulin level is 10 20 μ U/mL. After a meal, it may reach to a peak of 100 μ U/mL. In a normal human. The total daily secretion of insulin may be as much as 40 U/day.[6] Beta cells increase their rates of insulin secretion within 30 seconds of exposure to increased concentration of glucose and can shut down secretion as rapidly.[7] When plasma glucose increases, it is transported into beta cells of the pancrease by the glucose transporter (GLUT 2). Inside the cells, glucose is phophorylated to glucose6phosphate, that is subsequently oxidized to form adenosine triphosphate (ATP), which inhibits ATP sensitive potassium channels of the cell membrane there by opening voltage gated calcium channels. This produces calciums influx that stimulates fusion of vesicles with the cell membrane and secretion of insulin into extracellular fluid by exocytosis **(Fig-3).**

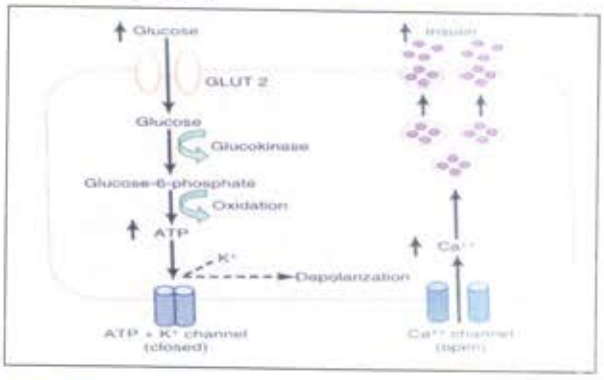


Fig-3: Basic mechanism of insulin secretion from beta cells by glucose stimulation.[2]

Somatostatin and norepinephrine (by activating alpha adrenergic receptors) inhibit exocytosis of insulin. Sulfonylurea drugs stimulate insulin secretion by binding to the ATPsensitive potassium channels and blocking their activity. This results into depolarization that triggers insulin secretion. Insulin binds with insulin receptors in the membrane of target cells, there is activation of tyrosine kinase resulting into the cellular effects.[2] Insulin is "hormone of energy storage". or "hormone of abundance" it increases stores of carbohydrates, fats and protein.[1,3] It is hypoglycemic hormone, promotes uptake of glucose by the liver cells, muscle and adipose tissue. It also increases glucose utilization. It is mainly anabolic hormone.[8] insulin primarily exerts it effects by acting on non-working skeletal muscle, liver and adipose tissue.[9] It increases glycogen synthesis by promoting the activity of enzyme glycogen synthase in the liver. Glycogen content of liver can increase upto 5 6% of the liver mass (100 grams of stored glycogen). Insulin also promotes glycogen storage in the muscle.

Insulin promotes conversion of excess glucose in the liver into fatty acids. It increases triglyceride synthesis, which are packed as very low density lipoproteins and transported via blood to the adipose tissue and deposited as fat **(Fig-4)**. Insulin inhibits action of hormone sensitive lipase in adipose tissue to prevent break down of fats to release fatty acids.[2]

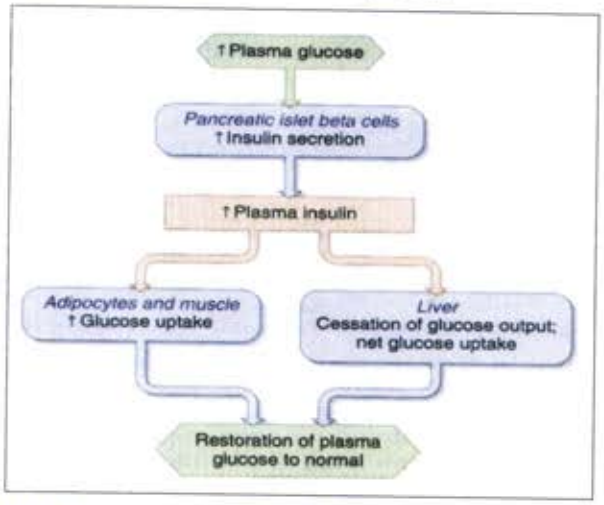


Fig-4: Nature of plasma glucose control over insulin secretion. As glucose levels increase in plasma (e.g., after a meal containing carbohydrate), insulin secretion is rapidly stimulated. The increase in insulin stimulates glucose transport from extracellular fluid into cells, thus decreasing plasma glucose concentrations. Insulin also acts to inhibit hepatic glucose output.[1]

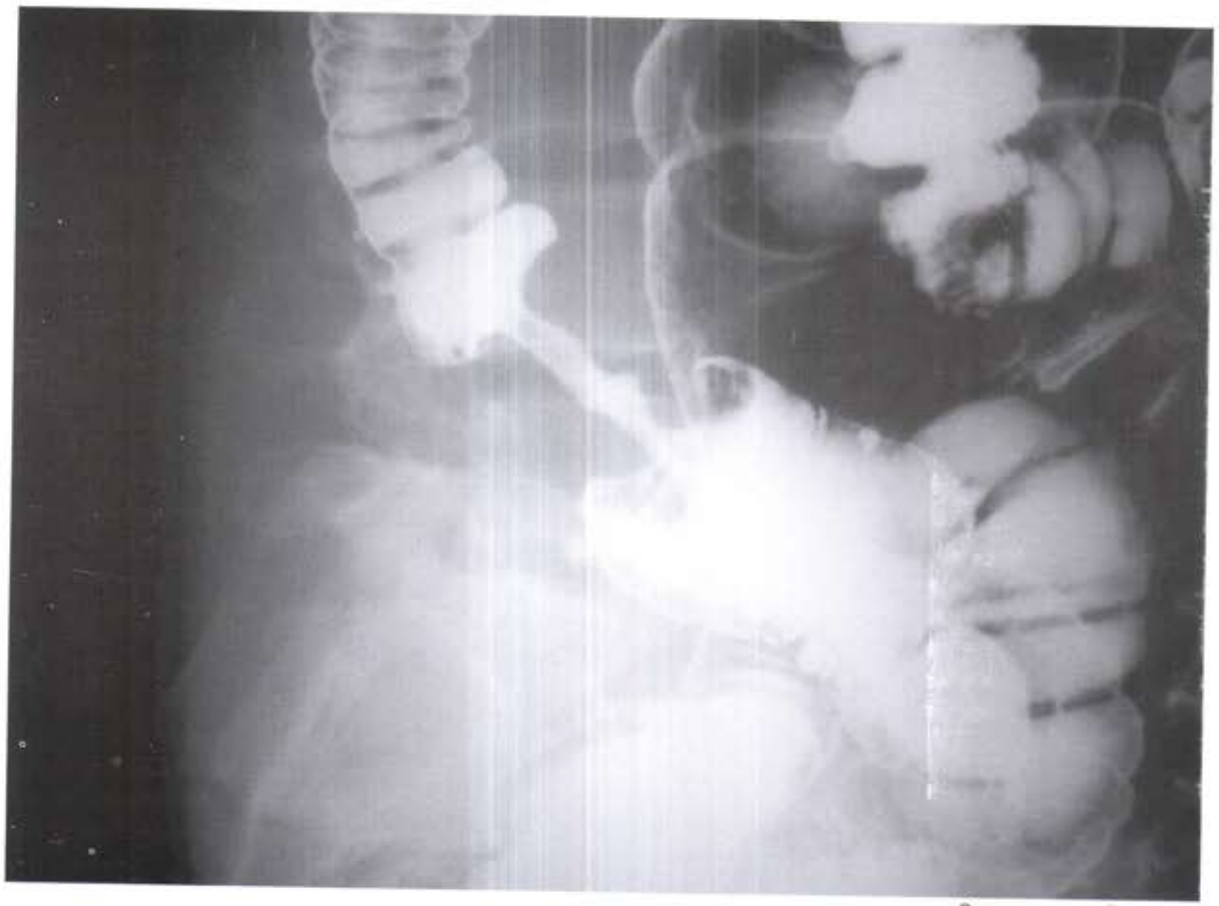
Insulin promotes protein synthesis and growth. It stimulates transport of amino acids into cells, promotes DNA transcription and translation of messenger RNA. It inhibits protein catabolism. There is synergistic action of growth hormone and insulin to promote the growth.[5] Due to fasting, when plasma glucose decreases, glucagon is secreted from alpha cells of pancreatic islets. It is a "hormone of energy release". It is a hyperglycemic hormone. It is a polypeptide having a molecular weight of 3485. Glucagon acts on the target cells through formation of cyclic AMP.[2] Carbohydrate stores (liver and muscle glycogen) are the first energy stores to be metabolized during starvation.[10] Glucagon has a half life of 5-10 minutes in the circulation. It is degraded in many tissues particularly by the liver. When plasma glucose falls below 80 90 mg/dL, glucagon secretion increases. In addition to decreased plasma glucoses,

In: Essential Medical Physiology New Dehli, Elsevier; 2006. 655- 656
8. Chaudhuri SK. Growth and old age. In: Concise Medical Physiology 6th edition. Delhi. New Central Book Agency; 2011:307310
9. Sherwood L. The peripheral endocrine glands. In prinipla of humar physiology 7th Ed. New Dehli, Cengajee Learning; 2010: 716720
10. Peterson OH. Energy metabolism In: Humar Physiology 5th Ed. Victoria, Black well Publishing 2007; 599600
11. Hall JE Dietary alances; regulation of feeding; obesity and staroation; vitamins and minerals, In: Guyton and Hall Testbook of Medical Physiology. 12th edition. New Dehli, Elsevier; 2011: 852
cartilage. 2004; 12: 20-30.

Picture Quiz

WHAT IS DIAGNOSIS?

50 year male has history of chronic diarrhea with intermittent blood in stools. What sign is evident in following radiograph?



See answer on Page # 61

exercise and beta adrenergic stimulation also stimulate glucagon secretion.[3]

Glucagon causes break down of glycogen (glycogenolysis) in the liver by activating the enzyme phosphorylase and increases plasma glucose.2 Increases gluconeogenesis in the liver to increase plasma glucose. In the absence of food intake (fasting), glycogen stored in the liver is sufficient to maintain blood glucose for about 12 hours.[11] Glucagon by activating adipose cell lipase causes breakdown of triglycerides (lipolysis) to mobilize

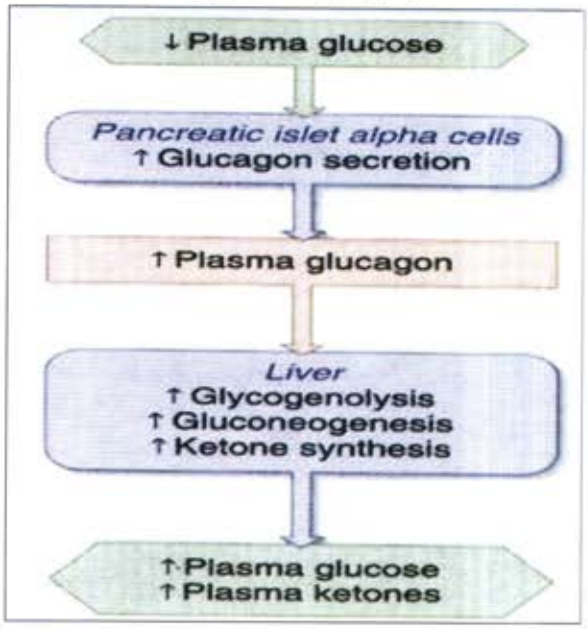


Fig-5: Nature of plasma glucose control over glucagon secretion.[1]

Large quantities of fatty acids available to the energy system of the body **Fig-5**. It also causes formation of ketone bodies (ketogenesis).[3]

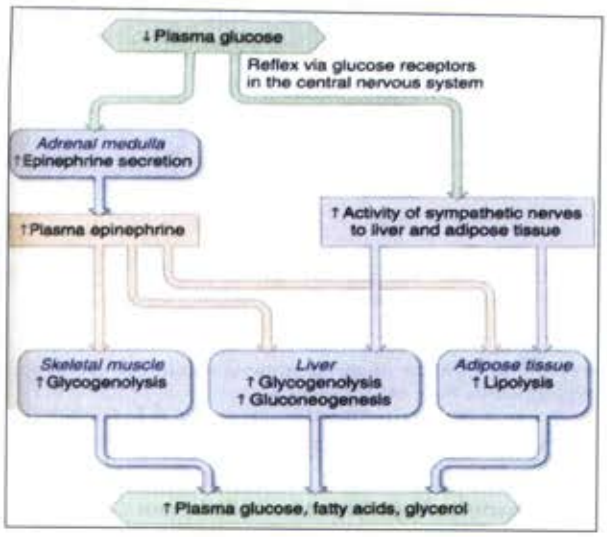


Fig-6: Participation of the sympathetic nervous system in the response to a low plasma glucose concentration.[1]

If hypoglycemia is severe, it leads to sympathetic stimulation that through epinephrine releases glucose from the liver to correct hypoglycemia.[2] **Fig-6** In fasting, cortisol maintains blood glucose by stimulating gluconeogenesis.[6]

Conclusion

The main control of blood glucose during fasting is through the pancreatic hormones; insulin and glucagon. Regulation of blood glucose level during fasting is very important especially in patients of diabetes mellitus. The dose of hypoglycemia drugs should be modified as per requirement at sehri and aftari.

Department of Physiology
Akhtar Saeed Medical and Dental College Lahore

www.esculapio.pk

References

1 Widmaier EP. Raff H. Strang KT. Regulation of organic metabolism and energy balance. In: Vander's Human Physiology 12th edition. New York. Mc Graw Hill; 2011: 560563

2. Hall JE. Insulin, glucagon and diabetes mellitus. In: Guyton and Hall Textbook of Medical Physiology. 12th edition. New Delhi. Elsevier; 2011: 941949

3. Barrett KE, Barman SM. Boitano S. Brooks HL. Endocrine functions of pancreas. In: Ganong's Review of Medical Physiology. 23rd edition. New Delhi. Tata Mc Graw Hill; 2010: 318326

4. Bijlani RL and Manjunatha S. Pancrase. In: understanding Medical Physiology 4th Ed. New Dehli Jaypee. 472474.

5. Koeppen, BM. Hormonal regulation of energy metabolism. In: berne & levy Physiology. 6th Ed. New Dehli, Elsevier 676677

6. Tendon OP. Tripathi Y. Kumar A. Mandal MB. Ravi K. venkatesh D. Hormonal regulation of growth and development. In: Best & Taylor's Physiological Basis of Medical Practice 13th edition. Philadelphia. Wolters Kluwer; 2012: 894899

7. Johnson LR. The pancreatic blets

Original Article

Review of Un-natural Deaths in Punjab Prisons A Dilemma of Poor Psychiatric Services

Aslam Pervaiz, Bushra Faiz,Tanveer Husain Rana and Fateh Sher Sipra

Objective: The increasing trend of unnatural deaths in custody is a concern globally. So this study was conducted to examine the causes of unnatural deaths in Punjab prisons.

Methods: A retrospective review of all available files of unnatural deaths from 2006 to 2009 was carried out in June-July 2010. The death certificates, inquest reports, postmortem reports and fact finding enquiry reports were examined in detail. Facts of each unnatural death were discussed with medical officer and superintendent of concerned jail. Causes of unnatural death were categorized as accidental, homicide, and overdose with substance of abuse or medication and suicide

Results: Crude mortality rate for un-natural deaths was 53/100,000 per year. These account for 11% (111/1007) of the total deaths. All unnatural deaths were among males with mean age of 35 years (Range; 16-90). Mostly 85% (n=94) were under trial and 15% (n=17) convicted prisoners. Of the 111 unnatural deaths 49% (n=55) were from overdose, suicide 21% (n=23), homicide 16% (n=18) and accidental deaths 14% (n=15). Majority of the suicidal deaths was by hanging (20/23). 50% of all un-natural deaths occur within 1st week of their entry in to jail. Majority (91%) of those committed suicide have a history of psychiatric illness. Suicidal, homicidal and accidental deaths accounts for 43% of potential years of life lost of these persons. Postmortem of only 35% of cases conducted on the stress of prisoner heiress.

Conclusion: Among unnatural deaths suicide by hanging and deaths due to substance over dose are dominant. No psychological assessment being done at jail entry. Most of these premature deaths are preventable. Mental health services should be the integral part of primary health care in prisons. Inquest files have incomplete data which limits our study.

Keywords: Unnatural deaths, potential years of life lost, Punjab Prisons

Introduction

Prisons are conventional institutions, which form part of the criminal justice system of a country; such that imprisonment or incarceration is a legal penalty that may be imposed by the state for the commission of a crime. Prison is a term used for any place of detention. It includes centers for pre-trial and convicted prisoners as well as centers for juvenile offenders and illegal immigrants.[1] The term, "prisoner", is used for adult and juvenile males and females detained in criminal justice and correctional facilities during the investigation of a crime or awaiting trial and before or after conviction.[2] As of December 2008, more than 9.8 million people were incarcerated worldwide. Turnover in correctional facilities is rapid. Each year, about 30 million people enter and leave prison establishments. Average prison population rate is 145 per 100,000 in the world.[3] In Punjab prisons the prison population rate is 55 per 100,000 of the national population. The high percentage of pre-trial detainees as compared to the total prison population is considered failure of the criminal justice system of the country. In Asia (Bangladesh, India, Pakistan and the Philippines), pre-trial detainees comprise more than 60% of the total prison population.[3] In Punjab prisons the pre-trial detainees are 70% of the total prison population. Total prisons in Pakistan including Northern Areas and Azad Kashmir, are 97. These are housing about 94 thousand prisoners against authorized accommodation of 42023.[4] There are 32 prisons in the Province of Punjab nine are Central Jails, 20 District Jails, one Women Jail and two Juvenile Jails. Under trial, convict and condemned prisoners are confined therein. Static population in all prisons of Punjab is about 50,000 against the authorized accommodation of 21500. All prisons on average are three times overcrowded. Annual turnover is 250,000 prisoners.[5] When the state takes away a person's liberty, it assumes full responsibility for protecting

Each year, however, many people die in custody.[5] The prisoners die prematurely, especially due to unnatural causes of deaths as compared to the general population. Some of these deaths may be preventable.[7] In recent years a few reports have looked at the causes of death among people in custody. Mostly studies concentrated on the high rates of suicide, especially around the time of arrest and sentencing. Although other causes of death, such as Non Communicable Diseases (NCDs), made an increasing contribution to overall mortality among prisoners.[8,12]

Previous studies have shown that violent and criminal offenders have increased mortality[13,6] People with psychiatric disorders evince an excess mortality of both natural and unnatural causes.[17] Understanding the link between psychiatric disorders and violent offending requires consideration of its association with history of violence, substance abuse and stressful life events.[18]

In Punjab inquest by a Magistrate/Civil Judge is mandatory for any death of a person in custody, to ensure a public examination of the circumstances leading to the death. Beyond the inquest, however, there is no formal public scrutiny of in-prison deaths and no publicly reported examination of the causes.

So this study was conducted to examine the causes of unnatural deaths in Punjab prisons and other relevant factors, such as history of psychiatric illness and substance abuse, in order to determine whether any of the deaths associated with these factors could have been prevented.

Methods

A retrospective review of all available files of unnatural deaths from 2006 to 2009 was carried out in June-July 2010. Deaths occurring inside the institution and after transfer to a medical facility were included. The Magistrate/Civil Judge presiding at the inquest is assigned by the Office of the District &Sessions Judge of the respective district and is independent of the institution where the death occurred. All factors related to the death, including the institutional medical files, psychiatric fileand, if relevant, medical records generated outside of the institution, are examined. The Magistrate/Civil Judge conducting the inquest also records statements of Medical Officer Prison, paramedical staff, prison watch & ward staff at duty and four to five colleague prisoners. The medical officer jail prepares death certificate in case of death in prison and if death occurs outside health facility than death certificate is generated there. Postmortem of each death in custody is mandatory. However it depends on the magistrate/Civil Judge conducting inquest. Most of the time he orders for postmortem to Police Inspector of concerned police station but they hand over the dead body to the legal heiresses of deceased on their request without postmortem. As per PPR superintendent of Jail also conducts a fact finding enquiry and submits report to Inspectorate of prisons. The death certificates, inquest reports, postmortem reports and fact finding enquiry reports were examined in detail. Data abstraction from used to compile data from unnatural death files. Information collected included age, sex, date and time of death, type of institution and place of death (institution v. medical facility). If present, we extracted other relevant information such as history of psychiatric illness or history of substance abuse as well as suicide evaluation. Causes of death were categorized as accidental, suicide, overdose and homicide. The categorization was based on the inquest conclusion and review of the inquest file. Drug overdose was assumed to be accidental unless clear evidence of suicidal intent was available. Facts of each unnatural death were discussed with medical officer and superintendent of concerned jail. Data was analyzed by using Epi-Info version 3.7.

Results

Crude mortality rate for all causes was 484/100,000 per year and for un-natural deaths 53/100,000 / per year in Punjab prisons during the study period. These account for 11% (111/1007) of the total deaths. All unnatural deaths were among males with mean age of 35 years at the time of death (16-90). Of the 111 unnatural deaths 49% (n=55) were from overdose, suicide 21% (n=23), homicide 16% (n=18) and accidental deaths 14% (n=15). **Table 1**

Table-1: Frequency of unnatural deaths.

Type of Unnatural Death	Frequency	Percentage	95% Conf Limits
Accident	15	13.5%	7.8% 21.3%
Homicide	18	16.2%	9.9% 24.4%
Over Dose	55	49.5%	39.9% 59.2%
Suicide	23	20.7%	13.6% 29.5%

85% (n=94) were under trial prisoners and 15% (n=17) convicted prisoners. 88% (n=98) deaths were among the prisoners those confined in barracks and

6.3% (n=7) among those confined in solitary confinement as punishment (they all committed suicide by hanging). Majority of the suicidal deaths were by hanging (20/23). Majority (12/18) of homicidal deaths were due to injuries by others and 4 by poisoning. 50% of all un-natural deaths occur within 1st week of their entry in to jail. Overall 92% of deaths involved inmates who were between 20 to 50 years of age. **Table 2**

Table-2: Age wise frequency of unnatural deaths.

Age category	Frequency	Percentage	95% Conf Limits
16 - 20	04	3.6 %	1.0 % 9.0 %
21 - 30	53	47.7 %	38.2 % 57.4 %
31 - 40	30	27.0 %	19.0 % 36.3 %
41 - 50	10	9.0 %	4.4 % 15.9 %
51 - 60	09	8.1 %	3.8 % 14.8 %
61 - 70	02	1.8 %	0.2 % 6.4 %
71 - 80	02	1.8 %	0.2 % 6.4 %
> 80	01	0.9 %	0.0 % 4.90 %

91% of those who committed suicide have a history of psychiatric illness. 89% homicidal and 80% of accidental deaths have no previous history of illness. Unnatural deaths are no showing any specific yearly trend. **Table3** Postmortem of only 35% of cases conducted on the stress of prisoner legal heiresses. Suicidal, homicidal and accidental deaths accounts for 43% of potential years of life lost of these persons.

Discussion

Premature deaths of people in custody are always tragic. There is a responsibility on the part of the custodial authorities and the public to regularly review causes and rates of death among people in custody and to look for ways to prevent deaths. Rate of unnatural deaths is higher than general population. Studies [9, 12] have shown that people in custody have a higher rate of death than those not in custody. Our findings support this evidence. (Reply; Death Rate have to calculate in review of unnatural deaths) The rate of death among male inmates in Punjab prisons was significantly higher than the rate among men of a similar age distribution outside. The most striking difference was with unnatural deaths, with overdose being many times more common in the inmate populations than in the general male population. In addition, the rate of suicide by strangulation was 10 times higher. Our study was limited by the lack of standard data available in the inquest files. Determination of important factors such as suicide evaluation was often difficult. Calculation of rates among inmates is complicated by high rates of movement both in and out of institutions. The rate of suicide by strangulation, although similar to the rates reported in other prison studies,[10,12,19-21] is well in excess of the Pakistan average. Many of the unnatural deaths in our study population occurred shortly after arrest (with in first week of arrest), which is a well-documented danger period.[12,22,23,26] Several people in custody had killed themselves either while under "suicide watch" or shortly after such supervision had stopped. Most of the deaths by poisoning appeared to be accidental and related to overdose by drugs of addiction. Ingestion of drugs before arrest or while out for court attendance does occur. Police authorities force the people arrested in petty cases of drugs or addiction to use drugs to keep them alert. So they may not be refused by prison authorities to take in the prison being ill. This is a main reason for deaths due to over dose within first few days of entry. Prison forces need to be alerted to the dangers of putting intoxicated people in cells and to watch for signs of physical illness. Overdose by drugs of addiction is likely to get worse as increasing numbers of people with substance addictions are incarcerated. Some of these deaths could possibly be prevented by the timely application of drug rehabilitation and methadone programs.[27]

Table-3: Year wise distribution of types of unnatural deaths.

	Type of Unnatural Deaths				
Year of Death	Accident	Homicide	Over dose	Suicide	Total
2006	2	8	8	7	25
2007	6	5	12	4	27
2008	4	2	18	10	34
2009	3	3	17	2	25
Total	15	18	55	23	111

In Britain in the early 1800s the death rate among inmates was about 5 times higher than that in the general population.[28,29] At the end of the 20th century we have shown an elevated death rate that is twice that of the general population.[28] Coroners' inquests, conducted for all deaths of people in custody, are the only external and independent means of scrutiny available and the only way of obtaining the information needed to bring about change. Clearly we can do better to reduce the rate of deaths in inmate populations, but it will require more focused effort by custodial authorities and ongoing public scrutiny and concern. In Pakistan system of inquests by magistrate/civil judge is prevailing instead of coroners' inquest. This system can bring better change to reduce the unnatural death rate in the people under custody if a jury of three magistrate/civil judges be constituted for inquest. They should submit report to district & session's judge and all concerned stake holders for action. Postmortem is mandatory for all deaths in custody. It should be practiced in letter and spirit for each custodial death.

Conclusion

Among unnatural deaths suicide by hanging and deaths due to substance over dose are dominant. Unnatural deaths are not taken serious. Even postmortem is avoided. No psychological assessment being done at jail entry. Most of these premature deaths are preventable. Mental health services should be the integral part of primary health care in prisons. Inquest files have incomplete data which limits our study.

Department of Medicine
Punjab Health, Department
www.esculapio.pk

References

1. Kending N: Tuberculosis control in prisons. International Journal of Tuberculosis and Lung Disease 1998; 2(9 Suppl 1):S57-63.
2. Ralf J., Manfred N. and Marcus D: HIV and incarceration: prisons and detention. Journal of the International AIDS Society 2011, 14:26
3. Walmsley R: World Prison Population List. 8 edition. King's College/ International Centre for Prison Studies; 2009 [http://www.kcl.ac.uk/depsta/ Law/research/icps/downloads/wppl-8th_41.pdf].
4. Government of Pakistan, Ministry of Interior, Central Jail Staff Training Institute, Lahore. Unpublished; official record of ministry of interior.
5. Office of Inspectorate of Prisons, Punjab, Lahore. Unpublished; official figures collected from Inspectorate of Prisons Punjab Lahore.
6. House of Lords, House of Commons, Joint Committee on Human Rights Deaths in Custody, Third Report of Session 200405.
7. Wendy L. Wobeser, Jason Datema, Benoit Bechard, Peter Ford; Causes of death among people in custody in Ontario, 19901999, CMAJ 2002;167(10):1109-13.
8. Amankwaa AA. Causes of death in Florida prisons: the dominance of AIDS. Am J Public Health 1995;85:1710-1.
9. Salive ME, Smith GS, Brewer TF. Death in prison: changing mortality patterns among male prisoners in Maryland 19791987. Am J Public Health 1990; 80:147980.
10. Batten PJ. The descriptive epidemiology of unnatural deaths in Or- egon's state institutions. Am J For- ensic Med Pathol 1989; 10:310-4.
11. Spinellis CD,Themeli O. Suicide in Greek prisons: 1977 to 1996. Crisis: The Journal of Crisis Intervention and Suicide Prevention. 1997; 18: 152-6. 24.
12. Dalton V. Death and dying in prison in Australia: national overview,198098. J Law Med Ethics 1999; 27:269-74.
13. Laub JH, Vaillant GE: Delinquency and mortality: a 50-year follow-up study of 1,000 delinquent and nondelinquent boys. Am J Psychiatry 2000,157(1):96-102.
14. Joukamaa M: The mortality of released Finnish prisoners; a 7-year follow up study of the WATTU project. Forensic Sci Intl 1998, 96:11-19.
15. Paanila J, Hakola P, Tiihonen J: Mortality among habitually violent offenders. Forensic Sci Intl 1999, 100(3):187-191.
16. Tikkanen R, Holi M, Lindberg N, Tiihonen J, Virkkunen M: Recidivistic offending and mortality in alcoholic violent offenders: a prospective follow-up study. Psychiatry Res 2009, 168:18-25.
17. Fazel SB, Baillargeon J: The health of prisoners. Lancet 2011, 377:956-65. (Article; published in Lancet Journal)
18. Elbogen EB, Johnson SC: The intricate link between violence and mental disorder results from the national epidemiological survey on alcohol and related Conditions. Arch Gen Psychiatry 2009, 66(2):152-161
19. Laishes J. Inmate suicides in the correctional service of Canada. Crisis 1997; 18:157-62.
20. Salive ME, Smith GS, Brewer TF. Suicide mortality in the Maryland State Prison system 1979 through 1987. JAMA 1989;262:365-9.

21. Report on the work of the prison department 1982. London: Home Office; 1983.
22. Coroner's Act. RSO 1990, c C37, s 31(1), 31(2). Available: 192.75.156.68/DB Laws /Statutes/English/90c37_e. htm (accessed 2002 Sept 18).
23. Marcus P, Alcabes P. Characteristics of suicides by inmates in an urban jail.Hosp Community Psychiatry 1983;44:256-61.
24. Joukamaa M. Prison suicide in Finland. Forensic Sci Int 1997;89:167-74.
25. Backett SA. Suicide in Scottish prisons. Br J Psychiatry 1987;151:218-21.
26. Hurley W. Suicides by prisoners. Med J Aust 1989;151:188-90.
27. Bazazi AR, Zaller ND, Fu JJ, Rich JD. Preventing opiate overdose deaths: examining objections to take-home naloxone. J Health Care Poor Under served. 2010;21(4):11081113.
28. Forbes TR. A mortality record for Coldbath Fields prison, London, in 17951829. Bull N Y Acad Med 1977;53:666-70.
29. Forbes TR. Coroners' inquisitions on the deaths of prisoners in the hulks at Portsmouth, England, in 181727. J Hist Med Allied Sci 1978;33:356-66.cartilage. 2004; 12: 20-30.

Answer Picture Quiz

The apple core sign, also known as a napkin ring sign (bowel), is most frequently associated with constriction of the lumen of the colon by a stenosing annular colorectal carcinoma.

The appearance of the apple-core lesion of the colon also can be caused by other diseases, e.g.

lymphoma with colonic involvement - appears more diffuse

- Crohn's disease
- Chronic ulcerative colitis
- Ischaemic colitis
- Chlamydia infection
- Colonic tuberculosis
- Helminthoma
- Colonic amoebiasis
- Colonic cytomegalovirus
- Villous adenoma
- Radiosurgery such as high doses of CyberKnife used for treating unresectable abdominal malignancies

Original Article

Comparison of 2% Vaginal Clindamycin with Oral Metronidazole for Treatment of Bacterial Vaginosis At Services Hospital Lahore

Tayyaba Tahira, Robina Tariq, Misbah Javaid, Farah Shabaz, Huma Tehseen

Objective: To compare the efficacy and safety of local application of 2% vaginal clindamycin with oral metranidazole for treatment of bacterial vaginosis.

Methods: Two hundred married women were included in the study in which bacterial vaginosis was diagnosed by standard criteria. Patients were randomized to two group with 100 patients in each group. One group (A) were treated with oral metronidazole, 400mg, three time daily for seven days, while group (B) patients were treated with intravaginal clindamycin 2% cream for seven days. The symptoatic response of the both groups was checked by follow up after one week, 3 month and then 6 months after completion of treatment.

Results: In group A14 (14%) patients were free of symptoms with in seven days 68 (68%) patients after seven days and 18 patients (18%) had no alleviation, while in group B 20 (20%) patients were free of symptoms within seven days, 74 (74%) patients after seven days and 6(6%) patients had no alleviation of problem. In group A 10 patients (10%) had vomiting and diarrhea, 14 (14%) patients had abdominal pain. In group B, 2 (2%) patient had abdominal pain and 10 (10%) patients had local irritation and swelling. There were 18 (18%) patients who had failure of response of treatment in group A and 6 (6%) patients in group B had failure. In group A 16 (16%) patients had recurrence after three months and 12 (12%) patients in group B.

Conclusion: It is concluded from our study that 2% intravaginal clindamycin; is better than oral metronidazole in the treatment of bacterial vaginosis in term of improvement / cure rate, side effect, failure rate and recurrence rate.

Keywords: Bacterial vaginosis, Anti-infective agents, Metronidazole, Clindamycin, Vaginal Gel.

Introduction

Bacterial vaginosis is the commonest cause of vaginal discharge in women of child bearing age, almost 40-59% of cases of vaginal discharge.[1,3] In United states, the National Health and Nutrition Examination survey (NHANES) which includes vaginal swabs from over 3700 women, estimated that the prevalence of bacterial vaginosis was 29% in general population of women aged 14-49 years and 50% in African-American women.[4] This included both symptomatic and asymptomatic infection. World wide bacterial vaginosis is common among women of reproductive age, with variations according to population studied.[5] The basic pathology is the growth of anaerobic bacteria replacing the normal flora, lactobacillous, resulting into the alkaline pH of the vagina (from 4.5 to 7). Anaerobic bacteria include, G. vaginillis (50%) provottela, mycoplasma and mobiluncus species.[6]

The commonest symptom is vaginal discharge which is ivory to grey in colour, having pH of 5-6.5 with distinctive fishy odour, without itching.[7] Diagnosis is confirmed, when at least three of following criteria are present (AMSEL CRITERIA): thin homogenous discharge, pH more than 5, positive amine test, presence of clue cells in a saline wet drop. A variety of complications have been associated with bacterial vaginosis, post abortion sepsis, preterm labour[8], preterm premature rupture of membranes,[9] chorioamnitis, post partum endometriosis, post hysterectomy cuff infection, post operative wound infection.[10] The recent randomized controlled studies preferred local clindamycin with better results.[18]

Methods

This experimental study was carried out in the department of Obstetrics and Gynaecology unit 1, SIMS/Services Hospital, Lahore from 01.01.2014 to 30.06.2014 for 6 months. The sampling technique was purposive non probability sampling. Two hundred married woman with vaginal discharge and fulfilling the inclusion criteria were selected from out patient department of Obstetrics and Gynaecology. An informed consent was taken, detailed history of the patient was taken regarding duration vaginal after discharge, its colour, odour, association with itching and gynaecolgical history (abortion, contraception

and surgical procedure). General physical as well as systemic examination was performed to exclude general illness. Pelvic examination included sterile per speculum examination top look for colour, odour and consistency of discharge. Investigations performed were urine analysis, complete blood count and blood glucose level to exclude systemic disease. Patients were counselled about personal hygiene and managed as OPD cases. The response of both groups was checked by:-

I) Alleviation of symptoms after full therapy.
ii) Side effect of therapy like nausea, vomiting, diarrhea.
iii) Failure (after 7 days by P/s examination).
iv) Recurrence at follow up visits at 3 months and 6 months.

All these observations were recorded on predesigned proforma.

Statistical Analysis

All the collected information was transferred to computer soft ware SPSS version 12 and analyzed accordingly. The quantitative variable like, duration of marriage and monthly income were presented as mean and standard deviation. The qualitative variable, like age, parity, occupation, history of vaginal discharge, history of contraception, history of abortion, history of STD, symptoms alleviation, side effects (vomiting, diarrhea, abdominal pain, local irritation / swelling) failure and recurrence were presented as frequency and percentage. The outcome variables like response of treatment, i.e symptoms free, side effect of therapy and vomiting, diarrhea, abdominal pain, local irritation/swelling and success or failure of therapy was analysed by applying chi square test, P. value < 0.05 was considered as significant.

Results

A total of two hundred patients were included in the study. The mean age of the patient in group A was 30 + 5 years and was 29 + 5.3 years in group B. In the distribution of occupation, in group A, 8% (8 patients) were working women and 92% (92 patients) were house wives. While in group B 4% (4 patients) were working women and 96% (96 patients) house wives. Regarding parity, 16% (16 patients) were primipara, 28% (28 patients) para 1-2 and 54% (54 patients) were para 3-6.n the distribution of gynaecological history, in group A, 40% (40 patients) had history of contraception 38% (38 patients) had history of abortion and 14% (14 patients) had history of sexually transmitted disease while in group B 14 (14%) had history of contraception, 20 (20%) had history of surgical procedure and 10 (10%) had history of STDs.

Table-1: Descriptive Analysis for cases of Bacterial Vaginosis

Variables	Group-A n=100	Group-A n=100
Age	Mean±SD30.4±5.0	Mean±SD29.0±5.3
20 - 25 Years	22 (22%)	32 (32%)
26 - 30 Years	34 (34%)	36 (36%)
31 - 35 Years	28 (28%)	20 (20%)
36 - 40 Years	16 (16%)	10 (10%)
Parity	Mean±SD31± 2.4	Mean±SD 2.1± 1.9
0	16 (16%)	32 (32%)
1 - 2	30 (30%)	28 (28%)
3 - 4	28 (28%)	26 (26%)
5 - 6	26 (26%)	14 (14%)
Occupation		
Working Women	8 (6%)	4 (4%)
House Wife	92 (92%)	96 (96%)
Duration of Vaginal Discharge (Months)	Mean±SD7.2±4.5	Mean±SD6.4±3.6
1 - 3	20 (20%)	24 (24%)
4 - 6	42 (42%)	46 (46%)
7 - 9	8 (8%)	6 (6%)
10 -12	30 (30)%	24 (24%)

Response of treatment In group A, 14% (14 patients) were free of symptoms with in 7 days, 68% (68 patients) after 7 days. While 18% (18 patients) had no alleviation of symptoms. In group B 20% (20 patients) were free of symptoms within 7 days, 74% (74 patients) after 7 days and 6% (6 patients) had no alleviation of symptoms. Side effect of treatment in group A 10% (10 patients) had diarrhea and vomiting and 14% (14 patients) also had abdominal plain, while in group B fewer patient had abdominal pain 2% (2 patients) and 10% of (10 patients) had local irritation and swelling.

Table-2: Comparison of two groups by gynaecological history

Variables	Group-A n=100	Group-A n=100
History of Contraception	40 (40%)	14 (14%)
History of Abortion/Gynae surg. Procedures	38(38%)	20 (20%)
History of sexual transmitted disease	14 (14%)	10 (10%)

Table-1: Comparison of response of therapy between two study groups.

Variables	Group-A n=100	Group-B n=100	P-value
Symptoms Alleviation			
With 7 days	14 (14%)	20 (20%)	0.4
After 7 days	68 (68%)	74 (74%)	0.6
No alleviation	18 (18%)	6 (6%)	0.05
Recurrence of sym.			
3 months	16 (16%)	12(12%)	0.02
6 months	0	0	
Side effects			
Vomiting &		0	0.01
Diarrhoea	10 (10%)	0	0.01
Abdominal Pain	14 (14%)	2 (2%)	0.03
Perineal irritation	(0%)	10 (10%)	0.01

In the distribution of failure rate, there were 18% (18 patients) failures in group A and 6% (6 patients) in group B with significant P value of 00.5.Recurrence of symptoms after 3 months was 16% (16 patients) in group A, while it was 12% (12 patients) in group B. At six month, there were no such symptoms in either group.

Discussion

Bacterial vaginosis is challenging problem for clinicians throughout the world. It is troublesome and common problem among women in reproductive age [11,12]BV if not properly treated in early phase, may lead to secondary complications. In pregnant women it may either cause preterm delivery or chorioa-mnionitis. The risk of contacting sexually transmitted diseases e.g HIV, syphilis, gonorrhea, and trichomoniasis[13] is higher in patients of Bacterial Vaginosis ,when compared with healthy individuals.[14]

The preferred drugs for the treatment are oral metranidazole, oral clindamycin or topical agent like metronidazole intravaginally or 2% clindamycin vaginal cream.[15] The oral use of metronidazole is associated with diarrhea, nausea, vomiting, abdominal pain while local use rarely cause local burning, itching ,rash, redness and swelling.

Demographic analysis of all patients showed no significant difference between the two treatment groups. In our study, the mean age of the patients in group A was 30±5 years and in group B was 29±5 years. As compared with the study of Mahakit et-al the mean age of the patients was 28 years which is comparable to our study.[14]Improvement response after one week of therapy was 94% in the clindamycin group versus 82% in the metronidazole group. Andres et al[18] evaluated that 97% of the patient treated with clindamycin vaginal cream had improvement or cure at the first following visit versus 83% of those taking oral metronidazole. However there was no statistically significant difference between the two results.

The adverse side effect after treatment was 24% in group A and 12% in group B. The side effect in the metronidazole group of our study showed vomiting and diarrhea in 10% patients and abdominal pain in 14% patients. In clindamycin group 2% patients had abdominal pain and 10% patients had local irritation swelling. As compared with the study of Paavonen et al.[15] treatment related adverse effects were reported more frequently in the metronidazole treatment group. Systemic symptoms, such as nausea and taste perversion accounted for most of the difference between groups.In our study, the failure rate was 18% patients in metronidazole group and 6% in clindamycin group, with significant p-value of 0.05. As compared with the study of Luis Arredonlo et al[16], the failure rate in metronidazole group was in 15% patients as compared to 3% patients in clindamycin group, which is comparable with our study.[10]

In our study, the recurrence after three months in metronidazole group was 16% while in clindamycin group was 12% . In a similar study by Fishbach et al[17] the recurrence rate was 9% in the clindamycin group and 10% in the metronidazole groups which is comparable with our study.

Clinidmycin vaginal cream offers similar efficacy and safety to standard oral metronidazole therapy for bacterial vaginosis). However it has lesser side effects, failure rate and recurrence rate.

Conclusion

It is conducted from our study, that 2% intravaginal clindamycin is better than oral metronidazole in the treatment of bacterial vaginosis in term of improvements / cure rate, side effect, failure rate and recurrence rate.

Department of Obst & Gyane
Services Hosptal Lahore

References

1 Joesoef,o, schmid,G, Bacterial vaginosis clinical evidence BMJ 2001, P 887

2. Morris M,Nicoll,Simms etal Bacterial vaginosis,a public health review BJOG 2001, 108:439

3. Tolosa JE Chai wong wathana s,Daly s etal Am J.Obstetrics Gynaecol 2006,195:1198

4. Allsworth JE,Peipest J,prevalence of Bacterial vaginosis 2001-2004,National &Nutritional examination survey data,Obstet Gynecol 2007,109:114

5. Kenyon C,Colebunders R,crutti , The global epidemiology of bacterial vaginosis ,a systemic review Am.J.obstet Gynecol ,2013,209:50 ,

6. McGregor.Joesef M, Schmid L Bacterial vaginosis,Clin Evid 2001:6 1208-15

7. Siddiq NB ,Malik N ,Faruqi JN ,Ali ss,Bacterial vaginosis in pregnant women with history of preterm labor or late miscarriages, Pak.J.obstet Gynecol 2005 13:69

8. Demba E ,Morris L, BMC infection disease (2005) available from URL-http//wwwbiomedcentral.com/1471-2334/5/2012

9. Siddiq NB ,Malik N ,Faruqi JN ,Ali ss,Bacterial vaginosis in pregnant women with history of preterm labor or late miscarriages, Pak.J.obstet Gynecol 2005 13:6

10. Centre of disease controle(CDS) sexually transmitted disease treatment guidline (online) Oct 2002 cited 2005 Dec 12 Availble from http//www.cde.gov/std/treatment.

11. Spiegel CG, Bacterial vaginosis Clin Microbial REV.1991,4-485-502.

12. Fredrick DN,Fiedler TL,Marrazzo JM,molecular identification of bacteria associated bacterial vaginosis,N-England J.Med. 2005 :353 ;1899-1911 (pubmed)

13. Hillier SC,Nugent RP,Eschenbach DA,Krohn MA,Gibbs RS,Martin DH et al association between bacterial vaginosis and preterm delivery of a low birth infant N.England .J Med ;1995:333:1737-42 Pubmed

14. Mahakit P,vicenteJG,Butt DI,Angeli G,Bansal S,Zambrano D.Oral Clindamycin 300mg BID ,compared with oral Amoxicillin/clavulanic acid igm BID in the outpatients.International multicentre randomized control trial-blinded prospective trial in patients.Clin Ther 2006; 28:99-109

15. Paavonen,Mangioni C,Martin MA,WajsZeuk CP, vaginal clindamycin and oral metronidazole for bacterial vaginosis,a randomized trial Obstet Gynecol 2000;96: 256-60

16. Luis Arrendondo J,Higura F,NarcioMC,Casanova G,Bertin M,New alternative in the treatment of Bacterial vaginosis Gynecol Obtet 1994;62:226-34

17. Fishbach F Peterson EE Weissenbacher ER,Efficacy of clindamycin vaginal cream versus oral metronidazole for bacterial vaginosis OBstet Gynecol 1993; 82: 405-10.

18. Andres FJ,Parker R,Hosien I ,Benrubi GI,Clindamycin vaginal cream versus oral metronidazole in the treatment of bacterial vaginosis ,prospective double blind clinical trial.South Med J 2002; 85:1077-80.

References

1 Joesoef,o, schmid,G, Bacterial vaginosis clinical evidence BMJ 2001, P 887

2. Morris M,Nicoll,Simms etal Bacterial vaginosis,a public health review BJOG 2001, 108:439

3. Tolosa JE Chai wong wathana s,Daly s etal Am J.Obstetrics Gynaecol 2006,195:1198

4. Allsworth JE, Peipest J,prevalence of Bacterial vaginosis 2001-2004,National &Nutritional examination survey data,Obstet Gynecol 2007,109:114

5. Kenyon C,Colebunders R,crutti , The global epidemiology of bacterial vaginosis ,a systemic review Am.J.obstet Gynecol ,2013,209:50 ,

6. McGregor.Joesef M, Schmid L Bacterial vaginosis,Clin Evid 2001:6 1208-15

7. Siddiq NB ,Malik N ,Faruqi JN ,Ali ss,Bacterial vaginosis in pregnant women with history of preterm labor or late miscarriages, Pak.J.obstet Gynecol 2005 13:69

8. Demba E ,Morris L, BMC infection disease (2005) available from URL-http//wwwbiomedcentral.com/1471-2334/5/2012

9. Siddiq NB ,Malik N ,Faruqi JN ,Ali ss,Bacterial vaginosis in pregnant women with history of preterm labor or late miscarriages, Pak.J.obstet Gynecol 2005 13:6

10. Centre of disease controle(CDS) sexually transmitted disease treatment guidline (online) Oct 2002 cited 2005 Dec 12 Availble from http//www.cde.gov/std/treatment.

11. Spiegel CG, Bacterial vaginosis Clin Microbial REV.1991,4-485-502.

12. Fredrick DN,Fiedler TL,Marrazzo JM,molecular identification of bacteria associated bacterial vaginosis,N-England J.Med. 2005 :353 ;1899-1911 (pubmed)

13. Hillier SC,Nugent RP,Eschenbach DA,Krohn MA,Gibbs RS,Martin DH et al association between bacterial vaginosis and preterm delivery of a low birth infant N.England .J Med ;1995:333:1737-42 Pubmed

14. Mahakit P,vicenteJG,Butt DI,Angeli G,Bansal S,Zambrano D.Oral Climdamycin 300mg BID ,compared with oral Amoxicillin/clavulanic acid igm BID in the outpatients. International multicentre randomized control trial-blinded prospective trial in patients.Clin Ther 2006; 28:99-109

15. Paavonen,Mangioni C,Martin MA,WajsZeuk CP, vaginal clindamycin and oral metronidazole for bacterial vaginosis,a randomized trial Obstet Gynecol 2000;96: 256-60

16. Luis Arrendondo J,Higura F,NarcioMC,Casanova G,Bertin M,New alternative in the treatment of Bacterial vaginosis Gynecol Obtet 1994;62:226-34

17. Fishbach F Peterson EE Weissenbacher ER,Efficacy of clindamycin vaginal cream versus oral metronidazole for bacterial vaginosis OBstet Gynecol 1993; 82: 405-10.

18. Andres FJ,Parker R,Hosien I ,Benrubi GI,Clindamycin vaginal cream versus oral metronidazole in the treatment of bacterial vaginosis ,prospective double blind clinical trial.South Med J 2002; 85:1077-80.

and most studies regarding prostaglandin E2 gel (PGE2) induction were on patients with an uncomplicated obstetric history.[9] An article was compiled from ACOG Practice Bulletin in ACOG Midwifery today and Obstet Gynaecol 2001 and it was last updated in Aug 2015 which was about VBAC. It sated that 60 80 % women with history of previous one caesarean section can deliver vaginally with a risk of uterine rupture 0.5 to 1.5% i.e. approximately 1:500. Some studies have documented that there is increase risk of uterine rupture if women with history of previous one caesarean section are induced or augmented but recently ACOG stated that VBAC is safer than repeat Caesarean section but FHR monitoring and maternal monitoring should be a routine part of VBAC procedures, in order to detect maternal and fetal distress at an early stage.[10] The present study was conducted to evaluate the frequency of vaginal birth after induction of labor with vaginal tablet prostin E2 in women with previous one cesarean section.

Methods

This descriptive study was conducted at Department of Obstetrics and Gynaecology of Services Hospital Lahore from January 2015 to June 2015. Total hundred pregnant women with previous one caesarean section were included in the study with singleton pregnancy, cephalic presentation, between 37-41 weeks of gestation, EFW of <3.7 kg and Bishop Score>5. While patients with multiple pregnancies, malpresenation, diabetic macrosmia, EFW > 3.7kg of poor Bishop < 5 were excluded from study. Informed written consent was taken from each patient after explaining pros and cons of induction of labour (IOL) in women with previous one caesarean section. Ethically if women refused for IOL, they were excluded from the study. After detailed history and examination, investigation were sent including baseline like, CBC, Blood group, BSC, HBsAg, Anti HCV, An ultrasound was performed and initial CTG was done before induction of labour. Close one to one monitoring was started for maternal vital signs and FHR monitoring. IOL was planned between 37 41 weeks of gestation with Prostin E2 vaginal tablet. A CTG was done before inserting first dose of prostin E2 vaginal tablet. Bishop's score was calculated before IOL and it was less than 5 . After 6 hours of start of IOL, if there was no response, vital signs, Bishop's score and CTG were repeated. If CTG and other parameters were reassuring, then 2nd dose of Prostin E2 vaginal tablet was inserted. These women were reevaluated in the same manner as mentioned above 6 hours after 2nd dose of prostin E2 vaginal tablet. If Bishop's score was still poor i.e < 4 or there was any abnormality in CTG or vital signs then repeat emergency caesarean section was performed. If pregnant women went into labour after first or second dose of prostin E2 vaginal tablet, labour was closely monitored with careful feto-maternal monitoring.

Results

Out of hundred women with previous one caesarean section, 64% delivered vaginally and 36% by emergency repeat caesarean section. There was one case of uterine rupture two babies were admitted to nursery for monitoring for 1 2 days and then discharged one baby expired i.e the case of uterine rupture and another baby died in nursery due to meconium aspiration syndrome. This data was analyzed using SPSS version 20.0. Mean standard deviation was calculated and frequency and percentage was calculated for quantitative variables.

Table-1: Outcome of induction of labour.

Bishop score	Vaginal=64	Caesarean Section=39
0 - 4	05	10
5 - 6	13	20
7 - 8	39	06
9 ± above	07	-

Table-2: Neonatal outcome.

Mode of Delivery	Frequency	Neonatal outcome
VBAC	64	One baby admitted to nursery
Repeat C Section	36	One baby admitted to nursery
C Section	-	One baby expired (Uterine rupture)

Another bay died on second day of life due to meconium aspiration syndrome

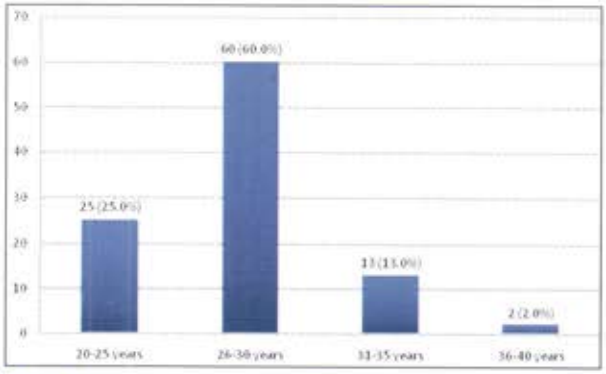


Fig-1: %age of patients according to age group (n=100).

Table-3: Neonatal outcome * induction cross tabulation.

			INDUCTION		
			Single dose prostin	Double dose porstin	Total
Neonatal outcome	Alive n healthy	Count	58	38	96
		% within neonatal outcome	60.4%	39.6%	100.0%
	NNU Discharged	Count	02	0	02
		% within neonatal outcome	100.0%	0.0%	100.0%
	Expired	Count	1	1	2
		% within neonatal outcome	50.0%	50.0%	100.0%
Total		Count	61	39	100
		% within neonatal outcome	61.0%	39.0%	100.0%

Discussion

According to RCOG guideline no. 45 VBAC(Vaginal birth after caesarean section) updated in Oct 2015, VBAC should be offered to majority of women with a singleton, cephalic presentation at 37 weeks or beyond who have had a previous one caesarean section with or without history of previous vaginal birth. Success rate of planned VBAC without history of prior vaginal delivery is 72 75% & success rate of planned VBAC in women with previous one vaginal birth is 85 90%.[10] A study was conducted by Rageth in Switzerland on 29045 deliveries after caesarean section & reported success rate was 73.73%, after inducing labour, with 92 cases of uterine rupture while in our study we induced 100 women with previous one caesarean section with prostin E2 vaginal tablet, successful vaginal delivery was achieved in 64% and there was one case of uterine rupture.[11] In a retrospective cohort study of 1028 consecutive women with previous one cesarean section, 97 underwent induction (study group) while 931 were admitted with spontaneous onset of labour (control group). PGE2 Vaginal tablets were used for cervical ripening in study group. There was no significant difference between study and control group in mean SD (±SD), maternal age (30.9±4.7) versus (31.2±4.8, P=0.06), gestational age at delivery (39. 2±1.8) P value .36, overall rate of caesarean section (36 versus 37.3 P=0.8), rate of low 5 min Apgar score < at 7 (3.1% versus 3.7% P=0.067). There were four cases of uterine rupture, all in (control group) compared to none in study group (non significant).[12]

Many systematic reviews evaluated labour induction in women with caesarean section using different agents with successful VBAC in 50% - 70% of women. Dinoprostone vaginal tablets are the simplest formulation to administer but it may need repeated application. The progressive cervical ripening induced by controlled release of Dinoprostone may become acceptable to patients than the rapid onset of contractions observed with Dinoprostone vaginal tablet.[13] Furthermore two recent prospective studies had evaluated Dinoprostone for labour induction in patients with previous caesarean delivery and demonstrated a comparable successful vaginal delivery rate. On the other hand, Gomez and colleges conducted a retrospective study to compare the efficacy and safely profile between Dinoprostone vaginal pessary and oxytocin for labour induction in 526 patients with prior caesarean section. They revealed no significant difference between the two methods in rate of vaginal delivery between (64.4% for Dinoprostone group ±65.9% and oxytocin group p=0.71).[14] A study was conducted at regional institute of medical sciences India. The use of PGE2 for induction of labour in women with previous one caesarean section was discouraged in past because of High risk of uterine rupture. Total 60 patients were selected in this study, 30 in each group. One group was induced with Foleys catheter and 2nd group induced with oxytocin. Successful vaginal delivery was achieved in 20 women in Foley's group (66.7%) and 18 women delivered in oxytocin group (60%). There were two cases of scar dehiscence in oxytocin group. So IOL can be done in women with previous one caesarean section with high success rate of VBAC1.[15] An 18 years retrospective review was conducted at King Fahad Hospital Saudi Arabia in which 161 women with history of of previous one caesarean section were induced with prostin E2 vagina tablet (study group). While 320 women were induced with prostin E2 vaginal tablet but there was no history of previous Caesarean delivery (control group). When results of the two groups were compared, there was no difference in

rate of vaginal delivery between study group and control group (68.3% vs 73.5%) with p value 0.033 when there was 30 times higher risk of uterine rupture in study group (2.5% vs 0.03%). In our study risk of uterine rupture detected was only 1 %.[16]

Conclusion

We concluded from out study that PGE2 vaginal tablets are safe for induction of labour in women with previous one caesarean section but it should be administered with caution. IOL results in an acceptable rate of vaginal delivery and appears safe for both mother and fetus. An optimal decision for mode of delivery should be shared with pregnant women and all above mentioned factors should be taken into consideration. Risk of uterine rupture in our study was 1% i.e. comparable with IOL with oxytocin. IOL in women with previous one caesarean section should be encouraged in order to decrease the rising rate of caesarean delivery.

Department of Obst & Gyane
Services Hospital Lahore
www.esculapio.pk

References

1. Simpson KR, Newman G, Chirino OR. Patient education to reduce elective labor inductions. MCN Am J Matern Child Nurs. 2010; 35(4):188-94.
2. Martin JA, Hamilton BE, Ventura SJ. Births: final data for 2009. Natl Vital Stat Rep. 2011;60:1.
3. Murthy K, Grobman WA, Lee TA, Holl JL. Trends in induction of labor at early term gestation. Am J Obstet Gynecol. 2011; 204:435-e1.
4. Simpson KR. Reconsideration of the costs of convenience: Quality, operational and fiscal strategies to minimize elective labour induction. J Perinat Neonatal Nurs. 2010; 24(1):43-52.
5. Harper LM, Cahill AG, Boslaugh S, Odibo AO, Stamilio DM, Rochl KA, et al. Association of induction of labor and uterine rupture in women attempting vaginal birth after cesarean: a survival analysis. Am J Obstet Gynecol. 2012; 206:51.e1-5.
6. Kelly AJ, Malik S, Smith L, Kavanagh J, Thomas J. Vaginal prostaglandin (PGE2 and PGF2a) for induction of labour at term. Cochrane Database Syst Rev. 2009; 4:CD003246.
7. Malik SN, Usmani AT, Sial SS. Postpartum blood loss after induction of labour with prostaglandin E2 tablets. J Rawal Med Coll. 2011; 15(2)107-9.
8. Geetha P. Induction of labor with prostaglandin E2 vaginal gel in women with one previous cesarean section. Middle East Fertil Soc J. 2012; 17:170-75.
9. Ziyauddin F, Hakim S, Beriwal S. The transcervical foley catheter versus the vaginal prostaglandin E2 gel in the induction of labor in a previous one cesarean section: A clinical study. J Clin Diagn Res. 2013; 7:140-43.
10. ACOG practice bulletin no. 155, vaginal birth after previous caesarean birth: Aug 2010: 4-14.
11. Rageth JC, Roman H. Trial of labor after previous cesarean delivery: review of literature. J Gynecol Ob- stet Biol Reprod. 2006; 35:35-45.
12. Yogev Y, Ben-Haroush A, Lahav E, Horowitz E, Hod M, Kaplan B. Induction of labor with prostaglandin E2 in women with previous cesarean section and unfavorable cervix. Eur J Obstet Gynecol Reprod Biol. 2004; 116(2):173-6.
13. Westgate J, Williams JA. Evaluation of a controlled release vaginal pro-staglandin E2 pessary with retrieval system for the induction of labor. J Obstet Gynecol. 1994; 14:146-150.
14. Wing DA. Cervical Ripening with induction of labour in women with previous caesarean delivery. Wolta- rs Kluwer 2015 Sept 2015: 23 - 30.
15. Meetei LT, Surni V, Aggarwal N. induction of labour in patients with previous caesarean section with unfavourable cervix. J med SOC. 2014 June 24; 28(1):1 - 10.
16. N Qahtani S, Borshaid and H. Enezi, "Induction of labour with PGE2 after one previous caesarean section": 18 years experience in a university hospital; International Journal of Clinical medicine, Vol.2 No. 1, 2011 (2 - 17).

Original Article

FREQUENCY OF DYSLIPIDEMIA IN NORMOTERSIVE NON DIABETIC OBESE PATIENTS

Fatima Hamdani, Tahir Bashir, Muhammad Ashraf and Sajid Nisar

Objective: To determine the frequency of dyslipidemia in normotensive, non diabetic obese patients.

Methods: It was a cross sectional study including admitted patients and patients visiting outdoor. After obtaining informed consent, demographic information such as name, age, gender was collected .This study included 200 normotensive, non diabetic obese patients. Serum lipid profile was checked in all patients. The frequency and pattern of dyslipidemia was assessed which was described in frequency distribution tables.

Results: The mean total Cholesterol, mean LDL C, HDL and Triglyceride levels were 211.59 ± 42.39 mg/dL, 131.39 ±17.21mg/dL, 36.46±7.93 mg/dL and 164.69 ± 11.80 mg/dL, respectively. The dyslipidemias were found in 87 (43.5%) patients.

Conclusion: The frequency of dyslipidemias is high among normotensive non diabetic obese patients. So, every patient with obesity should be screened with lipid profile. .

Keywords: Dyslipidemia, cholesterol level, LDL C level, HDL level, TG level, normotensive, non diabetic, obese.

Introduction

The Obesity is a medical condition in which excess body fat accumulates to the extent that it may have an adverse effect on health, leading to reduced life expectancy and it is a complex , multi-factorial chronic disease. 1 Abdominal fat deposition has emerged as strong risk factor for cardiovascular diseases (CVD) and is measured in terms of Waist-Hip Circumference.[2,3]

Obesity has turned into a worldwide epidemic. In the last decades the number of obese patients has increased considerably. It is especially alarming that in recent years the increase was most pronounced in children and that it occurs both in developed, but perhaps even more, in developing countries.[4] Visceral obesity leads to insulin resistance in part mediated by adipokines and free fatty acids (FFA. Dyslipidemia is one of the major risk factors for CVD.[5] Asian populations have a greater percentage of body fat at lower BMIs compared to Western populations.[7] There is recent evidence that the current BMI and waist circumference cutoffs used in the World Health Organization's definitions of overweight and obesity that were developed using Western populations may need to be lowered for Asian populations.[7] It is therefore important to assess the relationship between obesity and dyslipidaemia as both are independent risk factor for the CVD.Obesity and dyslipidemia are often overlooked and under treated. Since these are independent risk factors for cardiovascular events, and therefore health care professionals should consider obesity and dyslipidemia in order to enhance assessment of cardiovascular risks and mortality.[13] Traditionally, diabetic and hypertensive patients are screen for dyslipidemias. Most of the time non-diabetic and normotensive patient do not get screened often as their disease is considered less life threatening. Local literature has shown that in 48% obese persons have serum cholesterol level more than 200mg/dl and 50% have HDL less than 48 mg/dl.[2]

We would like to determine the frequency of dyslipidemias in non-diabetic and normotensive obese subjects in this study. As limited local literature is available about this (one local study conducted in 1997), this risk factor for cardiovascular disease and Asian population is showing increased trend towards obesity due to life style and eating. We want to see recent changes in relation between obesity and dyslipidemia so that by early detection and management of this independent risk factor, it is hoped we may be able to contribute towards minimizing the cardiovascular mortality and morbidity.

Methods

It was a cross sectional study conducted on obese patients visiting indoor and out door of department of Medicine. 200 normotensive, non diabetic obese subjects were included in this study. Both male and

female subjects between 30 and 70 years, BMI >30 and subjects presenting with complaints like walking difficulty, joint pains or somnolence and normotensive patients included. Patients with advanced renal, hepatic and cardiac disease daignosed on urine analysis, renal function tests, liver function tests and complete blood counts were excluded. Two hundred consecutive non diabetics, normotensive patients of both genders presenting to medical out patient clinics and wards at Fatima Memorial Hospital Lahore were offered enrollment in the study. After obtaining informed consent, demographic information such as name, age, gender was collected. . All subjects in the study sample were checked for fasting cholesterol, triglycerides, low density lipoproteins and high density lipoproteins specifically to determine frequency of dyslipidemia as per operational definitions. Lipid levels were measured by automated analyzer. All this information was collected through a specially designed Performa.

Results

There were total 200 patients included in the study. The mean age of the patients in the study was 53.35 ± 14.72 years. There were 24 (12%) patients of age range of 30 - 40 years, 53 (26.5%) patient of age range of 41 - 50 years, 65 (32.5%) patients of age range of 51 60 years and 58 (29%) of the patient of age range of 61 70 years. **Table- 1**

Out of 200 patients included in study, 99 patients (49.5%) were male and 101(50.5%) patients were female. The female to male ratio was1 :1.02 **Fig-1**. It was observed that there were 84 (43.5%) patient in Whom the dyslipidemias were present, while in 116 (56.5%) patients there was no abnormality in lipid profile was observed. **Fig 2.**

In group of patients with BMI 30-35, the mean cholesterol level was 209.38±22.39 mg/dL. as compared to 214.41±25.75 mg/dL in group BMI 35, ($p > 0.1$). In group of patients with BMI 30-35, the mean LDLC level was 135.47±14.31 as compared to 138.71±11.29 mg/dL in group BMI 35, ($p > 0.1$). In group of patients with BMI 30-35, the mean HDL level was 35.41±6.97 mg/dL as compared to 32.63± 4.79mg/dL in group BMI 35, ($p > 0.1$).

Table-1: Distribution of patients by age (n=200).

Age (Years)	No. Of Patients	Percentage
30 - 40	24	12
41 - 50	53	26.5
51 - 60	65	32.5
61 - 70	58	20
Mean±SD	53.35±14.72	
Range	30 - 70	

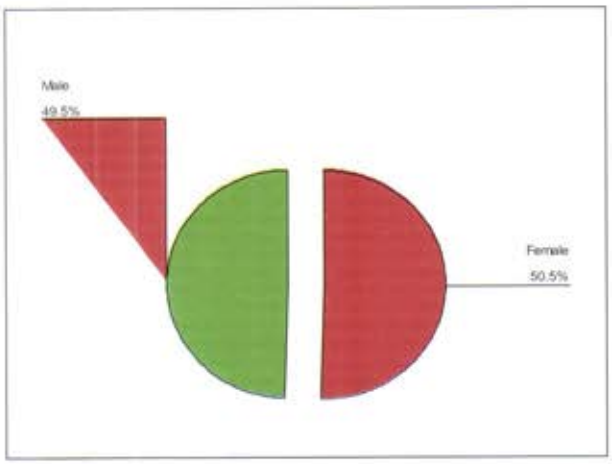


Fig-1: Distribution of patients by sex (n=200).

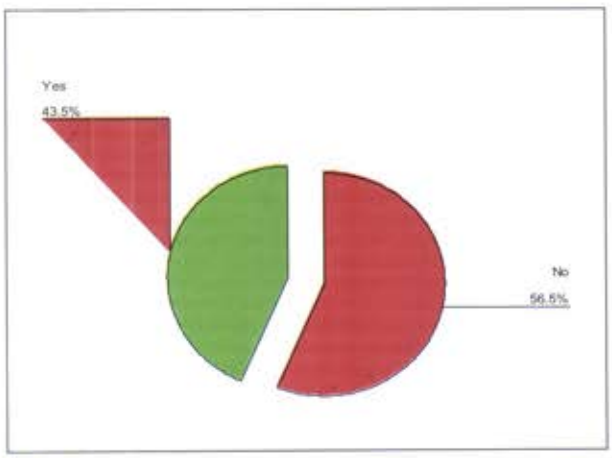


Fig-2: Distribution of patients by presence of dyslipidemia. (N= 200)

Table-2: Distribution by relationship of serum lipids Values with BMI (N= 200)

BMI (mg/dL)	Total (mg/dL)	LDL-C (mg/dL)	HDL (mg/dL)	TG (mg/dL)
30 - 35	209.38±22.39	135.47±14.31	35.41±6.97	156.59±10.78
> 35	214.41±25.75	138.7±11.29	32.63±4.79	161.39±11.79
P - value	0.341	0.974	0.698	0.031

In group of patients with BMI 30-35, the mean triglyceride level was 156.59±10.78mg/dL as compared to 161.39± 11.79 mg/dL in group BMI 35, ($p < 0.1$) **Table 2**.

Discussion

In this study, we studied 200 normotensive non diabetic obese patients to see the presence of pattern of lipid profile and frequency of dyslipidemias. This study was conducted in a tertiary care unit of Pakistan. The results of this study showed that the serum lipid profiles in normotensive and non diabetic patients were not uniform and the dyslipidemia were diagnosed among 43.5% patients. In literature, there are only few studies which have studied the lipid profiles among normotensive and non diabetic patients. The mean age of the patients in our study was 53.35±14.72 years. The majority of patients (61.5%) patients were of age more than 50 years. In a study by Shah SZA, et al, the mean age of the patients was 54.21±9.0 years and 44% patients were of age more than 50 years. In our study, the male and female patients were found to be in almost equal frequency i.e. 49.5% were male and 50.5% were male. The male to female ratio was 1:1.02. In study of 200 patients by Shah SZA, the male were also dominant with a male to female ratio of 1:1.59. This reflects that obesity can be present in variable frequency in different study populations. There was observed an overall increase in lipid profiles in our study and a decrease level of HDL was also seen. An increased values of serum lipid profile including triglyceride, LDL, and serum cholesterol levels have been observed by Shah SZA, et al. Overall, there was an increase in levels of lipids associated with obesity. Our study showed that approximately 43.5% patients suffered from obesity. This showed that almost half of the patients suffered from obesity.The mean triglyceride level in our study was 164.69± 11.80 mg/dL, which was higher than nomal. A difference of approximately 100 mg/dL was found to occur between normal-weight and obese men, with a difference of approximately 60 mg/ dL in women.[8,9] These cross-sectional data are supported by longitudinal data from the Coronary Artery Risk Development in Young Adults (CARDIA) Study, which also show that increasing weight is accompanied by increases in plasma Triglycerides.[8,9]The mean HDL level was 36.46±7.93 mg/dL, which was lower than normal. Obesity also seems to be associated with decreases in high-density lipoprotein (HDL) cholesterol. NHANES II data for white men and women show decreases in HDL with increasing BMI for people of all ages.[8,9] A difference of approximately 10 mg/dL in HDL has been found to occur between normal-weight and obese men, and even greater decreases in HDL have been found with obesity in women.[8,9,10]

The mean LDL-C level 131.39 ± 7.21 mg/dL, which was not greatly different from normal value. NHANES II data show that in young (ages 2044years) white men, a significant increase occurs in LDL concentration with increasing BMI. Obese young men had LDL concentrations approximately 30 mg/dL higher than those of normal-weight men. 8 In middle-aged and older men, however, only minimal differences occurred in LDL cholesterol between BMIs in the range of 21.1 kg/m2 or less to more than 30 kg/m2.[8]

Some longitudinal data show that increases in weight are accompanied by increases in LDL cholesterol.[9] In one study, a 1-U increase in BMI caused a 5.5-mg/dL increase in LDL cholesterol.[12] The patients were also grouped into two groups based on BMI, i.e. 30-35 and > 35. Statistically, no significant difference difference in serum cholesterol, triglyceride levels and HDL levels was found. But the patients in BMI group > 35 showed the mean values on higher side. Statistically significant difference was noticed in patients with triglyceride levels.

The combination of high triglyceride concentrations, low HDL levels, and small dense LDL particles is a metabolically interrelated dyslipidemia that has been associated with insulin resistance.[12] Thus, the obesity associated pattern of dyslipidemia as described previously, particularly in those with central adiposity, probably is related to insulin resistance in obese people, especially those with central adiposity.

This study has certain limitations. Although, this was done in a sample size of 200 patients, this was not a representative of the entire population of Pakistan. However, it provided us the opportunity to see the prevalence of dyslipidemia in obese patients. The results of this study highlight the presence of dyslipidemia among obese patients but how much non obese patients are affected with dyslipidemia is not known for our population. There is need for further studies to determine the frequency of dyslipidemias in non obese patients and compare the two.

Conclusion

A disturbance in serum lipid profiles is observed in majority of normotensive, non diabetic obese

patients. Serum cholesterol level, HDL and TG levels are most commonly affected. A minimum disturbance in LDL-C level is observed. The frequency of dyslipidemia was found high among normotensive, non diabetic obese patients. So, it is suggested that, every normotensive non diabetic patient should be screened for serum lipid profile to detect the possibility of dyslipidemias.

Department of Medicine
Services Hospital, Lahore
www.esculapio.pk

References

1. Rankinen TA, Zuberi.YC, Chagnon SJ, Weisnagel G, Argyropoulos B, Walts L. The Human Obesity Gene Map: the 2005 update. Obesity 2006;14:529-534.
2. Ardern CI, Katzmarzyk PT, Janssen I, Ross R. Discrimination of health risk by combined body mass index and waist circumference. Obes Res 2003;11:135-142.
3. Vrdoljjak D, Bergman Markovic B, Kranjcevic k. How well do anthropometric indices correlate with cardiovascular risk factors? Med Sci Mont 2012;18:6-11.
4. Knight JA. Diseases and disorders associated with excess body weight. Ann Clin Lab Sci 2011;41:107-121.
5. National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) final report. Circulation 2002;106:3143-3421.
6. Sadeghi M, Roohafza HR. Serum lipid distribution and prevalence of Dyslipidemia in urban and rural communities in Isphan, Iran. Pakistan J Cardio 2004;15:88-94.
7. Shah SZA, Devrajani BR, Devrajani T. Frequency of dyslipidemia in obese versus non obese in relation to BMI,WHR,WC. PAK J SCI 2020;62.
8. Denke MA, Sempos CT, Grundy SM. Excess body weight. An under-recognized contributor to high blood cholesterol levels in white American men. Arch Intern Med 1993;153:1093-1103.
9. Denke MA, Sempos CT, Grundy SM. Excess body weight. An under-recognized contributor to dyslipidemia in white American women. Arch Intern Med 1994;154:401-410.
10. Anderson KM, Wilson PW, Garrison RJ, Castelli WP. Longitudinal and secular trends in lipoprotein cholesterol measurements in a general population sample. The Framingham Offspring Study. Atherosclerosis 1987;68:59-66.
11. Williams PT, Krauss RM. Associations of age, adiposity, menopause, and alcohol intake with low-density lipoprotein subclasses. Arterioscler Thromb Vasc Biol 1997;17:1082-1090.cartilage. 2004; 12: 20-30.
12. Howard BV. Insulin actions in vivo: insulin and lipoprotein metabolism. In: Alberti KGMM, DeFronzo RA, Keen H, editors. International textbook of diabetes mellitus. 2nd edition. West Sussex, UK: John Wiley & Sons 1995;531-539.

Original Article

Intravenous Lidocaine Versus Normal Saline in Patients Undergoing Laparoscopic Surgery; A Comparison of Mean Consumption of Postoperative Analgesia Requirement

Mohammad Saqib, Jodat Saleem, Afshan Nisar and Khalid Bashir

Objective: To compare the mean postoperative opioid consumption in patients with and without use of perioperative intravenous lidocaine undergoing laparoscopic surgery

Methods: This Randomized controlled trial was conducted in Department of Anesthesiology, Lahore General Hospital. A total of 100 cases undergoing laparoscopic surgery were included through Non-probability, Purposive sampling.Informed consent and demographic information were obtained. Patients were randomly divided in two equal groups by using lottery method. In group A, patients were given intravenous 1.5mg/kg bolus of lidocaine followed by 2mg/kg/hr infusion of lidocaine till end of procedure and in group B, normal saline was given in same volume to the patients. All surgeries were performed by the same surgical team and most of the procedures were completed within 60 mins. The infusion was continued for one hour to those patients whose surgery was completed earlier than an hour. Postoperative opioid consumption was noted till 24 hours. All the information was recorded on a proforma. Data was entered and analyzed through SPSS 16. Both groups were compared for mean consumption of postoperative opioid by using t-test taking P-value<0.05 as significant.

Results: In this study, the mean age of patients was 49.34±10.30 years. Out of 100 patients, there were 20 (20%) male and 80 (80%) females.In lidocaine group, the total mean opioid consumption during 24 hours after surgery was 81.80±17.01mg whereas with Normal Saline was 89.35±17.74mg. There was significant difference found between both groups (p-value=0.032) for total opioid consumption where patients in lidocaine group has less consumption of opioids.

Conclusion: It was concluded from results of the study that total opioid consumption is less whenlidocaine infusion was used during surgery.

Keywords: intravenous Lidocaine, Postoperative Opioid consumption, post-operative Pain, Analgesia.

Introduction

Effective pain control is an essential component of the care bundles of the postsurgical patients. Inadequate pain relief apart from being inhumanecan lead to increased morbidity or mortality. [1] Management of postoperative pain relieves suffering and leads to early mobilization, early discharge, reduced hospital costs, and increased patient satisfaction. Pain control regimens should not be standardized; rather they should be tailored according to the needs of the individual patient. While using different regimen for postoperative pain relief the age, medical, physical & psychological condition and type of surgical procedure should be kept in mind. The major goal in the management of postoperative pain is to minimize the dose of analgesicsand hence to reduce the side effects. This goal is best accomplished with multimodal and preemptive analgesia.[2,3] An alternative approach to improve postoperative recovery is toadminister intravenous lidocaine infusion. Lidocaine has analgesic, anti-hyperalgesic and anti-inflammatory properties and italso enhances the return of bowel function after surgery. This study demonstrated that perioperative IV infusion of lidocaine improved quality of postoperative analgesia, reduced postoperative opioid requirements, shortens the duration of hospital stay and facilitated the rehabilitation phase in patients undergoing laparoscopic abdominal surgery.[4] One study conducted on 63 patients reported that patients in the lidocaine group required less opioids, 6.2±1.43mm as compared to normal saline group 8.6±2.48mm. They concluded that perioperative systemic lidocaine has beneficial postoperative analgesic effects in patients undergoing outpatient laparoscopic surgery.[5] Another study conducted on 64 patients, reported that Lidocaine had no effect on opioidconsumption.[6] Rationale of this study was to mean consumption of postoperative analgesia by

using intravenous lidocaine in the perioperative period versus normal saline in patients undergoing laparoscopic surgery. In the literature there is controversy regarding the beneficial use of perioperative IV infusion of lidocaine in patients undergoing laparoscopic surgery. The previous studies were done on small sample size but we took a large sample size to get more precise results. Through this study, we intended to confirm, that the use of perioperativelidocaine infusion could prove beneficial on laparoscopic surgeries. In addition we may also be able to develop a new way of cutting down the consumption of opioid and hence avoid their side effects and prove cost effectiveness by early discharge of the patients.

Methods

The study design is randomized controlled trial in Department of Anesthesiology,Lahore General Hospital / PGMI, Lahore. Sample size of 100 cases; 50 cases in each group, was calculated with 95% confidence level, 80% power of test and taking magnitude of mean consumption of postoperative analgesia i.e. 6.2±1.43 with perioperative I/V lidocaine and 8.6±2.48 with normal saline in patients undergoing laparoscopic surgery. Sampling technique is Non-probability, Purposive sampling.

Inclusion Criteria:

Patients of age range 20-60years undergoing laparoscopic cholecystectomy

ASAI, II

Weight of the patient from 50 to 90 kg

Exclusion Criteria:

Patients with history of allergy to local anesthetics or use of an opioid analgesic or corticosteroids.

Pregnant females.

Data Collection Procedure:

He After taking approval from hospital ethical committee, 100 patients fulfilling the inclusion and exclusion criteria were admitted from outpatient department of Lahore General Hospital, Lahore. Informed consent was obtained and patient demographic information (name, age, contact) was recorded. Patients were randomly divided in two equal groups by using lottery method. All subjects were premedicated with midazolam 0.04 mg/kg before induction. Propofol 1.5 to 2.5 mg/kg was administered for induction of anaesthesia and atracurium 0.5 mg/kg IV for neuromuscular blockade. Anaesthesia maintenance was achieved through isoflorane titrated to maintain MAC around 1. In group A, patients were given intravenous 1.5mg/kg bolus of lidocaine followed by 2mg/kg/hr infusion of lidocaine till end of procedure and in group B, normal saline was given in same volume to the patients. All patients were evaluated hourly after surgery by researcher himself. In PACU, subjects were asked to rate their pain at rest on arrival and at regular intervals on a 0 to 10 pain numeric rating scale (NRS) , where 0 means no pain and 10 was the worst pain imaginable .Postoperative opioid i.e. nalbuphine 2mg bolous was administered for pain > 4 on pain numeric rating scale (NRS) until it was less than 4. It was measured in milligrams of postoperative nalbuphine required during first 24 hours of surgery. All this information was recorded on proforma.

Data Analysis:

Data was entered and analyzed through SPSS 16. Quantitative variables like age and total consumption of postoperative opioid was calculated as mean±SD. Gender was also presented as frequency and percentage. Both groups were compared for mean consumption of postoperative opioid by using t-test. P-value<0.05 was considered as significant.

Results

In this study we included 100 patients undergoing laparoscopic surgery with the mean age of 49.34±10.30 years. The minimum and maximum ages of the patients were recorded as 28 and 67 years respectively (age range = 39 years). **Table 1**

The mean age of the patients randomized to

Table-1: Descriptive Statistics of age of the patients.

	Age (Years)
N	100
Mean	49.34
SD	10.30
Minimum	28
Maximum	67
Range	39

Table-2: Descriptive Statistics of age of patients with respect to study groups.

Age (Years)		Age (Years) Lidocaine	Normal Saline
	N	50	50
	Mean	53.14	45.54
	SD	10.04	9.18

Table-3: Descriptive Statistics of total consumption of patients with respect to study groups at different follow-up times

Opioid Consumption at	Group Lidocaine (n=50)	Normal Saline (n=50)	T-test	P-value	Significance
Hour 1	13.56±4.84	9.88±2.19	4.900	0.000	Significant
Hour 4	14.28±4.68	14.80±5.16	0.528	0.599	Insignificant
Hour 6	12.96±3.77	13.68±3.99	0.927	0.356	Insignificant
Hour 8	10.12±3.01	11.34±4.51	1.591	0.115	Insignificant
Hour 10	8.44±2.85	12.04±2.87	6.291	0.000	Significant
Hour 12	8.64±2.90	10.56±2.71	3.421	0.001	Significant
Hour 18	7.56±3.29	8.60±2.37	1.815	0.073	Insignificant
Hour 24	5.36±2.27	7.92±1.94	6.074	0.000	Significant

Lidocaine was 53.14±10.04 years whereas the mean age of patients randomized to Normal saline was 45.54±9.18 years. **Table 2**

Out of 100 patients, there were 20 (20%) male and 80 (80%) females. The male to female ratio was noted as 1:4. **Figure 1**

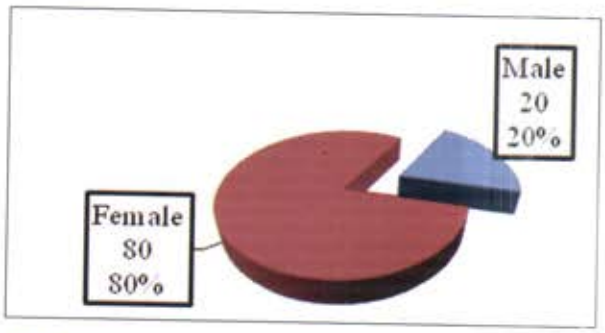


Fig-1: Distribution of Gender of Patients.

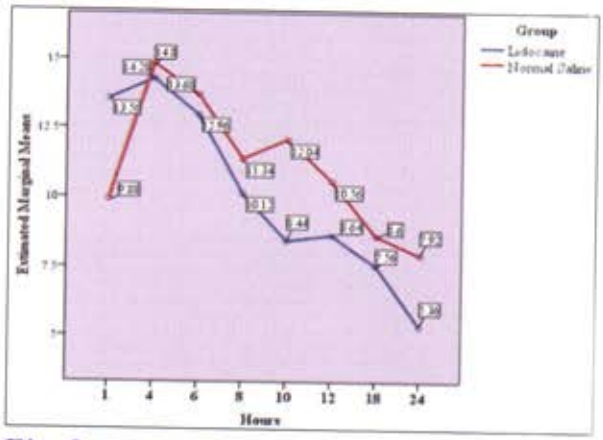


Fig-2: Descriptive Statistics of opioid consumption at different follow-ups with respect to Study Group.

Opioid consumption, during 1st hour was 13.56±4.8mg with Lidocaine and 9.88±2.19mg with normal saline. During 4th, 6th and 8th hour, the mean consumption was 14.28±4.68mg, 12.96±3.77mg and 10.12±3.01mg with lidocaine and 14.80±5.16mg, 13.68±3.99mg and 11.34±4.51mg with normal saline. During 10th, 12th and 18 hour, the mean consumption was 8.44±2.85mg, 8.64±2.90mg and 7.56±3.29mg with lidocaine and 12.04±2.87mg, 10.56±2.71mg and 8.60±2.37mg with normal saline. At 24th hour, the mean consumption was 5.36±2.27mg with lidocaine and 7.92±1.94mg with normal saline. **Table 3** The figure below shows the pattern of opioid consumption between both groups. There was significant difference observed for opioid consumption between both groups and normal saline showed more consumption of opioids as compared to lidocaine group. **Figure 1** In lidocaine group, the total mean opioid consumption during 24 hours after surgery was 81.80±17.01mg whereas with Normal Saline was 89.35±17.74mg. There was significant difference found between both groups (p-value=0.032) for total opioid consumption where patients in lidocaine group has less consumption of opioids. **Table 4**

Table-4: Comparison of total consumption of patients with respect to study groups.

Total opioid consumption	Study Group Lidocaine	Normal Saline
N	50	50
Mean	81.80	89.35
SD	17.01	17.74

t-test = 2.175 / p-value = 0.032 (Significant)

	F	Sig.
Lidecaine - Normal Saline	2.450E3	0.000

Discussion

We conducted this randomized trial with patients undergoing laparoscopic surgeries and calculated total consumption of opioids after 24 hours.With lidocaine, the total mean opioid consumption was 81.80±17.01mg whereas with Normal Saline was it was 89.35±17.74mg. There was significant difference found between both groups (p-value=0.032) for total opioid consumption where patients in lidocaine group has less consumption of opioids. KoppertW and his associates in their study also reported that total consumption of analgesic was 103.1±72.0mg with lidocaine and 159.0±73.3mg with placebo / normal saline. This was significant difference which was observed between both these groups after 72 hours. While after 24 hours total consumption with lidocaine was 54mg while with placebo was 74mg (p-value<0.05). The authors concluded after completion of study that IV lidocaine may have a true preventive analgesic activity, most likely by preventing the induction of central hyperalgesia in a clinically relevant manner.[6]

Kim TH and his collegues also agree with our hypothesis and reported that total analgesia consumption after 24 hours of procedure with lidocaine was 0.54g while with placebo, it was 0.95g and total analgesia consumption hours of procedure with lidocaine was 2.5g while with placebo, it was 3.5g after 48. This was also significantly higher consumption of analgesic in placebo group as compared to lidocaine. The authors concluded that Lidocaine administration in laparoscopy settings reduces postoperative pain when given intravenously and it was recommended that intravenous administration of lidocaine is not only effective, but is also a safe procedure and it can be a better alternative for reducing the pain of patients who are undergoing laparoscopic surgery.[7] A randomized trial conducted by De Oliveira et al., also reported that subjects in the lidocaine group required less oral opioids, median difference of -10 (95% CI, 0 to -30) (oral milligrams morphine equivalents), than the saline group (P = 0.01).[8] The study by McKay et al., involved a variety of ambulatory procedures. Lidocaine was given as an initial IV bolus dose of 1.5 mg/kg after induction of anaesthesia followed by an infusion of 2 mg/kg/hour until 1 hour after arrival in the PACU. In patients receiving lidocaine a 50% reduction in morphine requirement was demonstrated in the PACU, but no difference in opioid consumption was found after discharge from the PACU.[9]

The benefit of a continuous small-dose lidocaine infusion during surgery was confirmed by Groudineet al. Their study was targeted to reach an early hospital discharge in patients undergoing radical retropubic prostatectomy. All patients received ketorolac as standard pain medication, and morphine was additionally applied for breakthrough pain and for those patients not receiving ketorolac. They found that perioperative administration of lidocaine resulted in a faster return of bowel function and less overall pain, which resulted in a shorter hospital stay (4 ± 0.7 days versus 5.1 ± 2.9 days; $P < 0.05$).[10]

But in a randomized controlled trial, conducted by Wuethrich et al., found that Lidocaine had no effect on readiness for discharge, opioid consumption, postoperative sedation, PONV, return of bowel function and plasma concentrations of C-reactive protein, procalcitonin and cortisol. Thus they concluded that Systemic perioperative lidocaine administration over 24h did not influence the length of the hospital stay, readiness for discharge, opioid consumption, return of bowel function or inflammatory and stress responses after laparoscopic renal surgery.[11]

Researchers have noted that the analgesic effects of intravenous lidocaine were readily observed despite the postoperative administration of paracetamol and a non-steroidal anti-inflammatory drugs, each of which reduces postoperative opioid consumption and pain scores during mobilization.[12,13,14] The analgesic effect of lidocaine might thus have been even greater in the absence of these nonopioid analgesics. Postoperative fatigue was significantly reduced, not only during the lidocaine infusion, but also after its interruption. The improved postoperative analgesia and the reduced opioid consumption may have contributed to this beneficial action.[4,15]

Conclusion

It was concluded from results of this study that total opioid consumption is reduced with infusion of IV lidocaine intraoperatively and can help in recovery from surgery. Thus we have proved that infusion of of lidocaine can be beneficial and now we can implement a new way to manage the patients without much consumption of opioid.

Department of Anesthesiology,
General Hospital, Lahore.
www.esculapio.pk

References

1 Ferrell BA, Ferrell BR, Rivera L. Pain in cognitively impaired nursing home patients. J Pain Symp Manag. 1995;10(8):591-8.

2. Mariano ER, Afra R, Loland VJ, Sandhu NS, Bellars RH, Bishop ML, et al. Continuous interscalene brachial plexus block via an ultrasound-guided posterior approach: a randomized, triple-masked, placebo-controlled study. Anesth Analg. 2009;108(5):1688.

3. Singelyn FJ, Gouverneur J-MA. Postoperative analgesia after total hip arthroplasty: iv PCA with morphine, patient-controlled epidural analgesia, or continuous "3-in-1" block?: a prospective evaluation by our acute pain service in more than 1,300 patients. J Clin Anesth. 1999;11(7):550-4.

4. Kaba A, Laurent SR, Detroz BJ, Sessler DI, Durieux ME, Lamy ML, et al. Intravenous lidocaine infusion facilitates acute rehabilitation after laparoscopic colectomy. Anesthesiology. 2007;106(1):11-8.

5. De Oliveira Jr GS, Fitzgerald P, Streicher LF, Marcus R-J, McCarthy RJ. Systemic lidocaine to improve postoperative quality of recovery after ambulatory laparoscopic surgery. Anesth Analg. 2012;115(2):262-7.

6. Koppert W, Weigand M, Neumann F, Sittl R, Schuettler J, Schmelz M, et al. Perioperative intravenous lidocaine has preventive effects on postoperative pain and morphine consumption after major abdominal surgery. Anesth Analg. 2004;98(4):1050-5.

7. Kim TH, Kang H, Hong JH, Park JS, Baek CW, Kim JY, et al. Intraperitoneal and intravenous lidocaine for effective pain relief after laparoscopic appendectomy: a prospective, randomized, double-blind, placebo-controlled study. Surg Endosc. 2011;25(10):3183-90.

8. De Oliveira Jr GS, Fitzgerald P, Streicher LF, Marcus R-J, McCarthy RJ. Systemic lidocaine to improve postoperative quality of recovery after ambulatory laparoscopic surgery. Anesthesia & Analgesia. 2012;115(2):262-7.

9. McKay A, Gottschalk A, Ploppa A, Durieux ME, Groves DS. Systemic lidocaine decreased the perioperative opioid analgesic requirements but failed to reduce discharge time after ambulatory surgery. Anesth Analg. 2009;109(6):1805-8.

10. Groudine SB, Fisher HA, Kaufman RPJ, et al. Intravenous lidocaine speeds the return of bowel function, decreases postoperative pain, and shortens hospital stay in patients undergoing radical retropubic prostatectomy. AnesthAnalg 1998; 86: 2359.

11. Wuethrich PY, Romero J, Burkhard FC, Curatolo M. No benefit from perioperative intravenous lidocaine in laparoscopic renal surgery: a randomised, placebo-controlled study. Eur J Anaesthesiol. 2012;29(11):537-43.

12. Gray A, Kehlet H, Bonnet F, Rawal N. Predicting postoperative analgesia outcomes: NNT league tables or procedure-specific evidence? Br J Anaesth. 2005;94(6):710-4.

13. Marret E, Kurdi O, Zufferey P, Bonnet F. Effects of nonsteroidal antiinflammatory drugs on patient-controlled analgesia morphine side effects: meta-analysis of randomized controlled trials. Anesthesiology. 2005;102(6):1249-60.

14. Remy C, Marret E, Bonnet F. Effects of acetaminophen on morphine side-effects and consumption after major surgery: meta-analysis of randomized controlled trials. Br J Anaesth. 2005;94(4):505-13.

15. Kling MA, Gardner DL, Calogero AE, Coppola R, Trettau J, Kellner CH, et al. Effects of local anesthetics on experiential, physiologic and endocrine measures in healthy humans and on rat hypothalamic corticotropin-releasing hormone release in vitro: clinical and psychobiologic implications. J Pharmacol Experiment Therap. 1994;268(3):1548-64.cartilage. 2004; 12: 20-30.

Original Article

Comparison of Desarda & Lichtenstein Repair for the Treatment of Inguinal Hernia

Imdad Ahmad Zahid, Nauyan Ali, Zeeshan Ahmad, Bilal Ahmad and Javed Raza Gardezi

Objective: To compare the outcomes of Desrada repair and Lichtenstein mesh repair of inguinal hernia with respect to operative time, Post operative pain, hematoma and seroma formation, surgical site infection, early and late recurrence and chronic pain.

Methods: 100 patients were admitted through out patient department and devided into Group D (Desarda repair) and Group L (Lichtenstein repair) with 50 patients in each group. Same surgical team performed the procedure. Early out measures were recorded while patients were admitted in the ward and OPD follow up. Late outcome measures were recorded by telephonic follow up.

Results: Mean Operative time was calculated to be 57.84±13.07 min in Group D and 60.52 ± 14.62 min in Group L with a p-value of 0.3362 which is insignificant. No significant difference was found in Post operative pain in both groups having mean score of 2.11± 0.73 in Group D and 2.10 ± 0.73 in Group L with a p-value of 0.9458. One patient (2%) developed hematoma in Group D and two patients (4%) in Group L suffered from surgical site infection. Seroam formation, early or late recurrence was not reported in any case. 4 patients (8%) complaint of chronic pain in Group L.

Conclusion: This study showed that the desarda repair is comparable to Lichtenstein repair for inguinal hernia in respect of post operative outcomes. Desarda repair is an effective method to replace the use of mesh for the repatr of inguinal hernia. This new repair has the potential to become the gold standard of hernia repair in years to come.

Keywords: Desarda, Inguinal Hrnia, Lichtenstein

Introduction

Inguinal hernia repair is one of the cornerstones of a General surgery practice and is one of the most commonly performed procedures. Inguinal hernia repair has been evolving for the past 130 years and the pace of evolution accelerated in the last decade with the introduction of the Tension-free repair. In Pakistan, open anterior approach of inguinal hernia repair is widely used because it is easy to perform, less time consuming and the early results of Lichtenstein repair are encouraging with regards of safety and effectiveness.[1] Foreign body reaction, infection, chronic pain, fistula formation, mesh migration, shrinkage, and recurrence are the main drawback of the Lichtenstein procedure of inguinal hernia repair.

M.P. Desarda described a new physiologic non-mesh[2,3] technique of hernia repair in which the posterior wall of the inguinal canal is strengthened with an undetached strip of the external oblique aponeurosis (EOA) to give physiologically active and strong posterior wall. This repair is done by simple tissue based method which is easy to perform, require less dissection, shorter operative time and superior and recurrence-free as compared to the Basssini and Shouldice procedures of physiological hernia repairs.[2,4] Postoperative outcome of both Desarda and tension-free repair (Lichtenstein's hernia repair) are similar and comparable.[4,5,6]

In this study we will compare the two techniques (Desarda's repair & Lichtenstein repair) for the treatment of inguinal hernia in respect of post op outcomes.

Method

After approval from hospital ethical committee 100 patients with inguinal hernia were admitted through the out patient department between January 2012 to December 2012. After taking informed consent regarding procedure and demographic history, patients were divided in two groups using random number tables. Group D: Desarda Repair. Group L: Lichtenstein tension free mesh repair. Single surgical team performed the procedure. All cases were done under spinal anesthesia. Patients with weak external oblique aponeurosis was not included in the study. Per-operatively operative time was recorded in minutes from the first skin incision to skin closure.

Postoperatively pain was assessed 6, 12, & 24 hours after surgery according to VAS. Non-narcotic analgesics was used on 12 hourly basis. Patients were encouraged to walk in the post operative period and kept admitted for 4 days post operatively to observe closely for development of any heamatoma, seroma or surgical site infection. An ultrasound was performed on 4th post operative day to check heamatoma or seroma formation. In post operative period patients were examined by an investigator until discharge and seen during follow-up appointments at 7, 30 days, and 6 months after surgery and later on telephonic follow up was carried out for 3 years on yearly basis to record chronic pain & late recurrence if any.

Operative Technique

Skin and fascia are incised through a regular oblique inguinal incision to expose the external oblique aponeurosis. The external oblique is cut in line with the upper crux of the superficial ring, which leaves the thinned out portion in the lower leaf so a good strip can be taken from the upper leaf. The medial leaf of the external oblique aponeurosis is sutured with the inguinal ligament from the pubic tubercle to the abdominal ring using 2/0 monofilament polypropylene (Prolene) interrupted sutures. The first two sutures are taken in the anterior rectus sheath where it joins the external oblique aponeurosis. The last suture is taken so as to narrow the abdominal ring sufficiently without constricting the spermatic cord. **(Fig-1)** Each suture is passed first through the inguinal ligament, then the transversalis fascia and then the external oblique.

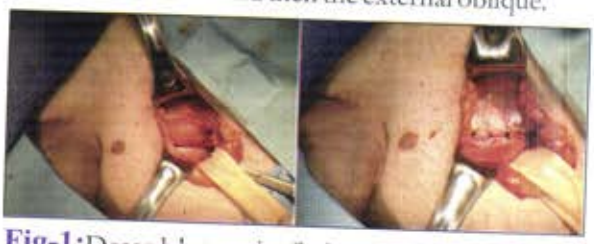


Fig-1: Desarda's repair: Strip of external oblique aponeurosis created and displaced to posterior inguinal wall with interrupted sutures.

A splitting incision is made in this sutured medial leaf, partially separating a strip with a width equivalent to the gap between the muscle arch and the inguinal ligament. This splitting incision is extended medially up to the pubic symphisis and laterally 1-2 cms beyond the abdominal ring. The medial insertion and lateral continuation of this strip is kept intact. A strip of the external oblique, is now available, the lower border of which is already sutured to the inguinal ligament. The upper free border of the strip is now sutured to the conjoined tendon lying close to it with 2/0 monofilament polypropylene interrupted sutures throughout its length. **(Fig-2)**

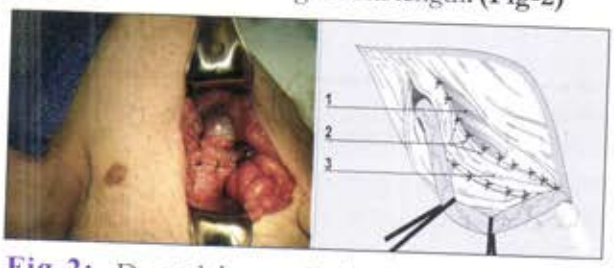


Fig-2: Desarda's method: The undetached aponeurotic strip (3) is created and displaced from the anterior to the posterior wall of the inguinal canal. It was then secured to the abdominal internal oblique muscle (1) with interrupted sutures (2) and to the inguinal ligament

This will result in the strip of the external oblique being placed behind the cord to form a new posterior wall of the inguinal canal. At this stage the patient is asked to cough and the increased tension on the strip exerted by the external oblique to support the weakened internal oblique and transversus abdominis is clearly visible. The increased tension exerted by the external oblique muscle is the essence of this operation. The spermatic cord is placed in the inguinal canal and the lateral leaf of the external oblique is sutured to the newly-formed medial leaf of the external oblique in front of the cord, as usual, again using 2/0 monofilament polypropylene continuous sutures. The first stitch is taken between the lateral corner of the splitting incision and lateral leaf of the external oblique. This is followed by closure of the superficial fascia and the skin as usual.

Results

In this study, a total of 100 patients were recruited to assess the outcome in terms of operative time (in minutes), post-operative pain (visual analogue score), hematoma & seroma formation, Surgical Site infection, early & late recurrence and chronic pain in patients undergoing repair of inguinal hernia.

Age distribution of the patients is computed and presented in **Table 1.** Mean and SD was calculated as 45.0±14.76 & 45.5± 13.94 for Group D & Group L respectively **(Graph 1)**. 62 patients (62%) were having right sided inguinal hernias while 38 patients (38%) having left sided inguinal hernias **Table 2**. 50 patients had undergone Desarda's repair and and procedure were performed by consultant surgeons

according to the technique described by M.P. Desarda.(2) The other 50 patients underwent Lichtenstein repair. Dsitribution of right & left hernia in each group is shown in table 02.Mean Operative time was calculated to be 57.84±13.07 min in Group D and 60.52±14.62 min in Group L with a p-value of 0.3362 which is insignificant. **(Graph 2)** No significant difference was found in Post operative pain in Group D as compared to Group L at 06, 12 & 24 hrs after surgery. **(Graph 3)** Mean Post Operative Pain was calculated to be 2.11±0.73 in Group D and 2.10± 0.73 in Group L with a p-value of 0.9458 which is highly insignificant. **(Graph 4)** Hematoma formation was seen in one (02%) patient in Group D on post operative day 1 which surgically drained. No hematoma was seen in Group L **(Table 03)**.Ultrasounography confirmed no seroma formation in either group. Regarding Seroma formation & early recurrence, no such happening was noted in either group.

Table-1: Distribution by Age group.

Age Group (Years)	Desarda	Lichtenstein	Total
21 - 30	08	08	16
31 - 40	13	10	23
41 - 50	10	10	20
51 - 60	09	14	23
61 - 70	10	08	18
Total	50	50	100

Table-2: Side of Hernia.

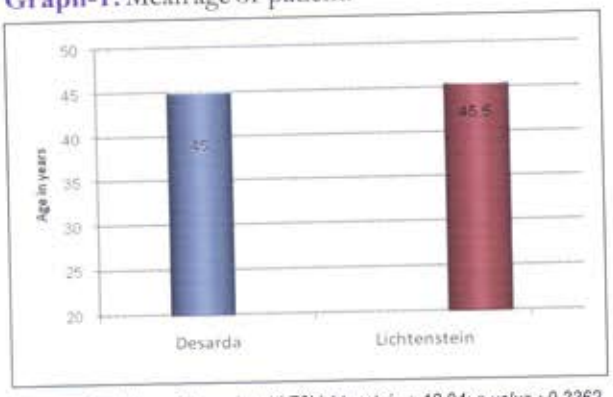
Side	Desarda	Lichtenstein	Total
Right	33	29	62
Left	17	21	38
Total	50	50	100

Table-3: Frequency of complications.

Complication	Frequency Desarda (%)	Lichtenstein (%)
Heamatoma	01 (2)	01 (2)
Seroma	Nil	Nil
Surgical site infection	Nil	02 (4)
Early Recurrence	Nil	Nil
Late Recurrence (After 6 months)	Nil	Nil
Chronic Pain (after 6 months)	Nil	04 (8)

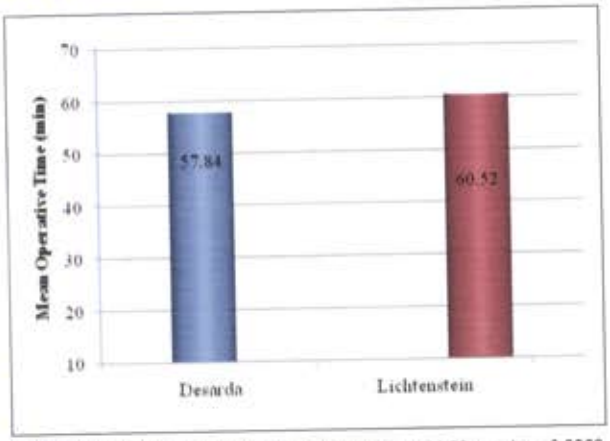
In group L 2 patients (4%) suffered from surgical site infection. One patients had watery discharge from wound & the other had just superficial wound erythema. Both patients settled with I/V antibiotics. No case of surgical site infection was reported in Group D **(Table 03).**

Graph-1: Mean age of patient.



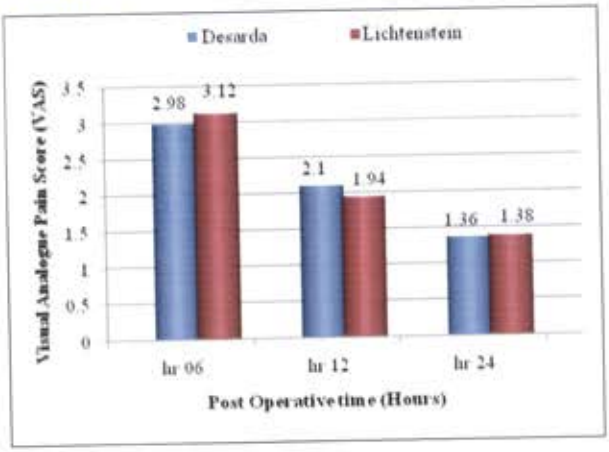
Standard Deviation: - Desarda+ 14.76Lichtenstein + 13.94: p value : 0.3362

Graph-2: Mean Operative Time

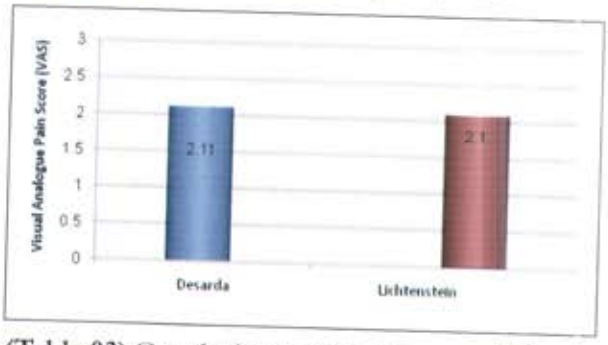


Standard Deviation: - Desarda+ 13.07Lichtenstein + 14.62: p value : 0.3362

Graph-3: Post operative pain (VAS)



Graph-4: Mean Post operative pain (VAS)



(Table 03). On telephonic follow up on yearly basis no late recurrence reported till 3 years in both groups but in Group L 4 patients (8%) complaint of chronic pain but no such complaint was reported from group D **(Table 03).**

Discussion

Inguinal hernia is a very common condition afflicting mankind. Newer techniques are developed as the complication rates of older ones become unacceptable. The Lichtenstein technique and its modifications are widely practiced in the world but their complication rates and failures are more in the hands of non consultant staff. There is high incidence of chronic groin pain following hernia repair reportedly in the range of 28.7% - 43.3%.[7,8] Many studies have determined that this technique has a recurrence rate of approximately 3%.[9,10,11] Chronic groin sepsis after mesh repair requires complete removal of mesh for treatment of sepsis.[12] Laparoscopic hernia repairs increase the cost, are technically complex and have long learning curve.[13,14] Open no-mesh techniques also have their limitations. A recent study shows recurrence rates of at least 8% after non-mesh repair using Bassini's technique.[15] The Shouldice technique, which is still considered gold standard among no-mesh techniques has a recurrence rate of 1-4% in specialized centers.[16] However, long learning curve, risky dissection of inguinal floor and lack of experience make these figures unattainable for general surgeons working outside these specialized centers.[17] To date, there has been no comparison study on the aponeurotic tissue and the transversalis fascia. This necessitates the introduction of a new technique of hernia repair with reduced complication rates in the hands of such general surgeons or the non consultant staff operating at smaller level general hospitals. In this study we tried to compare the outcomes of Desarda's repair and Lichtenstein repair in terms of post operative pain, early recurrence, hematoma formation, seroma formation, surgical site infection, chronic pain and late recurrence. In our study at the early postoperative time (post op. day 1) the mean VAS score was 2.11 SD ±0.73 for Desarda's Repair and 2.10 SD ±0.73 for Lichtenstein repair which means most patients had mild pain after any one procedure. This pain score is comparable to the results of the study of Mohan P. Desarda in which most of the patients (92.6%) had mild and tolerable pain on first post operative day and these patients complained of slight discomfort rather than pain on 3rd post operative day.[6] The next complication that was observed was hematoma formation. One (02%) patient in each group had hematoma in early post operative period. In both cases surgical drainage was done. None of the patients had infection of hematoma. In a study published by Jacek Szopinski et al. 7.7% hematoma were noted and 0.9% required surgical drainage of the hematoma.[5] No case of early or late recurrences was noted in any group. In the study of Jacek Szopinski et al. 1.9% recurrences were noted in 3 years follow up but no early recurrence (<1year) was noted.[5] Similarly in the study of Mohan P. Desarda no recurrence was noted during a mean follow up of 24.28 months. No patients developed seroma formation by day 07 which was confirmed on ultrasonography. These results are better than the study of Jacek Szopinski et al. in which 3.8% seroma formation were noted on post operative day 7 and no seroma formation (0%) on post operative day 30.[5] Two (04%) patients developed surgical site infection in Lichenstein group but no such happening was noted in desarda group. One patient had erythema of the wound edges and watery discharge from the wound the other patient had superficial surgical site infection. I/V antibiotics were given and surgical site infection resolved in both of the patients. No patient had frank pus formation or required reopening of the wound. In the study of Jacek Szopinski et al. 0.9% surgical site infection rate was noted.[5] In the study of Mohan P. Desarda 2/229 patients (0.87%) had surgical site infection which needed treatment one of them settled with antibiotics and other needed surgical drainage of pus.[6] No chronic recurrence occurred in Desarda or Lichtenstein group & this is comparable to the study done by desarda. But 4 (8%) patient with Lichtenstein repair had complaint of chronic pain which is slightly higher frequency rate as compared to the result of study done by Desard. Desarda and his group published results based on a comparison of his technique and the Lichtenstein technique. They reported no recurrence among the 269 patients in

Desarda group and 1.97% recurrence among the 225 mesh group patients; 6.49% of patients from the mesh group and no patients in the Desarda group reported chronic pain at 1 year after surgery.[18] Paradoxically, in the modern world the cost of the medical treatment becomes the real issue. The cost of inguinal hernia treatment, a tiny fraction of all health expenses, is not insignificant, however, especially in developing countries of Asia & Africa. One indisputable advantage of Desarda technique is its low cost. That is why many published articles recently demonstrated an interest in the technique.[18,19,20] The cost of the Desarda operation is low because a synthetic prosthesis is not needed. The price of composite meshes or even heavy polypropylene meshes, as well as their accessibility, could be important issues in developing countries. Economic issues are not the only considerations. The use of synthetic material is still controversial in young patients. The effect of polyproplylene placement or other synthetic mesh inside human organism for a lifetime is still unknown. Also, data are appearing about sexual impairment after mesh implantation; and as a result, many surgeons try to avoid mesh prostheses for hernia treatment in young patients. Also, the Desarda method, a tissue-based technique, can be used in a contaminated surgical field, usually seen during operations for strangulated and obstructed hernias where use of mesh is not suitable due to risk of infection.

Conclusion

The Desarda's repair satisfies all the criteria of modern hernia surgery. This repair is easy to learn with minimal complications or recurrence which is comparable to lichenstein mesh repair. This new repair has the potential to replace lichenstein repair espaecialy in emergency settings where using mesh is more risky.

Department of Surgery,
Services Hospital, Lahore
www.esculapio.pk

References

1. Nadim K, M. Naeem, Adil B, Asadullah, Muzaffaruddin S, Haris H. Early outcome of Lichtenstein technique of tension-free open mesh repair for inguinal hernia. J Ayub Med Coll 2008; 20: 29-33
2. Desarda MP. Physiological repair of inguinal hernia: a new technique (study of 860 patients). Hernia 2006;10(2):143-6
3. Mitura K, Romańczuk M. Comparison between two methods of inguinal hernia surgery--Lichtenstein and Desarda. Pol Merkur Lekarski 2008;24(143):392-5
4. Desarda MP. No-mesh inguinal hernia repair with continuous absorbable sutures: a dream or reality? Saudi J Gastroenterol 2008;14(3):122-7
5. Manyilirah W, Kijjambu S, Upoki A, Kiryabwire J. Comparison of non-mesh (Desarda) and mesh (Lichtenstein) methods for inguinal hernia repair among black African patients: a short-term double-blind RCT. Hernia 2012;16(2):133-44
-6. Szopinski J, Dabrowiecki S, Pierscinski S, Jackowski M, Jaworski M, Szuflet Z. Desarda Versus Lichtenstein Technique for Primary Inguinal Hernia Treatment: 3-Year Results of a Randomized Clinical Trial. World J Surg 2012; 36(5): 984-992
7. Bay-Nielsen et.al. Pain and Functional Impairment 1 Year After Inguinal Herniorrhaphy: A Nationwide Questionnaire Study: Ann Surg 2001; 233(1): 17
8. Nienhuijs SW, van Oort I, Keemers-Gels ME, Strobbe LJ, Rosman C. Randomized trial comparing the Prolene Hernia System, mesh plug repair and Lichtenstein method for open inguinal hernia repair; Br J Surg. 2005;92(1):33-8
9. McCormack K, Scott NW, Go PM, Ross S, Grant AM. Laparoscopic techniques versus open techniques for inguinal hernia repair. 2003; Cochrane Database of Systematic Reviews (online) CD001785
10. Muldoon RL, Marchant K, Johnson DD, Yoder GG, Read RC, Hauer-Jensen M. Lichtenstein vs. anterior preperitoneal prosthetic mesh placement in open inguinal hernia repair: a prospective, randomized trial. Hernia. 2004; 8:98103
11. Champault G, Bernard C, Rizk N, Polliand C. Inguinal hernia repair: the choice of prosthesis outweighs that of technique. Hernia. 2007; 11:125128
12. Taylor SG, O'Dwyer PJ. Chronic groin sepsis following tension-free inguinal hernioplasty. Br J Surg 1999; 86(4):562-5
13. The MRC Laparoscopic Groin Hernia Trial Group: Laparoscopic versus open repair of groin hernia: a randomised comparison Lancet. 1999 ;354(9174):185-90
14. Lau H, Patil NG, Yuen WK, Lee F. Learning curve for unilateral endoscopic totally extraperitoneal (TEP) inguinal hernioplasty; Surg Endosc. 2002;16(12):1724-8. Epub 2002 Jul 8
15. Shi Y, Su Z, Li L, Liu H, Jing C. Comparing the eVects of Bassini versus tension-free hernioplasty: 3 years' follow-up. Front Med China. 2010; 4(4):463468
16. Welsh DR, Alexander MA. TheShouldice repair. Surg Clin North Am. 1993;73(3):451-69
17. Danielsson P, Isacson S, Hansen MV. Randomised study of Lichtenstein compared with Shouldice inguinal hernia repair by surgeons in training. Eur J Surg 1999;165(1):49-53
18. Desarda MP, Ghosh MSA. Comparative study of open mesh repair and Desarda's no-mesh repair in a district hospital in India. East Cent Afr J Surg 2006;11:2834.

Original Article

Assessment of Socio Demographic and Environmental Factors Predisposing to Tuberculosis in Lahore, Pakistan

Zill-e-Huma, Zarfishan Tahir, Javeria Gul and Rai Gull Fraz

Objective: To understand various predisposing factors for tuberculosis infection that help to prioritize tuberculosis research and intervention among the most vulnerable persons in our population.

Methods: It was cross sectional study which was conducted in Lahore .The duration was from December 2013 to May 2015. A total of 129 cases of tuberculosis were included in the study.

Results: Questionnaire was completed for 129 tuberculosis subjects. 65 patients (51.39%) were male and 64 (49.61%) female, among the total number of subjects, Diabetes was the most common illness among chronic diseases. Smoking was the most common addiction and all smokers were male.

Conclusion: There are multiple environmental and host related factors, present in tuberculosis patients in Lahore. A proper understanding of their risk factors will contribute in appropriate disease management.

Keywords: Tuberculosis, risk factors, body mass index.

Introduction

Tuberculosis is the major health problem not only in Pakistan but across the whole world. Extensive research has been carried out in diagnosis and treatment to combat tuberculosis but tuberculosis still remain a significant threat across the globe and targets poor communities very hard especially in the developing countries.[1] Eighteen persons are affected with tuberculosis every minute in the world and three of them die in one minute.[2] World Health Organization (WHO) ranks Pakistan 5th among high burden tuberculosis countries.

Tuberculosis has many predisposing factors in which complex environmental interaction with host factors contribute to overall disease outcome. By understanding various independent variables between degree of exposure and genetic susceptibility to infection, there is strong implication on prevention and treatment of tuberculosis.[3] There are several approaches for tuberculosis control and there is urgent need to design interventions against this horrible disease, by paying attention on epidemiological, social and environmental approaches.[4] Tuberculosis is considered a social disease with medical aspects. There are various non-medical factors such as low socioeconomic status, lake of education, overcrowding and poor quality of life[5] which also influence an individual susceptibility of tuberculosis infection.

There are negligible studies performed in developing countries like Pakistan that shed light on socioeconomic and environmental factors contributing to development and progression of the disease. The objective of this study is to understand various predisposing factors for tuberculosis infection that help to prioritize tuberculosis research and intervention among the most vulnerable persons in our population.

Methods

Written informed consent was obtained from all study subjects. The present study was cross sectional study that was conducted among the patients attending chest clinic of a tertiary care hospital in Lahore from December 2013 to May 2015. Four separate investigators collected data from the setting to minimize the risk of bias by using standard WHO definition of tuberculosis; Culture positive for Mycobacterium tuberculosis (confirmed case), sputum smear positive for acid fast bacilli when culture data were not available (smear positive case) or clinical diagnosis only when microbiological test results were negative or not available (clinical case: symptoms compatible with tuberculosis). Extra pulmonary tuberculosis was diagnosed by combination of histopathology, fine needle aspiration cytology or clinical features.[6] In our study height and weight of patients were measured. Information about socio demographic features as age, sex, marital status, education, occupation and

monthly income was taken. History about BCG vaccination was also taken and if no history was available, then BCG scar was examined. History about any co-morbidity like diabetes mellitus, renal disease, hypertension, and any lung disease was taken. History about any drug intake (recent and past) for conditions like cancer, chemotherapy, radiotherapy and addictive drugs was also taken. Body mass index (BMI) was calculated. All the data about variables was entered in questionnaire.

Results

A total of 129 cases of pulmonary and extra pulmonary tuberculosis were taken during the study period through non probability purposive sampling technique. Male constitute 51.39% (65) of the subjects while female were 49.61% (64). The study showed 62.01% (80) subjects were urban and 37.98% (49) subjects were rural dweller. In the study 39.53% (51) of cases were literate and 60.40% (78) were illiterate. Age and Body mass index was calculated as mean ± SD and the orphan p value (which is the test of significance employed, orphan p value < 0.001 is highly significant and orphan p value < 0.05 is significant) of these two parameters were significant.

About 42.62% (55) were unemployed, 57.43% (74) of cases were employed. Among smokers, all were male, 58.46% (38) were heavy smokers (≥25 or more cigarettes a day), 9.23 % (6) were occasional smokers, (either as not smoking every day or as smoking an average of less than one cigarette a day and 32.30% (21) were non-smokers.

Of 129 total cases , 61.24% (79) had no other chronic illness and 38.76% (50) had some chronic illness like hypertension , Diabetes mellitus and cancer etc. 67.44% (87) case, reside in house with ≤ 3 rooms and 32.57% (42) reside in > 3 rooms / home. 43.41% (56) had their separate kitchen available and 56.59% (73) had not facility of separate kitchen. 31.78% (41) had tuberculosis contact and others 56.59% (73) do not had contact.79.17% (102) had BCG vaccination while 20.93% (27) had not received vaccine. 48.06% (62) cases were of pulmonary tuberculosis and 51.96% (67) cases were of extra pulmonary tuberculosis.

Table-3: Year wise distribution of types of unnatural deaths.

Characteristics		Total (n=129)	Male (n=65) Values are Mean± SD	Female (n=64)	Orphan p-vaue
Age		31.69±16.21	36.86±19.52	28.87±12.52	<0.001
BMI		17.23±5.33	17.5±3.05	17.06±6.41	<0.001
Values (%) locations	Urban	80 (62.01%)	47 (72.30%)	43 (67.18%)	0.280
	Rural	49 (37.98%)	18 (27.69%)	21 (32.81%	
Educational Status	Literate	51 (39.53%)	31 (43.69%)	20 (31.25%)	0.011
	Illterate	78 (60.40%)	34 (52.30%)	44 (68.75%)	<0.001
Occupation	Employed	74 (57.43%)	60 (61.53%)	8 (12.5%)	<0.001
	Unemployed	38 (29.45%)	15 (23.07%)	34 (53.12%)	
Dependent		12 (9.30%)	7 (10.76%)	16 (25.0%	
Student		5 (3.87%)	3 (4.61%)	2 (3.12%)	
House Old Income	< 5,000	80 (62.015%)	50 (76.92%)	40 (62.50%)	<0.001
5,000 - 1,000		29 (22.48%)	10 (15.38%)	22 (34.37%)	
>10,000		20 (15.50%)	5 (7.69%)	2 (3.125)	
Smoking	Regular/Heavy	50 (30.75%)	38 (58.46%)	-	0.003
Occasional		6 (4.65%)	6 (9.23%)	-	
No smoker		73 (56.58%)	21 (32.30%)	-	0.04
Any chronic disease	Yes	79 (61.24%)	49 (75.36%)	30 (46.87%)	0.04
	No	50 (38.76%)	16 (29.61%)	34 (53.125%)	
House Hold Size	=3 rooms/House	87 (67.44%)	54 (83.06%)	33 (51.56%)	0.54
	> 3 rooms/house	42 (32.57%)	11(16.92%)	31 (48.44%)	

Separate Kitchen	Yes	56 (43.41%)	34 (52.30%)	22 (34.38%)	<0.001
	No	73 (56.59%)	31 (47.69%)	42 (65.63%)	
TB Content	Yes	41 (31.78%)	5 (7.69%)	36 (56.25%)	0.08
	No	88 (68.22%)	60 (92.31%)	28 (43.75%)	
BCG Vaccination	Yes	102 (79.17%)	60 (92.31%)	42 (65.63%)	0.21
	No	27 (20.93%)	5 (7.69%)	21 (32.81%	
Type of TB	Pulmonary	62 (48.06%)	40 (61.54%)	22 (34.30%)	0.014
Extra Pulmonary		67 (51.94%)	25 (38.46%)	42 (65.63%)	

Table-2: Frequency of body mass index (BMI) with tuberculosis rate.

Sr. No	BMI	% of TB Cases
1	= 18 (Under wight)	55.03 % (71)
2	18 - 24.9 (Normal)	26.36 % (34)
3	25 - 20.0 (Overweight)	12.40 % (16)
4	= 30 (Obese)	6.21 % (8)

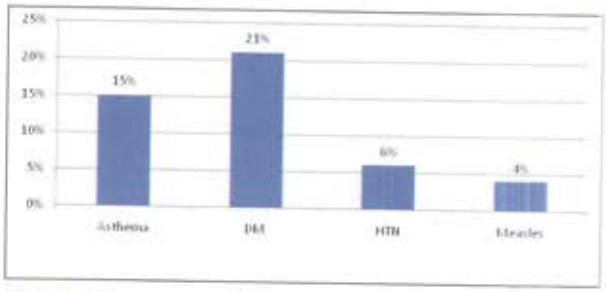


Fig-1: Frequency of chronic disease in tuberculosis patients.

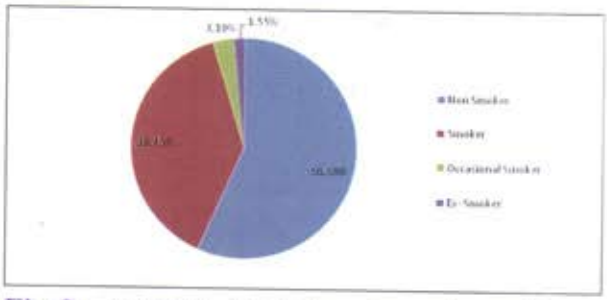


Fig-2: Smoking frequency in study subjects (Males).

Discussion

Variation in age and sex in occurrence of tuberculosis has been reported all around the world in both developed and developing countries.[7,8] Our study showed peak numbers of tuberculosis cases between 20-40 year of age.[9,10] Other parameters include socioeconomic status, employment status, BCG vaccination and BMI that affects susceptibility to infection, progression of disease and treatment outcome.[11,12]

In our study 38.76 % of the cases have co-morbid illness such as asthma, diabetes mellitus, hypertension & measles. There are a lot of researches and data available concerning increased incidence of DM amount tuberculosis subjects [13]. 21% of our study population was diagnosed to have DM. According to a research, the prevalence of tuberculosis in diabetic patients was 10 times higher than non diabetic patients and this prevalence increases with the duration of DM.[14,15]

Smoking was the most common type of addiction in the present study (41.57%). Tobacco smoking was also demonstrated in an age related case controlled study from south India.[16] Tuberculosis is disease of poor people associated with, resource poor countries [17]. In Guinea Bissau, adult overcrowding was major risk factor for tuberculosis.[18] A study from Malawi showed that higher socioeconomic status was associated with decrease tuberculosis prevalence because of increased awareness and better approach to health services.[19] Studies from China have revealed that per capita income has impact on tuberculosis and good house hold economic condition was a protective factor.[20,21] Our study also revealed increased tuberculosis occurrence with low income families, unemployment and overcrowding.In our study separate kitchen also have significant impact on tuberculosis. A study of over 88,000 household from India also has impact on tuberculosis by the separate kitchen.[16] In our study 31.78% have history of tuberculosis contacts while others don't have. Our study also showed association of tuberculosis with under nutrition which is more distinct feature of low socioeconomic status.[22,23]

Conclusion

The study revealed that most of patients presenting with tuberculosis were unemployed and belong to low

socioeconomic status and have low literacy level. It cannot be proven that these patients may have risk factor by chance or if tuberculosis has predisposed to these factors. There is urgent need to plan further more researches on various factors predisposing to tuberculosis in our setup to prevent the occurrence of this horrible disease.

Department of Bacteriologist,,
Institute of Public Health.
www.esculapio.pk

References

1. Ahmad T (2013). Epidemiology of Tuberculosis: current status in district Dir (lower) Pakistan. Int. J. Sci. Eng. Res., 4:755-763.
2. WHO Global TB Report 2013
3. Narasimhan P, Wood J, Maclntyre CR and Mathai D (2013). Risk factors for tuberculosis. Pulm. Med., 2013:1-11.
4. WHO, authors. Global tuberculosis report. 2012:17.
5. Global tuberculosis control: surveillance, planning, financing: WHO report 2008. Geneva: World Health Organization; 2008.
6. Irfan U, Shah AA, Tahir Z, Obaidullah , Hasan F, Ayub N (2014) Detection of Mycobacterium tuberculosis from Clinical Specimens by Conventional and Molecular Technique in Punjab, Pakistan. Global Vet 13(6): 10021009.
7. Low C.-T, Lai P-C, Tse W-S C, Tsui C-K, Lee H and Hui P-K. (2013). Exploring tuberculosis by types of housing development. Soc. Sci. Med.,87: 77-83.
8. Awan, SR. and Akhtar S (2015). Do we know fate of all our TB patients? Pak. J. Che. Med., 19.575-581
9. Gopi P G, Subramani R, Radhakrishna S, et al. A baseline survey of the prevalence of tuberculosis in a community in south India at the commencement of a DOTS programme. Int J Tuberc Lung Dis 2003; 7: 11541162.
10. Ayaz A, Hasan Z, Jafri S, Inayat R, Mangi R, Channa AA, Malik FR, Ali A, Rafiq Y and Hasan R (2012). Characterizing Mycobacterium tuberculosis isolates from Karachi, Pakistan: drug resistance and genotypes. Inter. J. Infec. Dis., 16: 303-309.
11. MacPherson. P, Houben. R.M, Glynn. J.R, et al, Pre-treatment loss to follow-up in tuberculosis patients in low-and lowermiddle-income countries and high-burden countries: a systematic review and meta-analysis, Bull. WHO 92 (2014) 126138
12. Lienhardt. C, Glaziou. P, Uplekar.M, et al, Global tuberculosis control: lessons learnt and future prospects, Nat. Rev. Microbiol. 10 (2012) 407416.
13. Jabbar A, Hussain SF, Khan AA. Clinical characteristics of pulmonary tuberculosis in adult Pakistani patients with co-existing diabetes mellitus. East Mediterr Health J. 2006;12:522-7.
14. Perez-Guzman C, Vargas M H, Torres-Cruz A, Perez-PadillaJ R, Furuya M E, Villarreal-Velarde H. Diabetes modifies themale:female ratio in pulmonary tuberculosis. Int J Tuberc Lung Dis 2003; 7: 354358.
15. Ezung T, Devi N T, Singh N T, Singh T B. Pulmonary tuberculosis and diabetes mellitusa study. J Indian Med Assoc 2002; 100: 376, 378379.
16. Kolappan C, Gopi P G. Tobacco smoking and pulmonary tuberculosis. Thorax 2002; 57: 964966.
17. Harper M, Ahmadu F A, Ogden J A, McAdam K P, Lienhardt C. Identifying the determinants of tuberculosis control in resourcepoor countries: insights from a qualitative study in The Gambia. Trans R Soc Trop Med Hyg 2003; 97: 506510.
18. Gustafson P, Gomes V F, Vieira C S, et al. Tuberculosis in Bissau: incidence and risk factors in an urban community in sub-Saharan Africa. Int J Epidemiol 2004; 33: 163172.
19. N.P. Hoa, N.T.K. Chuc, A. Thorson, Knowledge, attitudes, and practices about tuberculosis and choice of communication channels in a rural community in Vietnam, Health Policy 90 (2009) 812
20. Liu J J, Yao H Y, Liu E Y. Relationship between tuberculosis prevalence and socio-economic factors in China. [Chinese]. Zhonghua Liu Xing Bing Xue Za Zhi 2004; 25: 10321034.
21. Liu J J, Yao H Y, Liu E Y. Analysis of factors affecting the epidemiology of tuberculosis in China. Int J Tuberc Lung Dis 2005; 9: 450454.
22. Watzl B, Watson R R. Role of alcohol abuse in nutritional immunosuppression. J Nutr 1992; 122 (3 Suppl): 733737.
23. Cegielski J P, McMurray D N. The relationship between malnutrition and tuberculosis: evidence from studies in humans and experimental animals. Int J Tuberc Lung Dis 2004; 8: 286298.

Original Article

CORD CARE PRACTICES AMONG MOTHERS IN A TERTIARRY CARE CENTER

Saima Asghar, Muhammad Abbas and Ahmed Abdullah

Objective: To assess the frequency of different cord care practices among mother presenting in a tertiary care center

Methods: This study was conducted on women who are presenting in Gynecology department of Services Hospital Lahore. Women were inquired about the use of method whatever the type for cord care after the delivery of neonates thus information was recorded in a well defined questionnaire.

Results: Out of 4000 women,1757 used desi ghee (43.925%). 1139 used spirit (28.47%), 423 used alcohol swabs (10.57%), 262 used surma and other things like polyfax, lotions and herbals (6.55%), 219 used gentian violet (5.45%), 200 used pyodine solution (5%).

Conclusion: The most common way to care the cord was application of desi ghee that was easily available in urban and rural area.

Keywords: Cord care, desi ghee, spirit and new born

Introduction

The World Health Organization recommends improving newborn care practices at birth in order to reduce morbidity and mortality. These have been described as essential newborn care (ENC) practices.[1,3] One of these essential practices is clean cord care which is very important in preventing early neonatal infections.[2] The basis of cord care, as we know it today, has evolved through many years of traditional and cultural customs. Despite this, cord infections are still prevalent in developing countries because of the high rates of unhygienic cord care practices. Treatments range from the application of ashes and fresh colostrum in Kenya, to coconut oils and flowers by the American Samoans.[4] The World Health Organization (WHO) recommendations for developing countries, promote dry cord care under routine circumstances but acknowledge that antiseptics may be helpful when harmful, unhygienic, traditional practices place newborns at increased risk for omphalitis.[5] It is widely known that hygienic conditions for home births are a challenge. There are also data demonstrating that hygienic conditions in hospitals are equally challenging, including hospital nursery outbreaks of highly resistant gram negative bacteria.[7] In many high neonatal mortality settings, mothers and newborns are discharged within hours of birth to return home where unhygienic conditions and practices represent a significant risk for life-threatening infection that is preventable through the use of chlorhexidine. While bacterial exposure at birth is an important factor in the development of sepsis, exposures in the hours and days that follow are also likely to be important. Chlorhexidine has a significant residual antiseptic effect which inhibits bacterial growth for 24 to 48 hours after application. Whether the birth occurs at home or in a facility, chlorhexidine application at the time of birth provides continued protection during the critical first two days when risk is greatest for acquiring sepsis due to bacterial exposure through the cord-stump. In January 2014 WHO recommended use of Chlorhexidine in settings with neonatal mortality rate of more than 30/1000 live births. This recommendation is based on clinical trial data collected to date which has been from settings where mortality rate was more than 30/1000 live births. The Chlorhexidine Working Group (CWG) has developed the following guidance to assist countries that are interested in the introduction and scale up of 7.1% chlorhexidine digluconate (delivering 4% chlorhexidine) for umbilical cord care.[8] The CHLORHEXIDINE WORKING GROUP is an international collaboration of organizations committed to advancing the use of 7.1% chlorhexidine digluconate for umbilical cord care through advocacy, research and technical assistance.

Cord care practices may directly contribute to infections in the newborn which account for a large proportion of the four million annual global neonatal deaths.[9] Cord infections are more prevalent in developing countries because of the high rates of unhygienic cord care practices.[4,6] Some of these practices which have been reported especially in the rural areas, include the use of traditional cord dressings like cow dung, herbal preparations, ash,

mud, coconut oil etc which are usually contaminated and serve as sources of infection. In order to prevent cord infection it is important to gain insight to the prevailing cord care practices, which forms the basis of this study.

Methods

This study is cross sectional by design and was carried out in Gynecology and Obstetrics department of Services Hospital Lahore in duration of one year. Services Hospital is tertiary care hospital of 1100 beds capacity and a well established Gynecology and Obstetrics Department with associated Neonatal Unit and immunization center. Simple structured questionnaire was used to obtain information concerning the age of mother, education level of mothers, from where they got advice for cord care, treatments applied to the umbilical cord stump to newborns and number of previous babies and area of residence. Data collected were entered and analyzed using SPSS version 20.Results were expressed as percentages and frequency. Chi-square test was used as test of significance. Statistically significant p value of less than or equal to 0.05 was considered.

Results

Total of four thousand mothers were interviewed. Demographics data like age, education and area of residence has been summarized in **Table1**.

Table-1: Demographics of the women

		Frequency (%)
Age	16 - 20	1246 (31.15%)
	21 - 25	1104 (27.6 %)
	26 - 30	727 (18.1%)
	31 - 35	517 (12.9%)
	36 - 40	406 (10.15%)
Educational status	Illiterate	1454 (36.35%)
	Primary	1131 (28.27%)
	Middle	660 (16.5%)
	Matric and above	755 (18.87%)
Residence	Rural	2166 (54.15%)
	Urban	1834 (45.85%)

One thousand seven hundred and fifty seven (43.925%) used desi ghee. One thousand one hundred and thirty nine mothers (28.47%), used spirit , Four hundred and twenty three (10.57%) used alcohol swabs , two hundred and sixty two mothers (6.55%) used surma, two hundred and nineteen mothers (5.45%) used gentian violet , 200 mothers (5%) used pyodine solution .

It was reported that about one thousand five hundred and twenty three (38.07%) mothers used desi ghee for cord care in previous babies, one thousand and seventy seven mothers(26.92%) used spirit, four hundred and sixty six (11.65%) alcohol swabs nine hundred and thirty four (23.35%) used surma in previous babies.

One thousand eight and ninety nine (47.47%) mothers who were counseled from staff and doctor on duty, while one thousand five hundred and sixty three (39.075%) mothers were counseled by grandmothers and aunts while five hundred and thirty eight (13.45%) mothers did not have any consultation regarding the umbilical cord care.

After counseling by a doctor two thousand and ninety eight (52.45%) mothers started using spirit and one thousand and seventeen (25.42%) started using alcohol swabs advised by doctors, eight hundred and eighty five (22.12%) persisted with previous practices, p value 0.001.

It was also noted that there was significant impact of age on core care practices amongst mothers included in the study p value 0.001. Mothers of age 21-25 years were using desi ghee and after that mothers of 16-30 years of age were using spirit. The difference was found to be significant (p value 0.001).

Uneducated mothers and mothers of primary education level were using desi ghee for cord care while mothers who had education level of metric or above were using spirit. **Table 2.**

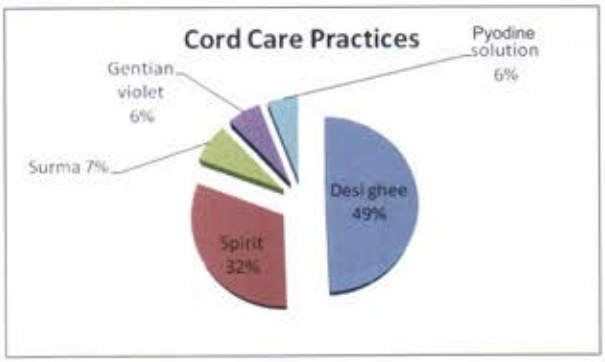


Fig-1: Distribution of common practices for Cord care

Table-2: Characteristics of patients regarding umbilical cord care.

Characteristics		Desi Ghee	Spirit	Alcohol	Surma	Gentian Violet	Iodine	Total
	N	1757	1139	423	262	219	200	4000
Age	16-20	552	467	105	61	36	26	1246*
	21-25	603	212	129	29	46	45	1104*
	26-30	241	254	85	53	86	48	727*
	31-35	202	138	64	59	23	31	517*
	36-40	159	68	40	60	29	50	406*
Education	Iliterate	737	398	110	110	58	41	1454*
	Matric & above	156	410	86	37	29	29	755*
Level	Middle	242	123	118	68	55	54	660*
	Primary	622	208	109	47	69	76	1131*
Residence	Urban	1064	540	215	103	140	107	2166*
	Rural	696	599	208	159	79	Nil	1834*
Practice history in previous baby (ice)		1523	1077	466	934	Nil	Nil	4000

** = P<0.001, chi-square test*

Discussion

This study highlighted important aspects affecting cord care among mothers. Maternal education, age, residence and counseling have marked effect on cord care practices. Younger age group and lower education status mothers were prone to harmful misconcetions about cord care. Lack of proper education about cord care predisposes mothers to transit to "modernistic" newborn practices which are wrongly perceived to be safe like alcohol swabs, spirit. There is a low rate of doctors involvement in health education of mothers on new born care practices. Grandmothers play an important role in new born care and should be a target group for health education to improve new born care practices in our environment . After counseling, mothers changed their practices. The need is to educate mothers and medical staff regarding standard cord care. There has been a wide range of inconsistent practices related to umbilical cord care that have included a variety of cleansing agents and techniques.

Conclusion

The current standard of umbilical cord care may be based on historic practices and traditions rather than scientific investigation and justification.

Department of Paediatric Medicine
Services Hospital, Lahore
www.esculapio.pk

References

1. Fikree FF, Ali TS, Durocher JM, Rahbar MH. Newborn care practices in low socioeconomic settlements of Karachi, Pakistan. Social Science & Medicine. 2005;60(5):911-21.
2. Moran AC, Choudhury N, Khan NUZ, Karar ZA, Wahed T, Rashid SF, et al. Newborn care practices among slum dwellers in Dhaka, Bangladesh: a quantitative and qualitative exploratory study. BMC Pregnancy and Childbirth. 2009;9(1):54.
3. Waiswa P, Peterson S, Tomson G, Pariyo GW. Poor newborn care practices-a population based survey in eastern Uganda. BMC pregnancy and childbirth. 2010;10(1):1.
4 Perry DS. The umbilical cord: transcultural care and customs. Journal of nurse-midwifery. 1982;27(4):25-30.
5. Organization WH. Care of the Umbilical Cord: A Revivew of the Evidence: Division of Reproductive Health (Technical Support), Family and Reproductive Health, World Health Organization; 1998.
6. Ambe J, Bello M, Yahaya S, Omotara B. Umbilical cord care practices in Konduga local government area of Borno State, North-eastern Nigeria. The Internet J Trop Med.

. 2009;5(2):34-41.
7. Zaidi AK, Huskins WC, Thaver D, Bhutta ZA, Abbas Z, Goldmann DA. Hospital-acquired neonatal infections in developing countries. The Lancet. 2005;365(9465):1175-88.
8. Tamma PD, Aucott SW, Milstone AM. Chlorhexidine use in the neonatal intensive care unit: results from a national survey. Infection Control & Hospital Epidemiology. 2010;31(08):846-9.
9. Black RE, Cousens S, Johnson HL, Lawn JE, Rudan I, Bassani DG, et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. The lancet. 2010;375(9730):1969-87

Guidelines

We used to use serum creatinine cut-points to determine when we should prescribe metformin in patients with any degree of renal insufficiency. Now the FDA has done away with that guideline and really expanded the number of patients that we can safely keep on metformin. These are the rules:

1. Test the eGFR in any patient before you start metformin. If it's > 45 mL/minute/1.73 m2, you are fine. That patient is fully eligible to be on metformin.
2. For the most part, the FDA does not recommend starting metformin in patients with an eGFR between 30 and 45 mL/minute/1.73 m2. But they still consider metformin safe if your patient is on metformin already and seems to be deriving some benefit. So, patients down to an eGFR of 30 mL/minute/1.73 m2 can remain on their metformin.
3. Patients with an eGFR < 30 mL/minute/1.73 m2 should not be on metformin.
4. The notion that we don't have to stop metformin in every patient undergoing a radiographic dye study makes me incredibly happy. I've spent countless hours dealing with this in my patients. The specific guidelines are as follows:
5. If the eGFR is > 60 mL/minute/1.73 m2, don't worry about it. They can continue taking their metformin throughout, unless it's an intra-arterial dye study. In that case, you are going to need to hold the metformin and make sure that the renal function stays stable.

If the eGFR is < 60 mL/minute/1.73 m2meaning between 30 and 60then, as we did before, you stop the metformin before the patient undergoes the dye study and recheck in 48 hours to make sure that the eGFR is still in a safe range.

Original Article

EFFICACY OF RIFAXIMIN IN TREATMENT OF HEPATIC ENCEPHALOPATHY

Tahir Bashir, Nauman Anjum, Faisal Latif and Sajid Nisar

Objective: To compare the efficacy of rifaximin vs control group in addition to lactulose for treatment of hepatic encephalopathy with constipat

Methods: A total 100 patients were enrolled in this study. After taking an informed consent the demographic data was collected. Patients were well informed regarding the treatment and its possible effect. The patients were examined for the confirmation of hepatic encephalopathy with constipation. Patients were randomly divided into two groups. Group A received additional rifaximin with lactulose and Group B received only lactulose. The treatment was continued for four months and then patients were observed.

Results: In our study, 18%(n=9) in Group-A and 24%(n=12) in Group-B were between 18-30 years of age while 82%(n=41) in Group-A and 76%(n=38) in Group-B were between 31-60 years of age, mean±sd was calculated as 47.7±10.44 and 46.1±10.77 years respectively. Comparison of efficacy in both groups shows 68%(n=34) in Group-A and 58%(n=29) in Group-B while 32%(n=16) in Group-A and 42%(n=21) in Group-B had no findings of efficacy.

Conclusion: We concluded that the efficacy of rifaximin is significantly better when compared to control group in addition to lactulose for treatment of hepatic encephalopathy with constipation.

Key words: Hepatic encephalopathy, management, rifaximin, efficacy

Introduction

Hepatic encephalopathy is a syndrome observed in patients with cirrhosis. Hepatic encephalopathy is defined as a spectrum of neuropsychiatric abnormalities in patients with liver dysfunction, after exclusion of other known brain disease and metabolic cause. Hepatic encephalopathy is characterized by personality changes, intellectual impairment, and a depressed level of consciousness. An important prerequisite for the syndrome is diversion of portal blood into the systemic circulation through portosystemic collateral vessels.[1] Subtle signs of hepatic encephalopathy are observed in nearly 70% of patients with cirrhosis. Symptoms may be debilitating in a significant number of patients. Overt hepatic encephalopathy occurs in about 30-45% of patients with cirrhosis.[2] The clinical signs and symptoms of hepatic encephalopathy may range from mild cognitive impairment to profound coma. These include forgetfulness, alteration in sleep-wake cycle, changes in personality and emotions, hyperreflexia and drowsiness. In more severe cases disorientation, constructional apraxia, asterixis, seizures and eventually coma may develop. It is very important to exclude other causes of altered mental status or encephalopathy in suspected patients for appropriate management of HE.[3] For HE, the mainstay treatment has been the use of non-absorbable disaccharides since they decrease the absorption of ammonia through cathartic effects and by altering the colonic pH. Several oral antibiotics such as neomycin, paromomycin, metronidazole, vancomycin and rifaximin have shown some degree of effectiveness in lowering serum ammonia concentration by reducing the intestinal flora responsible for its production.[4] The rationale of this study is to determine the importance of additional rifaximin with lactulose for the treatment of hepatic encephalopathy in local population. The results of this study will help us to take decisions to advice the patients this treatment for hepatic encephalopathy.

Method

A total 100 patients were enrolled in this study. After taking an informed consent the demographic data was collected. Patients were well informed regarding the treatment and their effect in a language they can understand best. If patient is not conscious than his attendant was asked for permission. The patients were examined for the confirmation of hepatic encephalopathy with constipation. Patients were randomly divided into two groups. Group A received additional rifaximin with lactulose and Group B received only lactulose. The treatment was continued for four months and then patients were observed.

Results

A total of 100 cases (50 in each group) were

enrolled to compare the efficacy of rifaximin vs control group in addition to lactulose for treatment of hepatic encephalopathy with constipation. Patients were distributed according to age, it was showing that 18%(n=9) in Group-A and 24%(n=12) in Group-B were between 18-30 years of age while 82%(n=41) in Group-A and 76%(n=38) in Group-B were between 31-60 years of age, mean+sd was calculated as 47.7±10.44 and 46.1±10.77 years respectively. Duration of constipation was recorded as 38%(n=19) in Group-A and 32%(n=16) in Group-B had <3 days of constipation while 62%(n=31) in Group-A and 68%(n=34) in Group-B had >3 days of constipation. (**Table 1**)

Table-1: Demographics of the women

Duration of Constipation (in days)	Group- B (n=50)		Group- B (n=50)	
	No of Patients	%	No of Patients	%
<3	19	38	16	32
> 3	31	62	34	68
Total	50	100	50	68

Frequency of grade of encephalopathy according to West Haven criteria was recorded and showing that 28%(n=14) in Group-A and 32%(n=16) in Group-B had grade 2, 42%(n=21) in Group-A and 36%(n=18) in Group-B had grade 3 while 30%(n=15) in Group-A and 32%(n=16) in Group-B had grade 4. (**Table No. 2**)

Table-1: Demographics of the women

Grade	Group- B (n=50)		Group- B (n=50)	
	No of Patients	%	No of Patients	%
1	-	-	-	-
2	14	28	16	32
3	21	42	18	36
4	15	30	16	32
Total	50	100	50	100

Comparison of efficacy in both groups shows 82%(n=41) in Group-A and 58%(n=29) in Group-B while 18%(n=19) in Group-A and 42%(n=21) in Group-B had no findings of efficacy, p value was calculated as 0.008. (**Table No. 3**)

Table-1: Demographics of the women

Efficacy	Group- B (n=50)		Group- B (n=50)	
	No of Patients	%	No of Patients	%
Yes	41	82	29	58
No	09	18	21	32
Total	50	100	50	100

P value=0.00

Discussion

Hepatic encephalopathy is a challenging complication in patients with advanced liver disease. Diagnosis of hepatic encephalopathy is currently based on specific tests evaluating the neuropsychiatric state of patients and their quality of life; the severity of hepatic encephalopathy is measured by the West Haven criteria. Treatment of hepatic encephalopathy consists of pharmacological and corrective measures, as well as nutritional interventions. Rifaximin received approval for the treatment of hepatic encephalopathy in 2010 because of its few side effects and pharmacological benefits.

We planned this study with the view to determine the importance of additional rifaximin with lactulose for the treatment of hepatic encephalopathy. There is no local study available for this topic that's why we conducted this study. In previous studies, episodes of HE were reported in 22.1% of patients in the rifaximin group and in 45.9% of patients in the placebo group. The hazard ratio for the risk of a breakthrough episode in the rifaximin group was 0.42 (95% CI: 0.28-0.64), accounting for a relative risk reduction of 58% with rifaximin compared with placebo during the 6 months follow-up,[5] however, it supports our study results.

A trial comparing rifaximin with placebo found that the active therapy significantly improved only asterixis, whilst PSE index, mental status and intellectual function similarly improved in both groups.[6] In another placebo-controlled trial, rifaximin was claimed to be superior compared to placebo.[7] A recent randomized trial compared the efficacy of 8 week rifaximin therapy in improving health-related quality of life (HRQOL) in minimal HE cirrhotics compared with placebo.[8] Rifaximin was found to be significantly associated with an improvement of HRQOL. However, data of this study have been criticized, an imbalance between the patients randomized in the two arms being present.[9] In detail, patients randomized to rifaximin appeared to have most of the baseline scores (social interactions, emotional behavior, ambulation, mobility, body care and movements) at higher levels compared to the placebo group, suggesting a worse score at baseline in this group. Despite the rifaximin group showing a significant improvement of scores at 8 wk, the final values would not appear different from the final values observed in the placebo group.[8] Therefore, it cannot be excluded that the higher efficacy of

rifaximin was related to the poorer baseline conditions rather than to a real efficacy of the drug.[9] Consequently, this data should be considered with caution.

Rifaximin has been proved to be safe in healthy subjects. However, liver cirrhosis significantly affects the pharmacokinetics of this drug, with systemic absorption markedly increased in these patients compared to controls. Indeed, plasma concentrations as high as 10 ng/mL have been observed in cirrhotics, with levels being even higher in those patients with Child-Pugh C disease, compared to only 1 ng/mL in controls.[10] This could be a cause for concern, particularly when a daily, long-life therapy is proposed for chronic disorders, such as HE recurrence prevention.[7] Therefore, a note for caution should be considered before suggesting long-term therapy with rifaximin for HE prevention in cirrhotics and further studies are warranted to assess its actual safety.

However, according to the results of our study, we found a significant difference between the two groups. As our study is primary in our setup, it needs to be validated through some-other trials.

Conclusion

We concluded that the efficacy of rifaximin is significantly better when compared to control group in addition to lactulose for treatment of hepatic encephalopathy with constipation.

Department of Medicine
SIMS/Services Hospital, Lahore

www. esculapio.pk

References

1. Riggio O, Efrati C, Catalano C. High prevalence of spontaneous portal-systemic shunts in persistent hepatic encephalo pathy: a case-control study. Hepatology 2005; 42(5):1158-65.
2. Poordad FF. Review article: the burden of hepatic encephalo-pathy. Aliment PharmacolTher 2007; 25(1):3-9.
3. Om Parkash, Ayub A, Hamid S. Hepatic Encephalopathy. New Advances in the Basic and Clinical Gastroenterolog. http://cdn.intechopen.com/pdfs/35464/InTechHepatic_encephalopathy.pdf
4. Karim M Eltawil, Marie Laryea, Peltekian K, Michele Molinari. Rifaximin vs conventional oral therapy for hepatic encephalo-pathy: A meta-analysis. World j ganteroenterol 2012; 18(8):767-777.
5. Bass NM, Mullen KD, Sanyal A, Poordad F, Neff G, Leevy CB, Sigal S, Sheikh MY, Beavers K, Frederick T. Rifaximin treatment in hepatic encephalopathy. N Engl J Med. 2010; 362:10711081.
6. Alcorn J. Review: rifaximin is equally or more effective than other antibiotics and lactulose for hepatic encephalopathy. ACP J Club. 2008;149:11.
7. Ortiz M, Córdoba J, Doval E, Jacas C, Pujadas F, Esteban R, Guardia J. Development of a clinical hepatic encephalopathy staging scale. Aliment Pharmacol Ther. 2007;26:85967.
8. Sidhu SS, Goyal O, Mishra BP, Sood A, Chhina RS, Soni RK. Rifaximin improves psychometric performance and health-related quality of life in patients with minimal hepatic encephalopathy (the RIME Trial) Am J Gastroenterol. 2011;106:30716.
9. Zullo A, Hassan C, Lorenzetti R. Rifaximin therapy in minimal hepatic encephalopathy cirrhotics. Am J Gastroenterol. 2011;106: 2041; author reply 204142.
10. Bajaj JS, Riggio O. Drug therapy: rifaximin. Hepatology. 2010;52: 1484-1488 ; 77(11):981-4.
12. Khan MS, Kamran H, Khan SA, Ahmed M, Khan A, Younas M, Khan S. Outcome of modified open surgery in tennis elbow. J Ayub Med Coll 2007; 19: 50-2)
13. Radwan YA, ElSobhi G, Badawy WS, Reda A, Khalid S. Resistant tennis elbow: shock-wave therapy versus percutaneous tenotomy. IntOrthop. 2008; 32(5):671-7.
14. Rosenberg N, Henderson I. Surgical treatment of resistant lateral epicondylitis. Follow-up study of 19 patients after excis- ion, release and repair of proxi- mal common extensor tendon origin. Arch Orthop Trauma Surg. 2002; 122(9-10):514-7.
15. Boyer MI, Hastings II H. Lateral tennis elbow: "Is there any science out there?". J Should Elbow Surg 1999; 8: 48191.
16. Zamudio-Muñoz LA, Urbiola-Verdejo M, Sánchez-Vizcaíno PM. Social, demographic and laboral factors associated with the presence of lateral elbow epicondylitis. Rev Med Inst Mex Seguro Soc. 2011; 49(1):59-64.
17. Shiri R, Varonen H, Heliövaara M, Viikari-Juntura E. Hand dominance in upper extremity musculoskeletal disorders. J Rheumatol. 2007; 34(5):1076-82.
18. Smidt N, Assendelft WJ, Arola H, Malmivaara A, Greens S, Buchbinder R, et al. Effectiveness of physiotherapy for lateral epicondylitis: a systematic review. Ann Med 2003; 35: 51-62.
19. Bisset L, Beller E, Jull G, Brooks P, Darnell R, Vicenzino B. Mobilisation with movement and exercise, corticosteroid injection, or wait and see for tennis elbow: randomized trial. Br Med J 2006; 333 (7575): 939.
20. Haake M, Boddeker IR, Decker T, Buch M, Vogel M, Labek G, et al. Side-effects of extracorporeal shock wave therapy in the treatment of tennis elbow. Arch Orthop Trauma Surg 2002; 122:2228.
21. Petrella MJ, Cogliano A, Petrella RJ. Long-term efficacy and safety of periarticular hyaluronic acid in acute ankle sprain. Phys Sports Med 2009;37:64-70.

Original Article

ROLE OF MRI IN FUNCTIONAL PROGNOSIS OF METASTATIC CORD COMPROMISE

Kashif Siddique, Ahmed Bilal and Khalid Rehman Yousaf

Objective: Primary objective of our study was to establish the strength of association of MRI findings at presentation with clinical outcome of patient i.e Motor deficit and Sphincter control. Secondary objectives included Incidence of tumors affecting spinal cord and Correlation of motor weakness and sphincter control with patient presentation.

Methods: This retrospective study was conducted in Department of Radiology,Shaukat Khanum Memorial Cancer Hospital and Research Center, Lahore, between Jan 2013 and June 2013. The study included series of 64 patients, including 38 men and 26 women, ranging between 35 and 70 years (mean, 48.5±13 years), presenting with symptoms and signals of spinal stenosis.

Results: Results for tumors involving less than 25%, N: 24 (37%) were included in this group. All showed stable appearance or improvement on follow up. Data was not significant (when expecting stability/improvement in 75-100% of patients).When further divided into 2 groups. Improvement was seen in (6) p> 0 and stability in (18) p< 0.05 significant. Results for tumors involving less than 25-50%,N: 26 (40.6%). 45% showed improvement, when expecting stability/ improvement in 50-75% of patients. Data was statistically insignificant data with p > 0.05.Moreover, the results for tumors involving less than 50-75%, N: 4 (6.2%). 50% showed improvement/stability post treatment. 50% showed progression. In patients tumors involving less than 75-100%, N: 10 (15%). 20% showed improvement. Statistically significant data with p< 0.05.Cord signal was compromised in 28 (34.3%). 22 had muscular weakness. Improvement was seen in 45%. 12 had sphincter dysfunction. 50% showed improvement in clinical symptoms.

Conclusion: MRI has a potential to predict the functional outcome in patients with metastatic cord compromise.

Key words: MRI, metastatic cord compression, functional outcome.

Introduction

Metastases to the spine are a common problem in a large oncology center. Between 5% 1and 10%2 of all cancer patients develop spinal metastases during the course of their disease. Treatment options available for metastatic spine tumors include radiation therapy (RT), surgery, and chemotherapy. RT is accepted as the first-line choice for most patients with metastatic spinal tumor. Early diagnosis of metastatic spinal disease is important because functional outcome depends on neurologic condition at the time of presentation. Magnetic resonance imaging (MRI) has revolutionized assessment of metastatic spinal tumor. MRI is the most sensitive and specific modality for imaging spinal metastases. However, role of MRI in functional prognosis of a patient has not been studied before.

Methods

It is a retrospective study. N: 64, patients were included in study. MRI was done in all cases using 1.5Tesla GE scanner. Sag T2 and T1 sequences followed by selected Axial T2 and T1 sequences were obtained.Review of Initial presentation in terms of motor power and sphincter control was recorded. Treatment (xrt) was radiotherapy in all cases. Follow up was done both clinically and radiologically.

• All patients with clinical and radiological cord compromise undergoing XRT were included. Excluded group included those patients who refused treatment, or those whose data of clinical presentation in terms of exact motor power and sphincter control was not documented in clinical notes. Method of interpretation was by selecting site of maximum compromise on sagittal T2 image and selecting corresponding axial section. It was followed by dividing it into 4 compartments for % calculation.

•Tumor involving 0-25% of spinal canal

•Tumor involving 25-50% of spinal canal

•Tumor involving 50-75% of spinal canal

•Tumor involving 75-100% of spinal canal

Calculation of total canal compromise was done along with cord signal change. Reviewing the outcome to calculate significant association between

baseline MRI and patients' functional outcome was also performed. Frequency of patients expected to show clinical improvement/stability was hypothesized to be inversely related to degree of cord compromise. Results calculated using 2x2 tables and applying Fischer's test/chi-square tests as needed.

Null hypothesis is illustrated in **Fig 1.**

Table-1: Null hypothesis.

Cord Compromise	Frequency Expected
0-25%	75-100%
25-50%	50-75%
50-75%	25-50%
75-100%	0-25%

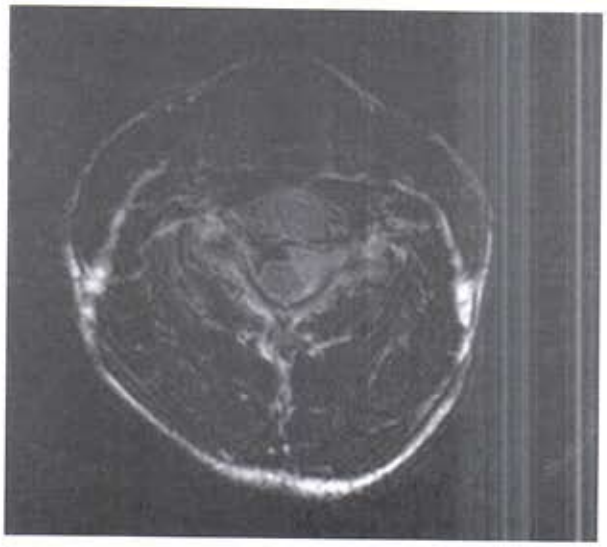


Fig-1: Method of calculation of degree of spinal stenosis

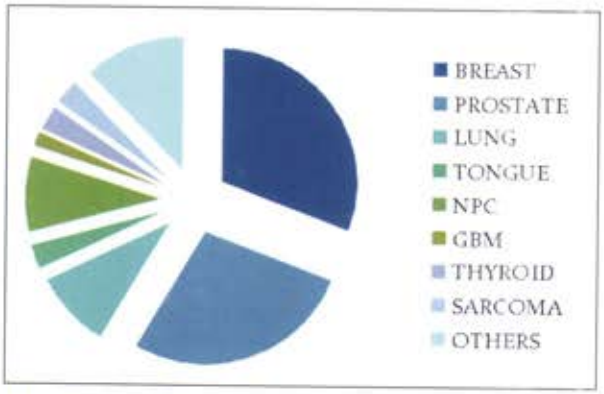


Fig-1: The incidence of metastatic disease

Method of calculation of degree of spinal stenosis is illustrated in **Fig 2**. Control of variables was done by random sampling with all tumors included. Treatment bias was not a confounding variable as all patients except for two patients received XRT.1 refused treatment and 1 underwent surgical decompression

Results

The incidence of metastatic disease in our patients is seen in **Fig 3**.

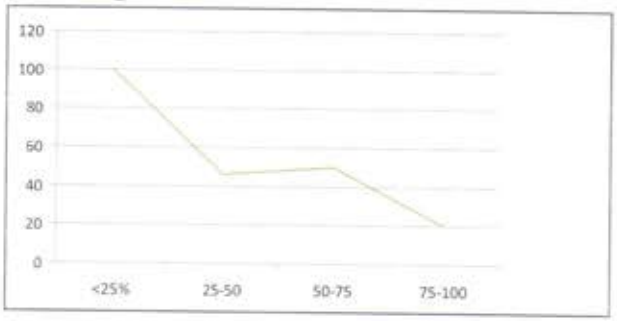


Fig-4: Relationship of motor control with degree of cord compromise.

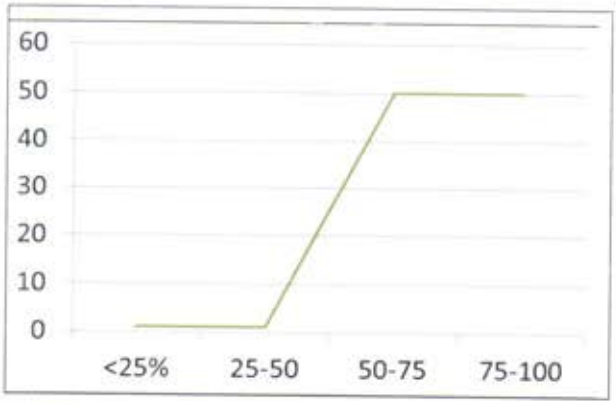


Fig-5: Relationship of sphincter control with degree of cord compromise.

Results for tumors involving less than 25%, N: 24 (37%) were included in this group. All showed stable appearance or improvement on follow up. Data was not significant (when expecting stability /improvement in 75-100% of patients). When further divided into 2 groups, improvement was seen in (6) $p > 0$.and stability in (18) $p < 0.05$ significant. In patients tumors involving less than 25-50%,N: 26 (40.6%), 45% showed improvement, when expecting stability/ improvement in 50-75% of patients, data was statistically insignificant with $p > 0.05$.Moreover, the results for tumors involving less than 50-75%, N:4 (6.2%), 50% showed improvement/stability post treatment. 50% showed progression. In patients with

tumors involving less than 75-100%, N: 10 (15%), 20% showed improvement. Statistically significant data with $p < 0.05$.Cord signal was compromised in 28 (34.3%). 22 had muscular weakness. Improvement was seen in 45%. 12 had sphincter dysfunction. 50% showed improvement in clinical symptoms.

Discussion

Spinal cord compression is a surgical emergency and if unrecognized or untreated, can result in irreversible neurological damage and disability. Diagnosing the presence or absence of metastatic compression of the spinal cord or cauda equina and predicting the level on the basis of clinical signs alone is difficult and frequently inaccurate.[3] MRI has a high sensitivity for identifying metastatic disease; however, its role in functional prognosis has not been studied before. Our study is unique in this sense.

We noticed that all patients with motor compromise occupied anterolateral compartment as expected, anatomically.[4] Another important finding was that only 6/64 (2.5%) cases showed more than 50 % decrease in radiological size, and all these patients had intact sphincters. Of note is that all six belonged to 25-50% group. However insufficient data renders further investigation impossible in this aspect. We also noted that less than 25% and more than 75% cord compromise is significant predictor of patient % outcome. Motor control has proportionate relationship with degree of cord compromise **(Fig 4)**. Sphincter control however has neither significant association nor proportionate relationship with cord compromise **(Fig 5)**. Sphincter control has slightly better outcome with compromised cord signal, which however was not statistically significant Previous studies [5] (1990-2003) never commented on patient out come in relation with baseline MR examination. Some studies 6 discussed effects of radiotherapy which we kept constant. Previous studies divided the interpretations into 3 parts. i.e. Total, partial and no compromise; we did it in four for better quantitative evaluation.

Our results including more or less compared with previous studies [7] when accounting for correlation of MRI findings with clinical presentation, however we do not have any study to compare the functional prognosis predicted on baseline MR with radiation therapy as constant. We believe a larger sample size would result in statistically significant data for 25-50% and 50-75% cord compromise. It was noticed that some of the patients who had intact sphincters at the time of presentation showed more than 50% reduction in tumor size. This association may be studied in future.

Conclusion

MRI has a potential to predict the functional outcome in patients with metastatic cord compromise.

Department of Radiology
SIMS/Services Hospital, lahore
www.esculapio.pk

References

1. Andreasson I., Petren-Mallmin M., Strang P., Nilsson S., Nyman R., Hemmingsson A. Diagnostic methods in planning palliation of spinal metastases. Anticancer Research. 1990;10:731733
2. Bayley , Milosevic , Blend , Logue , Gospodarowicz , Boxen , Warde , McLean , Catton , Catton A (2001) prospective study of factors predicting clinically occult spinal cord compression in patients with metastatic prostate carcinoma. Cancer. 92(2):303310. United States.
3. Loblaw D. A population-based study of malignant spinal cord compression in Ontario. Clinical Oncology. 2003;15 (4): doi:10.1016/S0936-6555(02)00400-4
4. NICE (UK). Metastatic spinal cord compression: Diagnosis and management of adults at risk of and with metastatic spinal cord compression. NICE; 2008. http://www.nice.org.uk/guidance/cg75/
5. Solberg A., Bremnes R. M. Metastatic spinal cord compression: diagnostic delay, treatment, and outcome. Anticancer Research. 1999;19:677684.
6. Turner S M. B. T. I. B. J. Malignant spinal cord compression: a prospective evaluation. Int J Radiat Oncol Biol Phys.1993;26:141146.
7. Venkitaraman R, et al. Detection of occult spinal cord compression with magnetic resonance imaging of the spine.Clinical Oncology. 2007;19:528531

Original Article

Frequency of Hyperthermia and Poor Outcome in Patients with Ischemic Stroke

Raffad, Sana Fatima and Farah Shafi

Objective: To determine the frequency of hyperthermia in patients with ischemic stroke and compare the frequency of poor outcome in patients with and without hyperthermia along with ischemic stroke.

Methods: This descriptive cross-sectional study was carried out in Medical Unit III, Postgraduate Medical Institute/Lahore General Hospital, Lahore over six months period six month from March 18, 2015 to September 17, 2015.Two hundred patients of both gender, aged 18-60 years, reaching within 24 hours of onset of symptoms and signs of ischemic stroke with Glasgow Coma scale (GCS) ≤ 10/15 were enrolled in the study. Axillary temperature was recorded by placing the thermometer in axilla for two minutes at interval of four hours from the time of admission to till 3rd day of stay in hospital. GCS was recorded at baseline and after three days of hospital stay and poor outcome was noted.

Results: In this study a total of 200 cases were enrolled, of which 143 (71.5%) were male. mean age of the patients was 43.11±6.97. it was noted that in 71 (35.5%) cases hyperthermia was present while in 129 (64.5%) cases hyperthermia was not present. poor outcome in 92 (46%) of cases and was absent in 108 (54%) p-value<0.05.

Conclusions: Hyperthermia can result in poor outcome in ischemic stroke patients

Keywords: Stroke, hyperthermia, mortality, poor outcome.

Introduction

Ischemia stroke is a cerebrovascular disease due to cerebral ischemia, resulting in neurological signs and symptoms that persist for more than 24 hours.[1] The neurological deficit depends on site and size of area of brain damage and presents most commonly as hemiplegia with or without signs of focal higher cerebral dysfunction such as aphasia, hemisensory loss, visual field defects for brain stem defects.[2] CT scan brain is the investigation of choice for this.[1]

Ischemic stroke is the leading cause of death,[3] standing at number three after cancer and ischemic heart disease2. It is a poly etiologic disease and many factors are responsible for poor outcome.[4,7] One of these factors is hyperthermia that occurs almost in one third of patients with ischemic stroke.[8]

Hyperthermia in patients with ischemic stroke occurs due to many treatable conditions like aspiration pneumonia, urinary tract infection, respiratory tract infection, infectious endocarditis andmeningoencephalitis.[9] It is related to poor outcome in patients with ischemic stroke8. So by treating hyperthermia one can play an important role in improving the outcome of patients with ischemic stroke.[10] A study was done in United States that included cases of ischemic stroke. The study was undertaken on 1361 patients with ischemic stroke and frequency of hyperthermia and relationship of hyperthermia burden to outcome of patient was noted. It was found that 483 (35%) patients had hyperthermia and a high hyperthermia burden was associated with 6-fold increased risk of death or discharge to hospital.[8] Another study was done in Edinburgh which included 44 case of ischemic stroke and relationship of hyperthermia to outcome of patents was noted. it was found that out of 44 patients of ischemic stroke, 16 patients (36%) developed hyperthermia. 25 patients (56.81) had poor outcome. A higher proportion of patients with hyperthermia 12/16 (75%) had poor outcome than patients without hyperthermia 13/28(46%).[11]

There is high prevalence of patients who develop post-stroke hyperthermia in our population but there is paucity of local studiesabout the relationship between post-stroke hyperthermia and outcome.We planned this study in our local population to determine the frequency of hyperthermia in patients with ischemic stroke and compare frequency of poor outcome in such patients with and without hyperthermia. If hyperthermia occurs in patients of ischemic stroke and it is related to poor outcome in

ischemic stroke's patients then we can reduce mortality, morbidity and economic burden of ischemic stroke by treating hyperthermia.

Methods

This descriptive cross-sectional study was conducted in medical unit III, Postgraduate Medical Institute/Lahore General Hospital, Lahore during six-month period from March,2015 to September, 2015. A study sample of 200 cases was calculated at margin of error 6% and confidence level by 95% and taking expected percentage of hyperthermia i.e. 35% in patients of ischemic stroke. Non-probability consecutive sampling technique was used to enroll patients. Inclusion criteria of the study were patients reaching in tertiary care hospital within 24 hours of onset of symptoms and signs of ischemic stroke (presence of weakness of one or more limbs for more than 24 hours and confirmed by CT scan brain as hypodense area),belonging to either gender, aged 18-60 year, with Glasgow coma score (GCS) ≤ 10/15. Patients with recurrent ischemic stroke on history, those with history of hyperthermia before the onset of ischemic stroke or those with hemorrhagic stroke (shown by hyperdense area on CT scan brain) were excluded from the study.

After fulfilling the inclusion and exclusion criteria 200 patients were enrolled in the study. Informed consent was obtained from patient or his / her guardian if patient was unable to do so. Demographic information including name, age, sex and address was noted. Axillary temperature was taken by placing the thermometer in axilla for two minutes at interval of 4hour from the time of admission to till 3rd day of his/her stay in hospital and was evaluated for hyperthermia as per operational definition. All the patients were managed as per hospital routine. GCS was recorded as baseline and after three days of hospital stay and poor outcome was labeled. Hyperthermia was defined to be present if axillary temperature recorded within three days during hospital exceeded 37.8°C for at least four hours. Similarly, if the patient's GCS remained same or reduced on assessment on third day, it was graded as poor outcome.

Data wereanalyzed using SPSS version 20.0. Continuous variable like age was presented by mean and standard deviation. Categorical variable such as gender, hyperthermia and poor outcome were described as frequency and percentage. chi square test was used to determine the significant difference of outcome in patients with and without hyperthermia. A p value of less than 0.05 was considered significant. Data was stratified for age, gender, history of diabetes mellitus, hypertension, and GCS at baseline to deal with effect modifier. Post stratification chi-square test was used. P-Value ≤ 0.05 was considered significant.

Results

Of 200 cases, 143 (71.5%) were male and 57 (28.5%) were female. Mean age of the patients was 43.11 ± 6.97 years with age range of 19to 52 years.

It was noted that 71 (35.5%) were suffering from hyperthermia while 129 (64.5%) hadnormal temperature.92 (46%) of cases developed poor outcome **(Table 1)**.

Table-1: Comparison of poor outcome in cases with and without hyperthermia (n=200).

Hyperthermia	Poor Outcome		p-value
	Yes	No	
Present	55 (77.5)	16 (22.5)*	P=000
Absent	37 (28.7)	92 (71.3)	

Table-2: Hyperthermia in different factors (n=200).

Factors		Hyperthermia		P-Value
		Present	Absent	
Age (Years)	<30	7 (9.9%)	4 (3.1%)	0.045
	>30	64 (90.1%)	125 (96.4%)	-
Gender	Male	52 (73.2%)	91 (70.5%)	-
	Female	19 (26.8%)	38 (29.5%)	0.686
Diabetes Mellitus	Yes	49 (69%)	38 (29.5%)	0.485
	No	22 (31%)	34 (26.4%)	-
Hypertesnsion	Yes	64 (90.1%)	116 (89.9%)	-
	No	7 (9.9%)	13 (10.1%)	-
GCS Scale Score	<7	42 (59.2%)	69 (53.5%)	0.440
	>7	29 (40.8%)	60 (45.5%)	-

It was noted that there were more 55 (77.5%) cases who had developed poor outcome and were having hyperthermia while 16 (22.5%) cases had not developed poor outcome but were having hyperthermia with a significant difference pvalue 0.000 **(Table 1)**. Data of hyperthermia and poor outcome were stratified for age, gender, diabetes mellitus, hypertension and GCS as shown in **Table 2** and **3**. Hyperthermia was more frequent in patients

years and poor outcome was higher in patients with GCS <7 (p<0.05).

Table-3: Stratification with respect to poor outcome (n=200).

		Poor outcome		P-Value
		Yes	No	
Age (Years)	<30	8 (8.7%)	3 (2.8%)	0.067
	>30	84 (91.3%)	105 (97.2%)	-
Gender	Male	68 (73.9%)	75 (69.4%)	0.067
	Female	24 (26.1%)	33 (30.5%)	
Diabetes Mellitus	Yes	62 (67.4%)	82 (75.9%)	0.180
	No	30 (32.6%)	26 (24.1%)	
Hypertesnsion	Yes	83 (90.2%)	97 (89.8%)	0.925
	No	9 (9.8%)	11 (10.2%)	
GCS Scale Score	<7	64 (69.6%)	47 (43.5%)	0.000
	>7	28 (30.4%)	61 (56.5%)	

Discussion

Hyperthermia following ischemic stroke is a common but undesirable event whose pathophysiology and clinical importance are not fully recognized. Hyperthermia is ischemic stroke may result from the brain infarct itself; however, the progress of biochemical and inflammatory mechanisms associated with cerebral ischemia is also relevant. Consequently, the presence of hyperthermia accentuates ischemic mechanisms within the penumbra, an area of reversibly impaired neuronal function surrounding the infarct, contributing to conversion of the penumbra in to an irreversible lesion.[12]

Hyperthermia in the neurocritical care setting is common and has a negative impact on outcome of all disease types. Meta-analyses have demonstrated that hyperthermia at onset and in the acute setting after ischemic brain injury, intracerebral hemorrhage, and cardiac arrest has a negative impact on morbidity and mortality. Recent advances focus on eliminating hyperthermia and maintaining normothermia.[13]

In this study we found that hyperthermia occurred in 35.5% of our ischemic stroke patients. These results are similar to those described by Phipps et al [8] and Bartosz et al,[11] while Przelomski et al[14] and Terent and Andersson[15] described a higher incidence of hyperthermia. However, comparison among various studies is difficult because of differences in the definition and measurement of hyperthermia. Considering no improvement in GCS as the main measure of poor outcome, we found that hyperthermia was significantly related to a poor outcome. It was not possible to determine a threshold above which hyperthermia seemed detrimental. Probably a range of cutoffs would have given significant results.

Our data did not provide information on underlying causes of hyperthermia in our patients. Thus, we could not exclude a priori that temperature of at least 37.8C° in the first 3 days after a stroke as a marker of poor prognosis might to some extent or entirely be an epiphenomenon of some common causes of hyperthermia (e.g. pulmonary or urinary tract infections, sepsis, or pulmonary embolism from deep venous thrombosis). However this was evident that hyperthermia of at least 37.8C° indicated poor prognosis even without a consideration of its underlying causes. Since the majority of the experimental studies documented the direct effects of temperature on neurological damage, our data suggest thathyperthermia could worsen prognosis through direct neurological damage.

Only two studies have investigated the prognostic significance of hyperthermia in stroke. Hindfelt[16] found that a mean body temperature above 37.5C° from any cause in the first 7 days was associated with poor prognosis at 2 months after the ischemic stroke. However, his study was retrospective, the sample excluded patients who died within 2 months, and the measurement of outcome was not validated, so that his conclusions are not easily generalized to the whole population of stroke patients.

In a prospective study of 281 patients with stroke, Terent and Andersson[15] found that in patients with mean body temperature of 38C° or more during the first week, chest x-ray films revealed bronchopneumonia in half. Hyperthermia as defined above indicated a significantly worse prognosis, but their data did not distinguish between the consequences of complete paresis and bodytemperature. We could not consider complete paresis because of its strong association with level of consciousness impairment, reported as having a superior prognostic value forearly mortality.

Przelomski et al[14]prospectively investigated the frequency and causes of hyperthermia in a sample of 104 consecutive stroke patients. In particular, these authors studied the possible association between hyperthermia, almost always secondary to infections, and the size of the lesion, comparison with our study is difficult because the authors excluded brain stem infarcts, condition in which "neurogenic >30 hyperthermia" is most likely, and they did not evaluate

the prognostic value of hyperthermia. Our study shows that body temperature ≥37.8C° predicts poor outcome in patients with ischemic stroke. These results are in line with the well-established deleterious effect of hyperthermia in this neuronal pathology. It has been widely described the relationship between hyperthermia and poor functional outcome after ischemic stroke. However, the molecular mechanisms associated to the deleterious effects of hyperthermia in ischemic stroke have not yet been fully clarified.

It has been suggested that molecular processes such as inflammation, glutamate excitotoxicity and infections, which induces early pathophysiologic changes in the surrounding brain tissue such as breakdown of the brain-blood barrier (BBB) and development of vasogenic edema, considered relevant predictors of poor outcome, could be involved in the deleterious consequences of hyperthermia.

In our study, elderly patients (>30 years) developed hyperthermia more frequently (90.1%) than younger patients (9.9%) and patient with lower GCS level had poor outcome more frequently (69.6%) than patients with higher GCS level. It suggested that hyperthermia occurs more frequently in elderly patients and lower GCS level is an independent risk factor for poor outcome. No difference was found for the other clinical characteristics like gender or diabetes mellitus.

Hyperthermia is a robust protectant against brain ischemia. Early clinical studies have shown feasibility, but the potential for neurological improvement needs to be weighed against the higher occurrence of pneumonia and the potential for reduced thrombolytic efficacy. Combination of hypothermia with other neuroprotectants and modern reperfusion therapies should be explored.[17]

Conclusion

Our results indicated that patients with higher temperature have a worse prognosis. Future studies distinguishing between the causes of hyperthermia in ischemic stroke patients would be useful to evaluate the role of infections, and more studies are needed on larger scale to observe the actual effect of hyperthermia in cases who are presenting with ischemic stroke. This was a single centered study so has its limitations. But it showed the resemblance with the internationally published literature in context with the effect of hyperthermia in cases of ischemic stroke.

Department of Medicine,
Ameeruddin Medical College, General Hospital Lahore.

www.esculapio.pk

References

1. Zerna C, Hegedus J, Hill MD. Evolving treatments for acute ischemic stroke. Circ Res. 2016;118:1425-42.
2. Walker BR, Colledge NR, Ralston SH, Penman I, editors. Davidson's Principles and Practice of Medicine. 22nded. London: Churchill Livingstone; 2013. P.1200-1.
3. Putaala J, Curtze S, Hiltunen S, Tolppanen H, Kaste M, Tatlisumak T. Causes of death and predictors of 5-year mortality in young adults after first-ever ischemic stroke: Stroke. 2009; 40:2698-703.
4. Li S1, Zhao X, Wang C, Liu L, Liu G, Wang Y et al. Risk factors for poor outcome and mortality at 3 months after the ischemic stroke in patients with atrial fibrillation. J Stroke Cerebrovasc Dis. 2013; 22: 419-25.
5. Wollenweber FA, Zietemann V, Gschwendtner A, Opherk C, Dichans M. Subclinical hyperthyroidism is a risk factor for poor functional outcome after ischemic stroke. Stroke. 2013; 44: 1446-8.
6. Chang TR, Albright KC, Boehme AK, Dorsey A, Sartor EA, Kruse-Jarres R, et al. Factor VIII in the setting of acute ischemic stroke among patients with suspected hypercoagulable state. Clin Appl Thromb Hemost. 2014; 20: 124-8.
7. Huang YH, Zhuo ST, Chen YF, Li MM, Lin YY, Yang ML,et al. Factors influencing clinical outcomes of acute ischemic stroke treated with intravenous recombinant tissue plasminogen activator. Chin Med J (Engl). 2013; 126: 4685-90.
8. Phipps MS, Desai RA, Wira C, Bravata DM. Epidemiology and outcomes of hyperthermia burden among patients with acute ischemic stroke. Stroke. 2011; 42:3357-62.
9. Ionita CC, Siddiqui AH, Levy EI, Hopkins LN, Snyder KV, Gibbons KJ. Acute ischemic stroke and infections. J Stroke Cerebrovasc Dis. 2011; 20:1-9.
10. Saini M, Saqqur M, Kamruzzaman A, Lees KR, Shuaib A. Effect of hyperthermia on prognosis after acute ischemic stroke. Stroke 2009; 40: 3051-9.
11. Bartosz K, Ralph GR, Martin SD, Joanna MW. Temporal profile of body temperature in acute ischemic stroke: relation to stroke

severity and outcome. BMC Neurol. 2012;12:123.
12. Zaremba J. Hyperthermia in ischemic stroke. Med Sci Rev. 2004; 10: 148-53.
13. Badjatia N. Hyperthermia and fever control in brain injury. Crit Care Med. 2009; 37(7 Suppl): S250-7.
14. Przelomski MM, Roth RM, Gleckman RA, Marcus EM. Hyperthermia in the wake of a stroke. Neurology. 1986; 36 427-9.
15. Terent A, Andersson B. The prognosis for patients with cerebrovascular stroke and transient ischemic attacks. Ups J Med Sci. 1981; 86:63-74.
16. Hindfelt B. The prognostic significance of subfebrility and hyperthermia in ischemic cerebral infarction. Acta Neurol Scand. 1976; 53: 72-9.
17. Yenari MA, Hemmen TM. Therapeutic hypothermia for brain ischemia: Where have we come and where do we go? Stroke. 2010; 41: 72-74.

Medical News

World's first vaccine developed against Toxic Shock Syndrome

TToxic Shock Syndrome (TSS) is a severe circulatory and organ failure caused by bacterial toxins, usually triggered by bacteria from the Staphylococcus group. Researchers from MedUni Vienna's Department of Clinical Pharmacology, in collaboration with the company BiomedizinischeForschungsgesells- chaftmbH in Vienna, have now developed the world's first safe and effective vaccine against this disease and successfully tested it in a Phase I trial. The promising results were recently published in the leading journal The Lancet Infectious Diseases.

This syndrome was first described in the 1980s. General symptoms of sepsis or blood poisoning occurred in young women who had used so-called "super tampons" during their periods. This is why the syndrome was also known as "tampon disease". This subsequently led to the absorption capacity of tampons being regulated.

Staphylococci colonize nearly all of us, especially on our skin and mucous membranes. They are totally harmless to most people. "However, for people with weakened immune systems, they can cause serious diseases such as Toxic Shocks Syndrome," explains Martha Eibl, director of Biomedizinische-Forschungsgesellscaftmb H and former university professor at the Institute for Immunology of the medical faculty of the University of Vienna. This affects dialysis patients, the chronically sick, people with liver diseases and people recovering after heart operations. "Nevertheless, in 50% of cases the disease is associated with menstruation in young women," says Bernd Jilma from MedUni Vienna's Department of Clinical Pharmacology.

The vaccine, which has now been found to be safe and effective - and to have practically no side effects - in a clinical Phase I trial, and has been tested on 46 young men and women, was developed from a detoxified Staphylococcus toxin. The vaccine is injected into the skin and its effect is similar to that of a tetanus vaccination, says Jilma. "Immunization with such vaccines lasts for five years or more." Once vaccinated, a person develops antibodies, which become active if the germs start to pose a threat. A blood test can show whether someone is short of antibodies. Risk groups could then be preventively vaccinated.

"We are well on the way to having a vaccine that prevents this series disease. However, it will still take some years before it is in clinical use," explains Eibl. A Phase II trial with a larger test population has now started, in order to check the initial, promising results. "We are still looking for more volunteers," says Jilma.

Courtesy: medicalnewstoday

Case Report

TRIPLE A (ALLGROVE) SYNDROME

Khalid Maqsood, Muhammad Usman and Sumaira

Abstract: Allgrove syndrome is a rare autosomal recessive disorder characterized by classic triad of Achalasia cardia, Alacremia and ACTH-resistant adrenal insufficiency. Although Addison's disease is the essential component but various combinations of other major findings are often seen involving nervous system. Patients generally present with adrenal insufficiency diagnosed during an inter-current illness. Other clinical features such as alacremia, dysphagia with recurrent vomiting may precede adrenal insufficiency for some time. Here, we present case of a 5 year-old boy who presented with complaints of recurrent vomiting and dysphagia. In last admission tendency towards low blood sugar was noticed and there was some concern about pigmentation of lips. This paper highlights early features of this syndrome and the importance to include Allgrove syndrome in the presence of any of two features, progressive dysphagia Alacremia or symptoms of primary adrenal insufficiency.

Key words: Achalasia, Alacremia, Adrenocorticotrophic insufficiency, Allgrove syndrome

Introduction

Triple A syndrome was first described by Jeremy Allgrove and colleagues in 1978.[1] It is a rare disorder and real incidence is not known. It presents with features such as hypocortisolism, absence of tears, swallowing difficulties.[2] It usually present during the first decade of life mostly with classical features already mentioned but sometimes may present with life threatening episodes of severe Hypoglycemia and hypotension. Cholinergic dysfunction and autonomic tests are usually disturbed with a significant deviation from normal values.[3]

Globally, the pathology of this syndrome may be due to a progressive dysfunction of cholinergic function throughout the body tissues. Alternatively, this disorder may represent an ACTH resistance caused by dysfunction of melanocortin receptor signaling pathway. This explains most of clinical features of the disorder. As melanocortin receptors are known to regulate adrenal function and skin exocrine gland function.[4] This disorder is caused by mutation in AAAS gene on chromosome 12q13 which encodes ALADIN protein (a part of nuclear pore complex) resulting in an impaired protein function[5].

Case Report

A 5 years old boy presented to our hospital in OPD with complaints of recurrent vomiting and progressive dysphagia for last 7- 8 months. He had difficulty in swallowing solids but tolerate liquid diets. Our patient had poor appetite with easy fatigability, muscular aches and pains. There is history of one elder sibling death 4 months ago due to dehydration and shock, which was diagnosed as Addison's disease at a tertiary care unit in Lahore.

There was progressive dryness of conjunctive with reduced tear formation. There was no history of fainting spells or fits. His physical examination revealed a lean thin, alert, well cooperative and comfortable child. He had obvious pallor & hyperpigmented lips and gingival (fig.1). He was afebrile with heart rate 110/min, Blood pressure 100/70mmHg and Respiratory rate 35/min. His weight was 16.5 Kg, Height 102 cm and OFC 50cm (All below 50th centile). Other examination was unremarkable.His investigations revealed haemoglobin 11.3g/dl (microcytic hypochromic Red blood cells), total leukocytes 8.87x103 uL, platelet

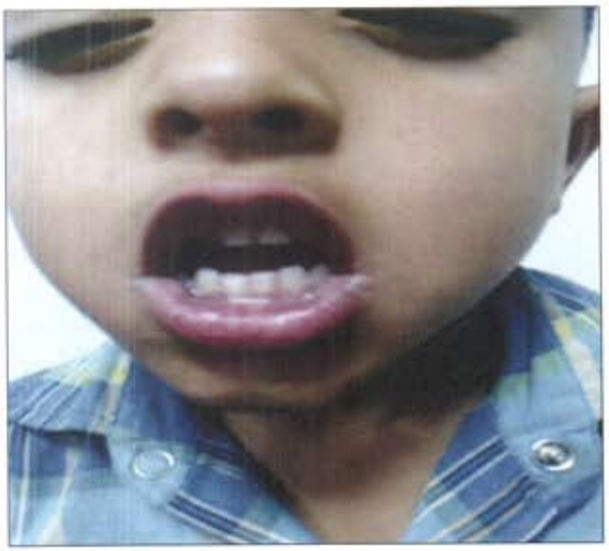


Fig.1. Hyperpigmentation of lips and gingivae.

count 335 x 103/uL and Blood sugar was 52mg/dl. Serum electrolytes, renal function test, liver function tests and urine complete picture was normal. The serum ACTH and Cortisol were initially done at 8:00am. Serum ACTH was high with value of 103 pg/ml (normal cut off 6-50 pg/ml) and random serum cortisol was 12ug/dl (normal cut off 6-23ug/dl) Then ACTH stimulation test was done to check for response of adrenal glands.

ACTH stimulation Test:

- Sample (0) before ACTH Cortisol 14.4 ug/dl.
- Sample (1) after 30 min 32 ug/dl.
- Sample(2) after 60 min 36 ug/dl.

These values document suboptimal response ACTH stimulation. In a normal person a threefold rise of cortisol is expected after standard ACTH stimulation.

Contrast studies upper barium series showed narrowing of lower esophagus giving it a bird-beak appearance and delayed esophageal emptying. Heller's Myotomy was done successfully after surgical consulation. He was put on stress dose Hydrocortisone 50 mg/m2 per day in DD for 5 days to avoid crisis during surgical stress. Ophthalmic evaluation also proved dry conjunctiva and signs of irritation due to absence of tear production. Artificial tears and lubricant were prescribed for use on regular

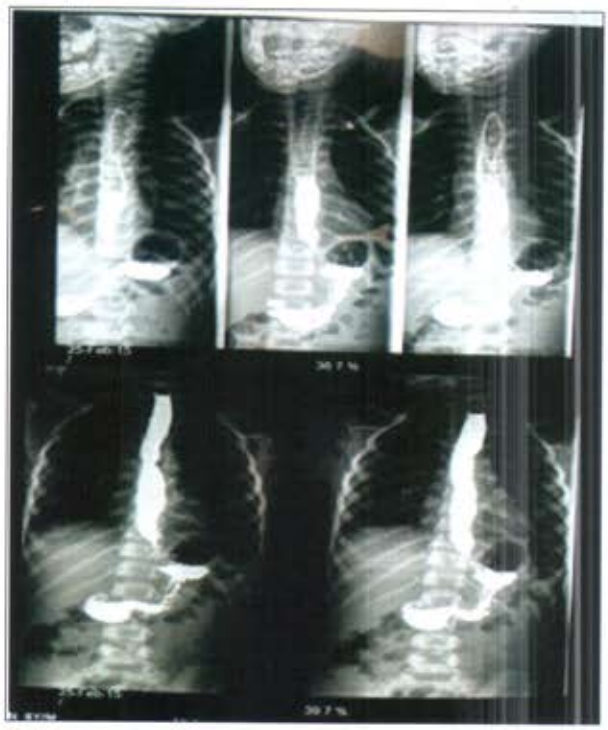


Fig-2: Barium meal Showing Esophageal Achalasia.

basis. Patient responded well to the surgery and he was able to take liquid and solid diets during the hospital stay without any vomiting. He was discharged with advice of stress dose of hydrocortisone and close follow up to pediatric endocrine clinic.

Discussion

We have presented a case who presented in Fatima memorial hospital with vomiting and dysphagia. The lips and buccal hyperpigmentation along with irritation of eyes and decreased lacrimal production made us to think of a rare syndrome which has characteristic triad of achalasia, alacremia and ACTH-resistant adrenal insufficiency- triple-A syndrome. This is an inherited familial disorder that usually manifests within the first decade of life with alacrima and/or achalasia, followed by glucocorticoid deficiency.[6] Alacremia which is a progressive disorder that can take years to develop into a full-blown clinical picture. It is the earliest and the most consistent feature of allgrove syndrome that usually presents from early infancy but is often missed by parents.[7] The term achalasia means "failure to relax" and refers to the inability of the lower esophageal sphincter (a ring of muscle situated between the lower esophagus and the stomach) to open and let food pass into the stomach resulting in dilated esophagus with retained saliva, liquid, and undigested food particles in the absence of mucosal stricturing or tumor.[8]

Incidence is unknown but it is an extremely rare syndrome with an autosomal recessive inheritance. The probable risk in future pregnancies is 25%. No evidence suggests that gender affects the frequency. It affects all races and can have variable presentation (1). The prevalence of Allgrove syndrome is unknown, only scattered family and case reports were noted in the literature. The primary cause of mortality is unrecognized adrenal crisis. In Allgrove syndrome, usually increased ACTH level is found in blood while cortisol level is subnormal and/or showing disturbance in diurnal variation due to ACTH resistance.[9] Our case showed high baseline ACTH and normal cortisol level in blood but a subnormal cortisol levels in the blood after ACTH stimulation test. This shows an evolving peripheral adrenal insufficiency. Patients with triple-A syndrome can manifest signs of autonomic nervous system dysregulation which include: decreased lacrimation, pupillary abnormality, orthostatic hypotension, sexual impotence in adults, disturbances in heart rate and abnormal reaction to intradermal histamine.[10] Autonomic disturbances associated with same

Genetic mutation led to suggestion of 4A (Allgrove) syndrome, the fourth A represents autonomic dysfunction.[4] Cases of cardiac arrhythmia have been described grown up because of autonomic involvement.Haoufadi et al, reported two cases in the same family, both of them had neurological involvement in the form of amyotrophy of thenar, hypothenar and interosseous with a peripheral neurogenic and pyramidal syndrome. Their electromyogram (EMG) noted sensory and motor demyelinating and axonal polyradiculoneuropathy.[11] These cases along with three primary features Alacremia, Achalasia peripheral adrenal insufficiency also had postural hypotention and microcephaly. In the literature, peripheral nervous system anomaly is the least documented association of Algrove syndrome.[12]Treatment is symptomatic in Allgrove syndrome with a tear substitution, a glucocorticoid for adrenal insufficiency associated with fludrocortisone if there is mineralocorticoid failure. Achalasia is treated by esophageal dilatation or Heller's cardiomyotomy.

Conclusion

Allgrove syndrome is a rare disease but each patient with achalasia who develops with signs of hyperpigmentation of the skin and buccal mucosa should be evaluated for the AAA syndrome. Careful neurologic examination is also needed in these patients. Patients should be directly questioned about a history of decreased tear production.

Department of Paediatric Medicine
Fatima Memorial Hospital, Lahore.
www.esculapio.pk

References

1. Bhargava n P.V, Kumar K.M, Rajendran V.R, Fassaludeen A.S.M,Allgrove Syndrome A Syndrome of Primary Adrenoc ortical Insufficiency with Achalasi a of the Cardia and Deficient Tear Production. JAPI ·VOL. 51 ·JULY 20
2. Kimber,B.N. Mclean, M. Prevett. S.R. Hammans. Allgrove or 4 "A" syndrome: an autosomal recessive syndrome causing multisystem neurologicaldisease, J Neurol Neurosurg Psychiatry,74 (5) (2003),pp. 654-657
3. M.L.Chu, D. Berlin,F.B.A xelrod,A llgrove syndrome: documenting cholinergicdysfunction by autonomic tests.J Pediatr,129 (l) (1996),pp. 156-159
4. Fatih Kilic li ,MD, Fettah Ac ibucul , MD, Soner Senel MD, Hatice SebilaDokrnetasl,MD,Allgrove Syndrome.S ingapore Med J 2012; 53(5) : e92
5. Cronshaw JM, Matunis MJ.The nuclear pore complex protein ALADIN is mislocalized intriple A syndrome. Proc Natl acad Sc i U S A. 2003;100(10):5823-7(ISSN:0027-8424)
6. Allgrove J,Claden G S,Grant DB. Familial Glucocorticoid deficiency with achalasia of thecardia and deficient tear production. Lancet. JUNl7 1978;1(8077):1284-6
7. Khodadad A, Najafi-Sani M, Famouri F, Modaresi V. Triple-A Syndrome (Allgrove Syndrome) in Iranian Children: Report of 4 Cases. Govaresh/ Vol. 15, No.1, Spring 2010; 77-80
8. Fehmi A, Micheal FV. The Pathogenesis and Management of Achalasia: Current Status and Future Directions.Gut Liver. 2015 Jul; 9(4): 449463.
9. L. Papageorgiou, K. Mimidis,K.R. Katsani,G. Fakis.The genetic basis of triple A (Allgrove)syndrome in a Greek family Gene,512 (2) (2013), pp. 505 -509
10. Brooks BP, Kleta R, Caruso RC, Stuart C, Ludlow J, Stratakis CA. Triple A syndrome with prominent ophthalmic feature and a novel mutation in the AAAS gene: a case report. BMC Ophthalmol 2004;4:7.
11. Haoufadi H, Elhadri S, Elguendouz.F, Baizri H; Allgrove Syndrome: Report of Two Cases. Sch J Med Case Rep 2015; 3(5)407-410.
12. Vallet AE, Verschueren A, Petiot P, Vandenberghe N, Nicolino M, Roman S et al.; Neurological features in adult Triple -A (Allgrove) syndrome. Journal of Neurology, 2012; 259(1): 39 -46.