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Transurethral Cystolithotripsy For Large Vesical Calculi

The Effect Of A Modified Surgical Technique On The Incidence Of Vault Haematomas

Odds Of Prostate Cancer Among Pakistani Men In Relation To Their Dietary Patterns

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Original Article

TRANSURETHRAL CYSTOLITHOTRIPSY FOR LARGE VESICAL CALCULI

Abdul Mannan, Shahzad Anwar, Kashif Zaheer, Mohammed Arshad and Asad Ali Shah

Objective: To assess efficacy and safety of transurethral cystolithotripsy in the management of large vesical calculi.

Material & Methods: Adult patients with large vesical calculi (>2.5cm) were selected for this prospective study. Patients with associated urethral stricture and big adenomas were excluded. Stone size was measured on ultrasound in the largest diameter. Patients were operated under spinal or general anaesthesia. Nephroscope with 28 fr sheath was used transurethrally along with 2 cm lithoclast probe. Initial fragmentation was achieved with Swiss lithoclast. Later bigger fragments were dealt with stone punch. In the end all fragments were evacuated with Ellick evacuator. Bladder was drained with Foley's catheter for 24 hours. TURP (transurethral resection of prostate) was done if required. Patients with bigger glands were excluded to restrict operating time. Patients were followed up for two weeks.

Results: Forty patients were selected. Mean age of the patients was 55 years (range 18-73 years). There were 32 males (80%) and 8 females (20%). Stone size was 4.72± 2.52 cm with range of 2.5-7.0 cm. Five patients had multiple stones, four of them had associated neurogenic bladder. Procedure time ranged from 20-90 minutes (mean 45.8 minutes). Complete fragmentation of calculi was achieved in all patients. Twelve patients underwent TURP under same anaesthesia. Time consumed on resection of prostate was not included in procedure time. There were no major complications.

Conclusion: Transurethral cystolithotripsy is very effective and safe for large vesical calculi (>2.5cm). It is time consuming but saves patients from hazards of open surgery.

Key words: Vesical calculus, cystolithotripsy, swiss lithoclast.

Introduction

Bladder stones are formed because of bladder outlet obstruction, infection, neurogenic voiding dysfunction or foreign bodies. In developing countries children are at high risk to form bladder stones in endemic areas.[1] Conventional cystolithotomy is still a standard procedure for bladder stones. It is generally a simple and short operation but is associated with inherent complications of tissue damage, scar formation, extended hospitalization and risk of wound infection.[2] With the advent of urological endoscopy, search has continued for minimally invasive procedures. Classical endoscopic treatment is mechanical fragmentation of bladder stones (up to 2.5 cm) with stone punch. Bigger bladder stones have been a dilemma for urological endoscopist for a long time. Different modalities have been evolved to fragment urinary calculi. They are electrohydrolic, ultrasound, pneumatic and laser lithotriptors.[3] We used combination of pneumatic lithoclast and stone punch for transurethral fragmentation of large vesical calculi. Although procedure may be time consuming yet associated with less morbidity and is free of hazards of open surgery. Patients requiring TURP may undergo this procedure with cystolithotripsy under same anaesthesia.[3,4]

Material & Methods

Patients with large vesical calculi (>2.5cm) were selected for this prospective study. Stone size was measured on ultrasound in the largest diameter. Exclusion criteria were patients less than 18 years, associated urethral stricture and prostatic adenomas more than 40 grams (on abdominal ultrasound). Patients were evaluated through history, physical examination, routine urine examination, routine blood examination, serum creatinine, plain radiograph **(fig-1)** and ultrasound. Intravenous urography (IVU) and urethrogram were done, if required. Patients were operated under spinal or general anaesthesia. Nephroscope with 28 fr sheath was used per urethra along with 2 cm lithoclast probe. Initially lithoclast probe was drilled into the calculus using continuous mode of Swiss lithoclast and later on bigger fragments were dealt with stone punch **(fig-2)**. In the end all fragments were evacuated with Ellick evacuator **(fig-3)**. Bladder was drained with Foley's

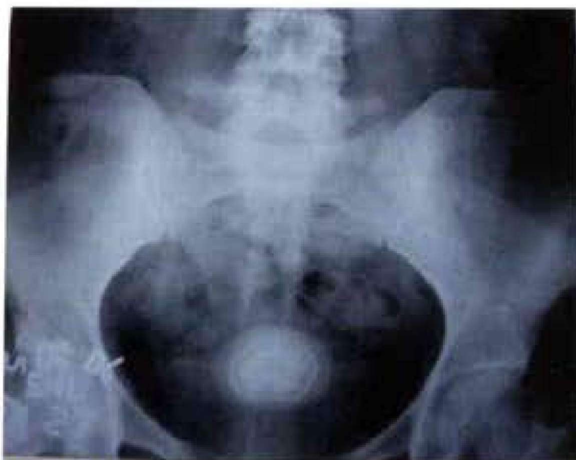

Figure-1: Plain radiograph showing big vesicle calculus.

Figure-2: Nephroscope & stone punch.

Figure-3: Stone fragments.

of prostate) was done in patients with obstructive glands. Patients with bigger glands were excluded to limit operating time. Patients were followed up for two weeks.

Results

Forty patients were selected. Mean age of the patients was 55 years (range 18-73 years). There were 32 males (80%) and 8 females (20%). Stone size was 4.72± 2.52 cm with range of 2.5-7.0 cm. Five patients had multiple stones, four of them had associated neurogenic bladder. Procedure time ranged from 20-90 minutes (mean 45.8 minutes). Complete fragmentation of calculi was achieved in all patients. Twelve patients underwent TURP under same anaesthesia. Time consumed on resection of prostate was not included in procedure time. There were no major complications.

Discussion

Swiss lithoclast has become a standard modality to fragment ureteric and kidney stones for the last so many years. It has proved to be effective, safe and economical.[5-8] Nephroscope sheath can also be used transurethrally to pulverize bladder calculi with lithoclast probe. Once bigger calculus is broken, the smaller fragments are difficult to chase and stabilize against bladder wall with lithoclast probe. Stone punch is very effective and quick to deal with smaller stone fragments. Fragmentation of hard stones may be time consuming and cumbersome but associated with minimal morbidity as compared to cystolithotomy.

Cystolithotripsy of bladder calculi may be combined with TURP if required. Sinik et al have reported a series of 52 patients who underwent transurethral cystolithotripsy of bladder calculi and TURP under same anaesthesia. They found combination of two procedures safe and economical.[3] Similar results have also been reported by Razvi et al.[4] In our series 12 patients had combined cystolithotripsy of bladder calculi and TURP with excellent results. However, we suggest that patients with large adenomas may be done in two sessions to limit operating time.

Patients with neurogenic bladders are more prone to bladder stone formation. Some of them present with recurrent calculi. They are more likely to end up with complications after open surgery. Transurethral cystolithotripsy is a very useful and safe modality for such patients.[9] In our series four patients had associated neurogenic bladders.

Nephroscope sheath can also be used through

suprapubic route to fragment bladder calculi using pneumatic lithoclast. Shen et al found it very effective & quick as compared to transurethral cystolithotripsy and vesicolithotomy for large stones averaging 5.4 cm.[2] Suprapubic route has also been effectively used in children for cystolithotripsy. It prevents urethral damage.[10]

Holmium laser has also been used in some centers to achieve fragmentation of big bladder stones with excellent results. Toshiyuki et al reported a comparative study of holmium Yag laser and Swiss lithoclast for cystolithotripsy of bladder calculi. They found both modalities equally effective, however, they recommended holmium laser for bigger calculi.[11]

In children smaller bladder calculi may also be fragmented with pneumatic lithoclast through ureterorenoscope (URS) and fragments may be washed through cystoscope sheath. At times it becomes a nuisance to remove all stone fragments through smaller sheath. Degnari et al have reported 99 percent success in a series of one hundred patients using Swiss lithoclast and URS.[12]

A new version of intracorporeal lithotripter (Lithoclast ultra) has been developed which provides benefits of pneumatic and ultrasound lithotripsy (rapid fragmentation and fragment removal). Initial studies have revealed considerable reduction in procedure time. This device will be especially useful for giant bladder calculi.[13,14]

Conclusion

Combined use of pneumatic lithoclast and stone punch is very effective and safe for bigger vesical calculi. It can be safely combined with TURP. Procedure is time consuming but saves patients from hazards of open surgery. It is especially useful for patients with neurogenic bladders and patients unfit for open surgery.

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Original Article

SEXUALLY TRANSMITTED INFECTIONS (SYPHILIS) IN LONG DISTANCE TRUCK DRIVERS

Aalia Hameed, Mateen Izhar, Nakhshab Choudhry and Khalid Mahmood

Objective: To find out the frequency of sexually transmitted infections (Syphilis) in long distance truck drivers (LDTDs).
Material & Methods: This study was conducted in the department of Microbiology Shaikh Zayed Hospital Lahore on 199 long distance truck drivers. Presence of syphilis was detected by rapid plasma reagin and enzyme link immunosorbent assay for treponema pallidum syphilis.
Results: 10.5% long distance truck drivers showed syphilis positive by enzyme link immunosorbent assay and 20.1% by rapid plasma reagin. Number of cases missed by rapid plasma regain were 03 (1.5%). Sensitivity, specificity, positive predictive value and negative predictive value of rapid plasma reagin compared with enzyme link immunosorbent assay were 85%, 87%,42% and 98% respectively.
Conclusion: Enzyme Link immunosorbent assay syphilis is more accurate for diagnosis of syphilis than rapid plasma reagin.
Key words: Enzyme link immunosorbent assay, rapid plasma regain, syphilis, long distance truck drivers.

Introduction

Syphilis is a complex, important, sexually transmitted, multiple system disease of humans apart from acquired immune deficiency syndrome (AIDS). Infection is acquired by sexual contact with infected persons (rarely by blood from person having spirochetemia) and congenitally by trans-placental infection from infected mother to fetus.[1]
Sexually transmitted infections (STIs) are some of the most common causes of illness worldwide. STIs accounted for 87% of all cases, reported among the top 10 most frequently reported diseases in 1995. STIs are far most common in developing countries than industrial countries. In many developing countries STIs ranks among the top five diseases.[2]
Incidence of STIs, one of the most common communicable diseases in the world, is rising despite improved methods of diagnosis and treatment.[3] World over, excluding human immunodeficiency viruses (HIV) and AIDS, there are 333 million new cases of STIs per year. In 1995 in South East Asia alone an estimated 150 million new cases occurred.[4]
Currently there is no STIs reporting system in Pakistan and therefore information about STIs prevalence is limited.[5] Gonorrhoea and syphilis are commonly seen STIs in Pakistan.[6] Evidence that sexually transmitted infections may facilitate HIV infection has focused attention to the situation.[7]
Health professionals believe that the incidence of STIs are increasing in Pakistan.[8] However, these studies are often hospital and institution based which makes it difficult to comment on the prevalence of STI's in general community. The situation in addressing these problems at policies and program level is very complex in Pakistan, due to various social and cultural barriers.[9]
In Pakistan according to National Transport Research Center there are about one hundred and twenty eight thousand licensed trucks and about half million truck drivers. Studies conducted in Pakistan have shown that a very high percentage of long distance truck drivers (LDTD) indulge in unsafe sexual relationship with commercial sex workers both male and female and other partners.[10]
LDTD are highly mobile population characterized by multiple sex partners. A study was undertaken on 670 LDTD to investigate prevalence of STIs (AIDS, syphilis, hepatitis-B infection and gonorrhea) in Nagpur city, Central India. A total of two hundred and ninety three (293) (43.7%) subjects had one or more signs/symptoms suggestive of STIs. The prevalence of HIV infection, syphilis, hepatitis-B infection and gonorrhea was observed to be 15.2%, 21.9%, 5.1% and 6.7% respectively.[11]
One cross-sectional study was conducted among LDTD to determine the prevalence of sexually transmitted diseases and antibodies to HIV. A total of eighty drivers and their assistants on route from port

of Mombassa to countries in East and Central Africa were enrolled into the study. Seroprevalence of HIV was 18% and for syphilis it was 4.6%.[12]

Another study conducted on three hundred LDTD in Karachi showed that the prevalence of syphilis was 12% but no HIV case was detected. This study indicated that population of truck drivers in Pakistan are at high risk of acquiring and spreading STI's and HIV due to high risk sexual practices.[13]

Syphilis is much more prevalent disease as compared to AIDS which is considered to be of low prevalence but high risk in Pakistan. Pakistan has a narrow window of opportunity to act decisively to prevent the spread of HIV. The estimated HIV/AIDS burden in Pakistan is still low (around 0.1% in adult population which is 70000-80000 persons). However, there is growing evidence of high-risk behaviors that could contribute to local concentrated epidemics. The combination of high risk behaviors and limited knowledge about HIV among LDTD will lead to rapid spread of HIV.[14]

Material & Methods

This cross-sectional study was carried out in the Department of Microbiology, Shaikh Zayed Hospital Lahore, which is a tertiary care university teaching hospital. The present study comprised of one hundred and ninety nine samples from LDTD and their assistants, irrespective of age and duration of their profession when driving trucks or assisting drivers along inter-state transport routes. Sample Collection and Laboratory Methods Samples stored and available from sero-surveillance of HIV sited in Lahore in 2001 in collaboration with National AIDS control program were used in this study. Rapid plasma reagin (PRP) and Enzyme link immuno-sorbent assay (EIA) for treponema pallidum were carried out on the samples.

Results

Seroprevalence survey of syphilis was carried out on samples collected and sera stored in 2001, from LDTD and their assistants; age range was from18-60 years irrespective of education and duration of their profession. Maximum number of subjects were noted in 21-30 years of age 103 (51.75%) while minimum number of subjects were present in 51- 60 years of age 6 (3.01%). In LDTD (n-199) positive cases by EIA and RPR were 20 (10.1%) and 40 (20.1%) respectively. This difference of EIA and RPR is statistically significant ($p<0.001$). **(Table-1)** In our study total number of true positive/active disease (EIA and RPR reactive) cases were 17(8.54%) and number of biological false positive (EIA negative and RPR positive) were 23 (11.5%). The total number

Table-1: Percentage of EIA and RPR positive cases in LDTD.

	EIA Positive		RPR Positive		
	Number	Percentage	Number	Percentage	p value
LDTD (n=199)	20	10.1	40	20.1	<0.001

Table-2: Percentage of positivity in LDTD according to the disease pattern.

EIA Positive + RPR Positive		EIA Positive + RPR Negative		EIA Negative + RPR Positive		EIA Positive + RPR Negative	
No.	%	No.	%	No.	%	No.	%
17	8.54	03	1.50	23	11.55	156	78.3

Table-3: Percentage of true positive active disease according to various age ranges in LDTD.

	LDTD (199)		
Age Distribution	No. of cases	Positive by EIA+RPR	Percentage
18-20	10 (5.02%)	02	20.0%
21-30	103 (51.75%)	08	7.7%
31-40	55 (27.64%)	05	9.09%
41-50	25 (12.56%)	02	8.0%
51-60	6 (3.01%)	-	-

Table-4: Percentage of missed (non-reactive) cases by RPR in LDTD.

Group	Positive EIA	Positive EIA + RPR	Missed by RPR	% of missed cases	p-value
LDTD	20	17	03	1.5%	>0.05

of latent cases/old cases were 3 (1.5%) and number of true negative (both EIA and RPR negative) were 156 (78.39%).**(Table-2)**
Maximum number of true positive/ active disease cases seen were 8 (7.71%) in 20-30 years of age and only 2 (4.02%) cases were seen in 41-50 years. No case of true positive /active disease was seen in 51 - 60 years of age. **(Table-3)** Total missed (non reactive) cases by RPR, were 03 (1.5 %) ($p > 0.05$). **(Table-4)** The sensitivity, specificity, positive predictive value and negative predictive value of RPR when compared with EIA were 85%, 87 %, 42% and 98% respectively.

Discussion

STIs are more dynamic than other diseases prevailing in the community. Their epidemiological profile varies from country to country and from one region to another within a country, depending upon ethnographic, demographic, socioeconomic and health factors.[15] The epidemiology of STIs has not been studied in normal representative surveys in Pakistan. However, the few studies that have been undertaken suggest that STIs are not uncommon.[4]
Studies of high risk groups in Pakistan were commissioned as a result of increasing awareness of vulnerability of Pakistan to a widespread HIV epidemic, and a need for intervention in LDTD and other high risk groups to improve protection against HIV and other STIs.[16,17] It is generally accepted that transport workers will have a higher level of sero prevalence of syphilis and other STIs than the general population. In our study seroprevalence of syphilis in LDTD was 10.1%, while in study conducted in 2005 syphilis was reported 1.1% in Lahore, and 4.0% in Karachi.[18]
When seroprevalence of syphilis was compared with the international studies on LDTD a mixed trend was observed, e.g. a study conducted in Dhaka, by Alam et al. on truck drivers and their assistants and other workers of truck stand, showed syphilis as 4.1% in males and 2.9 % in female workers.[19] In another study conducted among truck drivers in Tangling China, syphilis was 0.7%.[20] Gibney showed the prevalence of syphilis as 5.7% in a cross sectional study of Bangladesh transport and trucking industrial workers.[21]
In two different studies conducted in Nagpur city, Central India on LDTD for prevalence of STIs, showed syphilis 21.9% and HIV 15.2%.[22] Similar study on truck drivers in Cameroon cited syphilis as 16 %.[24] Overall prevalence of syphilis in China was as low as 0.7%[20] in LDTD while in other areas syphilis is reported as high as 21.9%.[11] Comparing these studies results with our study a variable trend was observed.
Comparing the results of study conducted on sero prevalence of syphilis in LDTD in 2005 at Lahore[18] with current study, decrease in prevalence of syphilis was observed which was highly significant statistically ($p < 0.01$), while the same study results when compared with Karachi showed a decrease in syphilis which was once again significant, $p < 0.05$. These results also showed that negative predictive value of RPR is much better than its positive predictive value. These results are comparable with our study results. These studies showed that RPR is not a reliable test for screening purposes especially in high-risk populations. More reliable tests such as EIA, EIA-RPR and treponema pallidum haemagglutination (TPHA) and PCR should be used for screening purposes.
In Pakistan chances of acquiring and spreading STIs and HIV in high risk groups are very high and the documented presence of high-risk sexual practices suggested the potential for rapid spread of HIV and others STIs.[28] We can judge from these results that cases of syphilis in high risk groups are on a decline in Pakistan due to better awareness, use of various types of protective measures and also because of availability of treatment guidelines.

Conclusion

Our study results compared with other studies in the region, suggest that syphilis prevalence has decreased in the recent years. Biological false reactions comprise a high proportion of all RPR reactions. Therefore, the use of RPR as a screening procedure is challenged.
The reliability of an EIA methodology as a screen for active syphilis in LDTD has been established in the present study. Treatment and rehabilitation are specially recommended keeping syphilis in currently low level in our setup. Further studies on larger groups are needed to find out the actual status of syphilis in high-risk groups in Pakistan. In the future studies it would be useful to use EIA for screening purposes. Molecular methods may also be incorporated for rapid and accurate detection of syphilis especially in high-risk groups.

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Original Article

Assessment Of Fasting Blood Glucose Levels And Body Mass Index Of The Female Students Of A Private Medical College

Aqeela Hamad, Shahid Hasan, Hamid Javaid and Sohail Atta Rasool

Objective: To determine the fasting blood glucose levels (FBG) and body mass index (BMI) of the female medical students and to find out any possible relationship between these parameters in the study group.

Material & Methods: A total of 100 female medical students participated in this study. A detailed questionnaire was administered to the subjects about personal habits and family history. Anthropometric parameters and blood pressure were measured by standard methods after taking written consent. Fasting blood glucose levels were determined. Data was assessed by SPSS.10. Mean blood sugar fasting levels along with standard deviation were reported. Frequencies of normal, overweight and obese cases were also reported. Analysis included any significant differences in mean FBG levels of the subjects with normal versus obese cases and correlation between BMI and FBG levels was also determined.

Results: Mean age of our study population was 19.7 years. Frequency of impaired BMI was found to be 60%. Mean FBG of the subjects having normal BMI was 87.9 ± 4.5 mg/dl and those with impaired BMI was 94.9±7.4 mg/dl. Mean FBG of the subjects with family history and without family history of diabetes mellitus was 101 ± 6.1 mg/dl and 90.4 ± 6.3 mg/dl respectively. There was a significant positive correlation observed between FBG levels and BMI.

Conclusion: Increased BMI may lead to increased level of FBG due to presence of some degree of insulin resistance. Self monitoring of FBG and weight control measures can prevent early onset of diabetes mellitus irrespective of family history of NIDDM.

Key words: Non insulin dependent diabetes mellitus, impaired body mass index, fasting blood glucose levels.

Introduction

Incidence and prevalence of impaired body mass index and obesity has been on the rise in the last few decades, especially young population more effected due to sedentary life style.[1,2] These conditions lead to the earlier onset of non insulin dependent diabetes mellitus (NIDDM), and may be due to longer duration of obesity and insulin resistant state by late adolescence.[3] Most cross-sectional studies revealed that obesity is the primary amendable risk parameter which causes early onset of NIDDM.[4,5] A recent study conducted on African female subjects revealed positive correlation between blood glucose levels and body mass index (BMI). More studies with different ethnic populations need to be conducted to support these results. Limited studies have been performed in our population; therefore this study was performed to find out any possible relationship between BMI and fasting blood glucose levels in young female subjects.

Material & Methods

A total of 100 female medical students were registered for the study.

A detailed questionnaire was filled by each student, after taking written consent. Anthropometric characteristics were recorded; BMI was calculated for each subject using collected data and by applying standard formula.[4]

Capillary blood sample was taken from finger by lancet pricking after aseptic measures. Fasting blood glucose was analyzed after an overnight fast of 12 hours with the help of glucometer. Fasting blood glucose readings were given in mean±SD, frequencies of normal, overweight and obese cases were reported while Pearson's correlation coefficient was used to find correlation between BMI and FBG. The level of significance was < 0.05.

Results

Mean age of the participants was 19.7 years. Mean height was 156.3 cm and mean weight was 63.2 kg, mean BMI was 25.9 kg/m^2. Characterstics of the participants on the basis of family history of diabetes are reported in **table-1**. 34% had normal BMI, 60% had impaired BMI and 6% were found to be obese.

Table-1: Gender difference of parameters within Lower socioeconomic group.

	Family History of Diabetes Mellitus		
	No (n=74)	Yes (n=26)	P-value
Age (Years)	19.6±0.8	19.8±0.7	0.24
Height (cm)	156±4.2	155.3±3.7	0.14
Weight (Kg)	61.5±4.9	68.1±5.3	<0.0001*
BMI (Kg/m^2)	25.0±1.7	28.3±2.7	<0.0001*
FBS (mg/dl)	90.4±6.3	101.0±6.1	<0.0001*

**P significant at <0.05 level, BMI= Body Mass Index; FBS=Fasting Blood Sugar*

Table-2: Gender difference of parameters within Lower socioeconomic group.

	Comparison of means of FBS† by BMI category			
	Normal	Overweight	Obese	P-value
FBS (mg/dl//0	87.9±4.5	94.9±7.4	105.5±3.0	<0.0001*

**P significant at <0.05 level, BMI= Body Mass Index; †FBS=Fasting Blood Sugar*

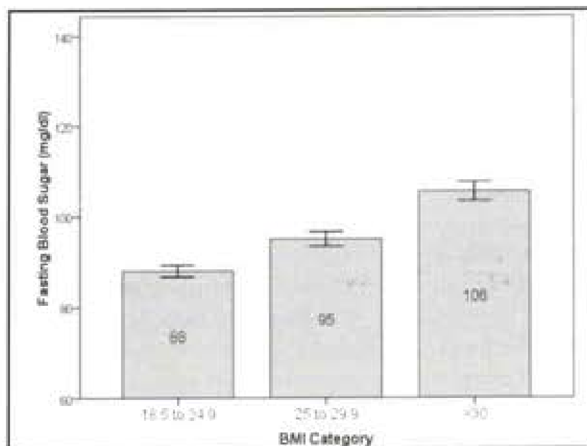

Figure-1: Comparison of mean fasting blood sugar by BMI category. Pair-wise comparison between groups is shown by parallel bars. Error bars show 95% confidence interval for mean (95% C.I). *P significant at <0.05 level.

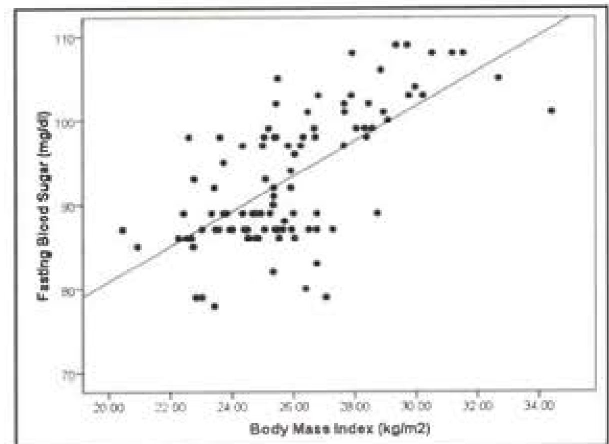

Figure-2: Scatter diagram of correlation between BMI and FBS. Pearson's r= 0.66, *P= <0.0001. *Correlation is significant at P <0.05.

The over weight and obese had significantly higher BSF levels as compared to subjects having normal BMI (101.6 Vs 87.9±4, p 0.01) as shown in **table=2.** There was a significant positive correlation found between BSF & BMI p< 0.01 as shown in **fig=2**

Discussion

In many longitudinal and cross sectional studies the important predisposing risk which leads to NIDDM is impaired BMI & obesity.[7,8] Results of a Swedish prospective study conducted on normoglycemic subjects that were followed up till the development and onset of NIDDM, showed that subjects with Highest BMI developed early diabetes as compared with the subjects with normal BMI. Other studies also revealed a positive significant correlation between impaired/high BMI and NIDDM. These studies support the concept of presence of insulin resistance state in obese subjects which leads to hyperglycemia and diabetes. These studies also support the correlation of BMI with the blood glucose levels but not in all cases. Racial and other biological factors may the factors which also effect the blood glucose concentration and insulin resistance.[9] A Scottish study showed no significant relation of blood glucose levels and BMI. The data interpretation and results of our study indicate that impaired /high BMI is associated with higher fasting

blood glucose levels but the results should be verified by conducting the same study on larger number of population. A recent study analyzed that childhood metabolic parameters may predict the risk for developing NIDDM.[11]

Conclusion

We conclude that females with impaired BMI are at a higher risk of developing early onset type 2 diabetes mellitus. Health information, public awareness and motivations which encourage changes in the life style along with self monitoring of fasting blood glucose levels required to prevent NIDDM.

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Original Article

THE EFFECT OF A MODIFIED SURGICAL TECHNIQUE ON THE INCIDENCE OF VAULT HAEMATOMAS

Iffat Naheed, Samia Malik, Malik Shahid Shaukat, Seema Imdad and Muhammad Naeem

Objective: To evaluate the effects of a modified incision and closure technique on the incidence of vault haematomas and post operative morbidity after vaginal hysterectomy.

Material & Methods: This study was conducted in Lady Aitchison Hospital, Lahore from November 2011 to December 2012. 100 patients aged 40 to 70 years having utero-vaginal prolapse undergoing vaginal hysterectomy were included in the study. Vaginal hysterectomy was performed with a modified Incision. Patients were observed for fever, pain and vaginal bleeding. Pelvic ultrasound was carried out for any pelvic collection or haematomas. Patients were followed for one month. Patients with complaints of lower abdominal pain, vaginal spotting, bleeding or fever were re admitted and evaluated.

Results: Out of 100 patients, 2% patients developed vault haematomas, 11% developed pain, 5% developed fever. 7% patients stayed at hospital for 5-6 days due to complications. Haematoma was confirmed by ultrasound in 2% cases and those were readmitted. Conservative management was done. No patient required surgical evacuation.

Conclusion: Adoption of the modified technique resulted in a significant fall in postoperative morbidity due to haematoma formation.

Key words: Modified technique, vault haematoma, morbidity.

Introduction

The most common operation performed in gynaecology is hysterectomy. Currently vaginal hysterectomy is becoming more popular as it has its own advantages like shorter duration of surgery, shorter hospital stay and early mobilization. Vault haematoma is a recognized complication of vaginal hysterectomy that may be associated with significant post operative morbidity. After vaginal hysterectomy, about 10% of women develop a small collection of blood at the vaginal vault. This usually drains spontaneously after 7 to 10 days. Occasionally a large haematoma may require surgical drainage. Majority of haematomas can be managed conservatively. The incidence of vault haematoma is significantly higher after vaginal hysterectomy than after abdominal hysterectomy. After hysterectomy, there may be some collection of blood forming a haematoma at the vault. This haematoma cannot be detected by clinical examination in early post operative days. It leads to morbidity especially when infected.[1] Incidence of vault haematoma after vaginal hysterectomy is variably reported from 25% to as much as 98%.[2,3] This can cause the vaginal bleeding to last longer than expected and this may also be rather smelly, as the blood drains.[4] Large haematomas are invariably associated with significant febrile morbidity .[5] There are traditional techniques for incision and closure of the vault. The peritoneum and vaginal epithelium are incised and sutured separately leaving a potential space above the vaginal vault where a haematoma can form later on.[6] The initial blunt dissection of peritoneum from vaginal wall may cause bleeding on the peritoneal side of the vaginal skin denuded of the peritoneum.

A simple technique of mass closure which obliterates the space can be practiced. This method has advantages in terms of homoeostasis, risk of vault hematomas & postoperative vaginal cuff infection.[6] Following refinement in surgical technique, a significant reduction in the incidence of vaginal vault haematomas from 15.7% to 1.7% was observed.[3] The objective of this study was to evaluate the effects of a modified incision and closure technique of the vaginal vault on the incidence of clinically significant vault haematomas and post operative morbidity following vaginal hysterectomy. Adoption of the described surgical technique is recommended to minimize the risk of clinically significant vaginal vault haematomas after vaginal hysterectomy.

Material & Methods

This study was conducted in Lady Aitchison Hospital, Lahore from November 2011 to December 2012. 100 patients aged 40 to 70 years undergoing vaginal hysterectomy and repair were included. 78 patients

were menopausal and 22 patients were pre menopausal. All patients had uterovaginal prolapse for which vaginal hysterectomy and repair was done with a modified incision. 20 patients were diabetic and 15 were on anti-hypertensive drugs. All patients were afebrile before surgery. Full blood count and urine analysis were carried out. Patients were hospitalized for 3 days after surgery and were observed for vaginal spotting, bleeding and fever. Full blood count and urine analysis were repeated on 3rd post operative day. Antibiotics and analgesics were administered in routine. Patients who developed fever, lower abdominal pain, vaginal spotting or bleeding were kept in hospital for longer time. Pelvic ultrasound was carried out for evidence of any pelvic collection or haematoma. Patients were followed for one month and those who complained of lower abdominal pain, vaginal spotting, bleeding or fever were re-admitted and evaluated. Statistical analysis was performed regarding incidence and postoperative febrile morbidity associated with vaginal vault haematomas and treatment.

Surgical Technique

The vaginal wall is incised posteriorly at the level of reflection of the peritoneum as a single layer ,without separating the peritoneum from vaginal wall. This avoids creating a potential space between vaginal wall and the peritoneum. During suturing the peritoneum remains attached to the vaginal skin and is included in the suturing, incorporating utero-sacral ligaments. This technique, allows direct access to the pouch of Douglas, avoids haematoma formation and provides at least a partial support.

Results

Out of 100 patients, 2% patients developed vault haematomas, 11% developed pain, 5% developed fever. 7% patients stayed at hospital For 5-6 days due to complications. Haematoma was confirmed by ultrasound in 2% cases and those cases were readmitted. Conservative management was done. No patient required surgical evacuation.

Table-1: Age group.

Age	No. of Cases	Percentage
40-50 Years (pre menopausal)	22	22%
50-70 Years (Menopausal)	78	78%

Discussion

The most common operation performed in gynaecology is hysterectomy. Vaginal Hysrerectomy is Being preferred to abdominal hysterectomy, as it is increasingly done for non prolapsed uterus as well.

Table-2: Post operative complications.

	No of Cases	Percentage
Haematoma	02	2%
Pain	11	11%
Fever	05	5%
Vaginal spotting (7th day)	03	3%
Smelly vaginal discharge 12-20th day	02	2%

Table-3: Hospital stay.

	No of Cases	Percentage
3-4 Days	93	93%
5-6 days	07	7%

Table-4: Investigations.

	No of Cases	Percentage
Haemoglobin (10-11gm%)	05	05%
Leukocyte Count 13^3	05	05%
Urine Infection	02	02%

Table-5: Abdomino pelvic ultrasound.

	No of Cases	Percentage
Ultrasound	05	05%
Haematoma Confirmation	02	02%
No pelvic collection	03	03%

Table-6: Management.

	No. of Cases	Percentage
Out Patient Treatment	03	03%
Admission	02	02%
Conservative treatment	05	05%
Surgical evacuation	0	0%

Table-7: Treatment.

	No. of Cases	Percentage
Antibiotics / Analgesics	05	05%
Blood Transfution	0	0%

The vaginal route is associated with lower morbidity, shorter duration of surgery, quicker recovery and early discharge from hospital. Early discharge following uncomplicated hysterectomy in selected patients appear to be a safe procedure , appreciated by

majority of the women.[7] As the incidence of vaginal hysterectomy is rising, it is therefore important to ensure the common complications are either eliminated or minimized. Vault haematoma following hysterectomy is relatively common, affecting approximately 20-30% of the patients. Frequent presentations include lower abdominal pain, low grade temperature or vaginal discharge.[8] Vault haematoma is the most common complication of vaginal hysterectomy. Patients with pelvic organ prolapse have easily accessible pedicles and are thus at reduced risk of vault haematoma than patients without pelvic organ prolapse.

Greater attention to haemostasis is required at vaginal hysterectomy due to limited access available during the procedure. Haematomas form as a result of residual bleeding at the end of surgery. Bleeders are commonly found laterally more cephalic to the original incision. These areas should be more carefully checked .[9] The most common site of bleeding is the vaginal vault.[10]

In our study, the incidence of vault haematoma was 2%. Following refinement in surgical technique, a significant reduction in the incidence of clinically significant vaginal vault haematomas from 15.7% to 1.7% was observed in one study.[3] Other studies found vault haematomas in 10.53%[1] and 19.4%. 70% patients had small haematomas. 50% patients with large haematomas had febrile morbidity as compared to 35% with small sized haematomas.[11]

Large haematomas are invariably associated with significant febrile morbidity.[12] In our study, 78% patients were in menopausal age (50-70 years). Haematomas are more common in younger patients especially when vaginal hysterectomy is performed due to non prolapsed causes.

In our study, 11% patients had pelvic pain, 5% patients developed fever in post operative period. According to Thomson et al[2] the incidence was 25%, febrile morbidity and post operative pain were noted in 31% and 15% patients respectively. Post operative febrile morbidity was 16 times more common in subjects with haematomas compared to those without haematomas.[13]

In this study, (5%) patients developed fever,(3%) experienced vaginal spotting and smelly vaginal discharge. Incidence of vault haematoma was 4%, vaginal discharge was noted in 6% casesby Razia et al in Karachi.[14]

After vaginal hysterectomy, the overall complication rate was 11.2% as reported by Councell RB et al.[15] Pelvic fluid collections are common after hysterectomy. Women who develop post hysterectomy fluid collections appear to be at increased risk for the development of febrile morbidity and cuff cellulitis.[16]

In this study, 93 (93%) patients stayed at hospital for 3 to 4 days. 7 (7%) patients remained admitted for 5 to 7 days. According to Thomson et al, length of hospital stay was 3 to 4 days. Patients who needed intervention had prolonged hospital stay. (10-13 days).[1]

All patients with fever, pain and spotting were managed conservatively with antibiotics and analgesia. 3 (3%) patients were treated as out patient, (2%) with confirmed haematoma were admitted. Surgical intervention or blood transfusion was not required in any cases.

Conclusion

In conclusion, adoption of the modified technique resulted in a significant fall in post operative morbidity due to haematoma formation. The modification in surgical technique of incision and closure of the vaginal vault, is recommended to minimize intra and postoperative complications.[13]

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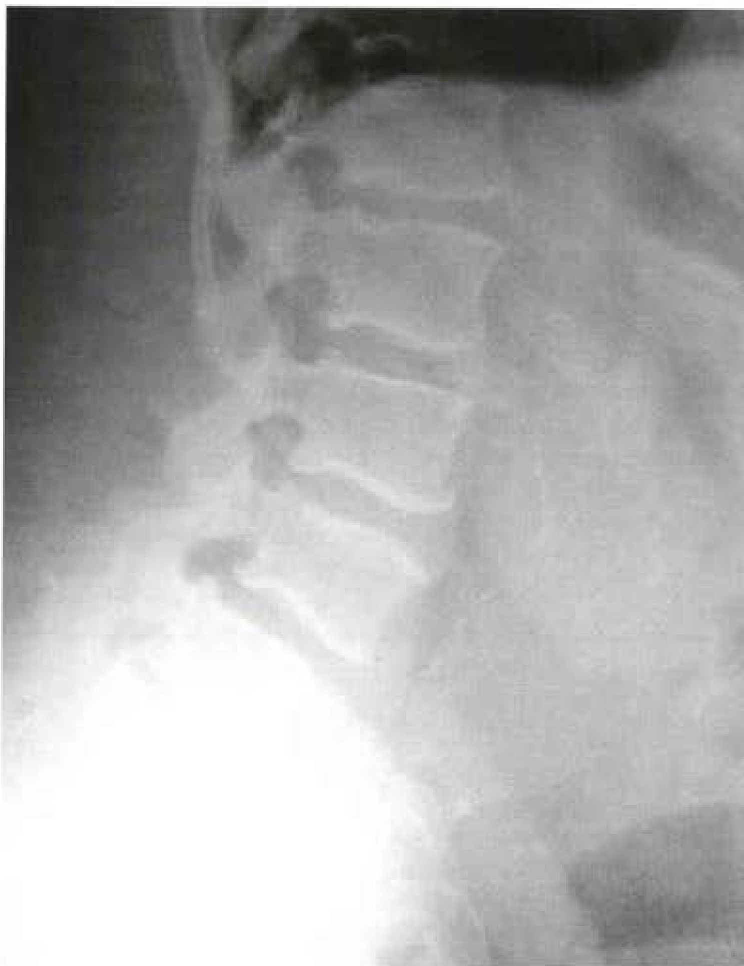
Picture Quiz

This is an x-ray lumbosacral spine, lateral view, of a 78 year old lady with complaints of chronic back pain. What is an important finding which was initially missed by her general physician?



See answer on page #21

Original Article

THE JAK2 V617 MUTATION TRIGGERS ERYTHROPOIESIS AND PATIENTS PRESENT WITH GOOD HEMOGLOBIN LEVEL IN IDIOPATHIC MYELOFIBROSIS (IMF)

Fatima Khanum, Amna Khanum and Suhaib Ahmad

Objective: To document the impact of JAK2 mutation on hemoglobin (Hb) level in patients with IMF.

Material & Methods: Thirty five patients were studied out of which 19 were JAK2 positive and 16 were JAK2 negative. Sample collection technique was purposive non-probability sampling. Variations were observed among the studied JAK2 positive and JAK2 negative patients regarding hemoglobin level.

Results: In JAK2 positive and negative patients mean hemoglobin level was 10.6g/dl and 8.6g/dl respectively ($p=0.29$).

Conclusion: Due to the better hemoglobin level, patients with JAK2 mutation have less transfusion requirements and are partially protected against severe anemias compared to patients with no mutation.

Key Words: Myeloproliferative disorder, Idiopathic myelofibrosis, Hemoglobin.

Introduction

Myeloproliferative disorders (MPD) are clonal disorders of haemopoiesis that lead to an increase in numbers of one or more mature blood cell progeny. All MPDs arise as a somatic mutation of pluripotent haemopoietic stem cell.[1,2] In MPDs the proliferative capacity of neoplastic stem cell is not properly controlled and excessive haemopoiesis occurs initially.[3] Idiopathic Myelofibrosis (IMF) is a Philadelphia chromosome (Ph) negative clonal MPD of the pluripotent haemopoietic stem cell (HSC), in which a clonal proliferation of multiple cell lineages is accompanied by progressive bone marrow fibrosis.[4] IMF is characterized by anaemia, splenomegaly, immature granulocytes, erythroblasts, tear drop red cells in the blood and bone marrow fibrosis. In the year 2005, several researcher groups reported a single, acquired point mutation in the Janus kinase 2 (JAK2) genes in the majority of patients with Ph negative MPDs. JAK2 mutation plays a vital role in the pathogenesis of Ph negative MPDs. JAK signaling is activated in haematological malignancies by a number of mechanisms including the down regulation of negative regulators of JAK-STAT pathways, amplification of the JAK2 locus, and involvement of JAK2 in chromosomal translocations and by identification of an activating point mutation in JAK2. In the mutation of JAK2 there is a substitute of bulky phenyalanine for a conserved valine at position 617. Mutation in the JAK2 causes activation of STATs in the absence or in the presence of only trace quantities of haemopoietic growth factor.[5]

The objective of this study was to observe and compare the haemoglobin concentration (Hb) between JAK2 positive and negative patients.

Material & Methods

This study was conducted at the Armed Forces Institute of Pathology (AFIP), Rawalpindi. It was a comparative cross sectional study and sampling was done by purposive non-probability technique. The study was conducted between January 2004 & December 2008. The project was approved by the ethical committee of AFIP, Rawalpindi. An informed consent was taken from the patients who were studied prospectively. In return, the patients received their JAK2 result free of cost. A total of 35 patients diagnosed with IMF by conventional criteria at the Department of Hematology, AFIP, Rawalpindi, were studied. The patients were included irrespective of age, sex and socioeconomic status. Blood samples were collected for JAK2 mutation analysis and blood complete picture. Patients with secondary myelofibrosis (hairy cell leukaemia, acute leukaemia, metastatic carcinoma, disseminated tuberculosis and lymphoma etc) and patients on treatment were excluded from the study. Blood sample (3 mL) was taken under aseptic conditions in CP bottles containing EDTA anticoagulant. The blood count, including the white cell count, Hb, mean cell volume, mean cell haemoglobin and platelet counts were carried out on haematology analyser Sysmex KX-21. Gene analysis for JAK2 mutation was carried out by

Newton et al, 1989). The target DNA was amplified using the primer complementary to the JAK2 mutation. A set of three primers was used. JAK2 mutant allele was amplified by a common reverse primer (5'-CTGAATAGTACAGTGTTTTCAG TTTCA) and a forward specific primer (5'-AGCATTTGGTTTTAAATTATGGAGTATATT) producing 203bp amplified product. The common reverse primer and a forward control primer (5'-ATCTATAGTCATGCTGAAAGTAGGA GAAAAG) was used to amplify a 364bp product that served as PCR internal control. Polyacrylamide gel was used to amplify the products.

Results

The data was entered in statistical package for social sciences SPSS (version 12.0) and the same software was used for statistical analysis. A total of 35 patients with idiopathic myelofibrosis were studied. Out of 35 patients, 19 (54.3%) were JAK2 positive and 16 (45.7%) patients were JAK2 negative. The Hb level was compared between JAK2 positive and negative patients. In JAK2 positive patients Hb level was 10.6 g/dl. In the JAK-2 negative patients Hb level was 8.6 g/dl ($p=0.29$).

Discussion

MPDs are clonal disorders of haemopoiesis. The MPDs can be either Ph positive or Ph negative. The Ph positive MPD is chronic myeloid leukaemia while the Ph negative MPDs are polycythaemia rubra vera, essential thrombocythaemia and IMF.[6,7] IMF is characterized by anaemia, splenomegaly, immature granulocytes, erythroblast, tear drop red cells in the blood and bone marrow fibrosis. The haematological features (Hb level) of idiopathic myelofibrosis have not been studied in Pakistan before. The JAK2 mutation plays a significant and independent influence on the disease phenotype. It is correlated with the expansion of clonal haematopoietic cells. Some previous studies have also focused on the phenotype of JAK2 positive and JAK2 negative patients and have concluded that phenotypically, the JAK2 mutation positive patients are different from the JAK2 negative patients. The patient's positive for JAK2 mutation had higher haemoglobin level (10.6 g/dl) as compared to JAK2 negative patients (8.6 g/dl). Due to the better haemoglobin level, JAK2 positive patients have less transfusion requirements. Similar findings were also observed in another study that also observed that the haemoglobin level in JAK2 positive patients is higher than in the JAK2 negative patients. Because of this mutation patients may be able to partially protect against severe anemia.

Conclusion

Due to the better haemoglobin level, JAK2 positive patients have less transfusion requirements and so are partially protected against severe anemia.

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Original Article

SERUM ZINC AND NEUTROPHIL FUNCTION IN LOWER, MIDDLE AND UPPER SOCIOECONOMIC GROUPS

Uzair Mumtaz, Hamid Javaid Qureshi and Mohammad Shoaib

Objective: To assess the serum zinc and neutrophil function levels in different socioeconomic groups.

Material & Methods: A total of 100 healthy subjects of 10-30 years of age, both male and female were investigated. Out of these, 50 (25 males and 25 females) belonged to the lower socioeconomic (LSEC) group and 50 (25 males and 25 females) belonged to the upper / upper middle socioeconomic (USEC) group. Serum zinc was determined by colorimetric method and neutrophil function was estimated by the Nitroblue Tetrazolium reduction test (NBT). Both the parameters were compared in the two socioeconomic (SEC) groups.

Results: It was found that serum zinc was significantly lower in the LSEC group. Similarly NBT percentage phagocytosis was also significantly lower in the LSEC group as compared to the USEC group. NBT percentage phagocytosis did not show significant gender difference in the LSEC group, however it was significantly higher in females than in males in the USEC group. Generally a significant positive correlation was found between serum zinc and neutrophil phagocytic function.

Conclusion: The LSEC class has low serum zinc levels and low NBT percentage phagocytosis and hence is at greater risk of developing infections.

Key words: Zinc, neutrophil function, phagocytosis, socioeconomic status.

Introduction

Zinc, an essential element for all forms of life, exists in nearly every cell of the body.[1,2,3] The richest sources of zinc are meat, milk products, shell fish (oyster) and poultry while fruits and vegetables are poor sources.[3,4] Oyster contains the largest content of zinc which is 188.5-341mg/kg. Human breast milk has higher concentration of zinc[5] (USDA 2011). The quantities of zinc and phytate in the diet are the primary factors determining zinc absorption.[6] Large amounts of phytate and fiber inhibit zinc absorption.[7]

Zinc is important for immunity. The importance of zinc in cell mediated immune responses was revealed by the report of Fortes et al (1998) which stated that zinc supplementation improved cell mediated immune response in older population.[8] Zinc potentiates the effects of antiseptic agents.[9] Zinc supplementation resulted in stronger humoral responses against antigenic challenges particularly in raising immunoglobulin G and immunoglobulin M levels in sheep.[10]

Zinc protects the polymorphonuclear leucocytes against the toxic effects of rosins, which are commonly used in dentistry.[11] It stimulates oxygen radical formation in human neutrophils.[12] Compared with residents who had low zinc levels, people with normal levels had fewer cases of pneumonia, required fewer antibiotic prescriptions for it, and when they did get pneumonia, they had it for fewer days. It is essential for immune system.[3] Neutrophil chemotaxis is impaired in zinc deficiency.[13] Zinc supplementation increases the percentage of phagocytic polymorphonuclear leucocytes and their mean phagocytic activity particularly in subjects with initial low phagocytosis.[14] In zinc deficiency, not only is the total amount of antibodies diminished; even the repertoire of antigens recognized by these antibodies is depressed. Interestingly, this effect is even seen in mild or transient zinc deficiency during pregnancy.[15] Certain developmental steps responsible for B-cell receptor repertoire maturation thus seem to be dependent on zinc.[16] In addition to a negative impact on the specific immune responses, depression of innate immune mechanisms like chemotaxis and phagocytosis of neutrophils has also been found.[15]

Zinc deficiency is associated with diets based on plant foods which are rich in zinc absorption inhibitors. Such diets are habitually consumed in rural areas and in economically poor areas of the cities.[17] Marginal zinc deficiency and suboptimal zinc status have been recognized in many groups of the population in both less developed and industrialized countries. Although the cause in some cases may be inadequate dietary

intake of zinc, inhibitors of zinc absorption are most likely the most common causative factor. Phytate, which is present in foods like cereals, corn, rice and vegetables, has a strong negative effect on zinc absorption from composite meals. Inositol hexa-phosphates and pentaphosphates are the phytate forms that exert these negative effects on zinc absorption.[18] Zinc deficiency leads to disturbed body functions, the most important of which is decreased immunity. Its deficiency appears in those individuals who do not take animal food. Majority of poor people in Pakistan do not afford animal foods due to the high price and hence consume foods of vegetable origin. Food of vegetable origin contains phytates which are zinc absorption inhibitors. Hence the poor population of Pakistan is likely to be suffering from zinc deficiency and immunodeficiency. The present study was planned to assess zinc levels in LSEC and USEC groups and their effect on the neutrophil phagocytic function.

Material & Methods

This cross sectional analytical study was conducted in the Department of Physiology, Services Institute of Medical Sciences, Lahore on 100 healthy subjects of 10-30 years of age. Out of these, 50 (25 males and 25 females) belonged to the LSEC group and 50 (25 males and 25 females) belonged to the USEC group. The subjects having average monthly income of 0-3200 rupees per capita per month ((US$ 0-1.25 per capita per day) were included in the LSEC group. The subjects having a family income of more than 4000 rupees per capita per month and living in their own house were included in the USEC group.[19] Informed consent of the subjects was obtained. History taking and general physical examination of the subjects were carried out. Individuals who were diabetic, hyper-tensive, smokers and those taking any medication or drugs especially steroids, vitamin supplementation or minerals were excluded on history. Five milliliters (ml) of blood was drawn aseptically from each subject. Out of this sample, 1 ml of blood was poured in the special siliconised vial containing 20 units of heparin for performing the "Nitroblue Tetrazolium Test" (NBT) to determine the neutrophil function. It was mixed gently, but well, by tilting slightly and "rolling" the vial for approximately 30 seconds. Contact of blood with cap was avoided. The remaining blood was centrifuged at 2500 rpm for 10 minutes at room temperature. The serum was then separated and stored at 4°C. Serum zinc was determined by colorimetric method using the kit manufactured by Spectum.[20] Neutrophil function was estimated by the stimulated Nitroblue Tetrazolium reduction test (NBT) using the kit manufactured by Sigma.[21] The test involved incubation of blood with a buffered solution of NBT and a stimulant. Smears were prepared, stained and examined microscopically to determine the percentage of neutrophils showing intracytoplasmic deposits of formazen. Data analysis was carried out with the SPSS version 19 (SPSS, Inc, Chicago, IL, USA). Arithmetic mean and standard deviation (SD) of each parameter were determined. The significance of differences among the groups was analyzed by student's t-test. Pearson's correlation was used to determine correlation between serum zinc and neutrophil percentage phagocytosis. p value < 0.05 was considered statistically significant.

Results

Table-1 shows a comparison of serum zinc and NBT percentage phagocytosis (%) between the two socioeconomic groups. Serum zinc was significantly higher ($p = 0.000$) in the USEC group as compared to the LSEC group. Similarly, the NBT percentage was significantly higher ($p=0.000$) in the USEC group as compared to the LSEC group. The serum zinc was significantly higher in the male subjects ($p = 0.000$) in the USEC group as compared to males in the LSEC group. Similarly, in the female subjects, serum zinc was significantly higher ($p=0.000$) in the USEC group as compared to the LSEC group. Same is the case with the NBT percentage phagocytosis, which was significantly higher in USEC group as compared to LSEC group ($p=0.000$) in both males and females **Table-2**. **Table-3** gives gender difference of parameters within USEC group. Serum zinc difference was not significant ($p=0.089$). NBT percentage phagocytosis in males was significantly less ($p=0.000$) than in females. Both serum zinc and NBT percentage phagocytosis did not show any significant gender difference in the LSEC group (**Table 4**). Serum zinc showed a positive correlation with NBT percentage phagocytosis in total subjects of USEC group ($r=0.309$, $p=0.029$) and in male subjects of both USEC ($r=0.484$, $p=0.014$) and LSEC ($r=0.433$, $p=0.030$) groups (**Figures 1, 2 & 3**). However there was no significant correlation between serum zinc and NBT percentage phagocytosis found in total subjects of LSEC group and in female subjects of both USEC and LSEC groups.

Discussion

The present study evaluated the serum zinc levels and NBT percentage phagocytosis in the two SEC

Table-1: Comparison of serum zinc and NBT percentage phagocytosis in total subjects in the two socioeconomic groups.

Parameter	USEC Group (n=50)	LSEC Group (n=50)	P-value
Serum Zinc (ug/dl)	111.055± 13.66	77.28±14.90	0.00*
NBT percentage phagocytosis (%)	22.38±7.98	8.16±3.29	0.000*

*Values are expressed as Mean±SD * p <0.05 - significant*

Table-2: Comparison of serum zinc and NBT percentage phagocytosis (%) in male and female subjects in the two socioeconomic groups.

Parameter	Males			Females		
	USEC Group (n=25)	USEC Group (n=25)	P-value	LSEC Group (n=50)	LSEC Group (n=50)	P-value
Serum Zinc (ug/dl)	107.76±14.29	176.72±8.56	0.00*	114.33±12.42	77.83±19.48	0.00*
NBT Percentage phagocytosis (%)	18.56[illegible]77	111.055± 13.66	0.000*	26.20±7.33	8.208±3.70	0.000*

*Values are expressed as Mean±SD * p <0.05 - significant*

Table-3: Gender difference of parameters within upper/upper middle socioeconomic group.

Parameter	Male (n=25)	Female (n=25)	P-value
Serum Zinc (ug/dl)	107.76±14.29	114.33±12.42	0.089
NBT percentage phagocytosis (%)	26.20±7.33	26.20±3.70	0.000*

*Values are expressed as Mean±SD * p <0.05 - Significant*

Table 4: Gender difference of parameters within Lower socioeconomic group.

Parameter	Male (n=25)	Female (n=25)	P-value
Serum Zinc (ug/dl)	76.72±8.76	77.83±19.48	0.0796
NBT percentage phagocytosis (%)	8.12±2.91	8.20±3.70	0.933

*Values are expressed as Mean±SD * p >0.05 - Non significant*

Table-5: Correlation of serum zinc with NBT percentage phagocytosis in the two socioeconomic groups.

Correlation of Serum Zinc with	USEC (n=50)		LSEC (n=50)	
	R value	P-value	R value	P-value
NBT Percentage phagocytosis (%)	0.309	0.029*	0.179	0.213

** p <0.05 - Significant Correlation coefficient (r) and p. value are given.*

Table-6: Correlation of serum zinc with ESR, serum IgG, NBT and serum total proteins in male and female subjects in the two socioeconomic groups.

Correlation of serum zinc with	USEC Group				LSEC Group			
	(Male n=25)		(Female n=25)		(Male n=25)		(Female n=25)	
	r value	p value	r value	p value	r value	p value	r value	p value
NBT Percentage phagocytosis (%)	0.484	0.014*	-0.848	0.821	0.433	0.0.030*	0.099	0.0.639

** p <0.05 - Significant*

groups. In the present study, serum zinc levels were found to be significantly low in the LSEC as compared to the USEC group in the total number of subjects as well as in the male and female subgroups. The deficiency of zinc is associated with diets based on plant origin, which are rich in zinc absorption inhibitors like phytates. All cereals and vegetables contain phytates which can bind zinc and reduce its biological availability [7] (Miller et al 2007). Phytates are co-precipitated with zinc and absorption of zinc is decreased[22] (Davies and Nightingale 1975). As the low socioeconomic class of our country cannot afford the animal diet and mostly consume the vegetable diet, so they are at the risk of low serum zinc levels due to its decreased absorption as a result of presence of phytates in the diet.

Zinc is necessary for the normal function of the immune system. Even mild zinc deficiency, which is widely spread in contrast to severe zinc deficiency, depresses immunity of humans. The functions of the innate immunity are disturbed by altered zinc levels The functions of the innate immunity are disturbed by altered zinc levels which includes the recruitment of neutrophil granulocytes for phagocytosis in vitro. In vivo, natural killer (NK) cell activity, phagocytosis of macrophages and neutrophils and generation of the oxidative burst are impaired by decreased zinc levels[23] (Klaus-Helge and Rink 2003). In the current study it was found that NBT percentage phagocytosis was significantly higher ($p < 0.01$) in the USEC group as compared to the LSEC group. In males, NBT percentage phagocytosis was significantly higher ($p<0.01$) in the USEC group as compared to the LSEC group. Similarly in females, NBT percentage phagocytosis was significantly higher ($p<0.01$) in the USEC group as compared to the LSEC group.

There was a significant positive correlation between serum zinc and NBT percentage phagocytosis in the present study. Also in this study significant gender difference of some parameters was found within the same socioeconomic groups. NBT percentage phagocytosis was significantly more in females as compared to males in the USEC but no such finding was observed in the LSEC.

Conclusion

Serum zinc level is significantly low in the lower socioeconomic class. A positive correlation is found between serum zinc and neutrophil phagocytic function.

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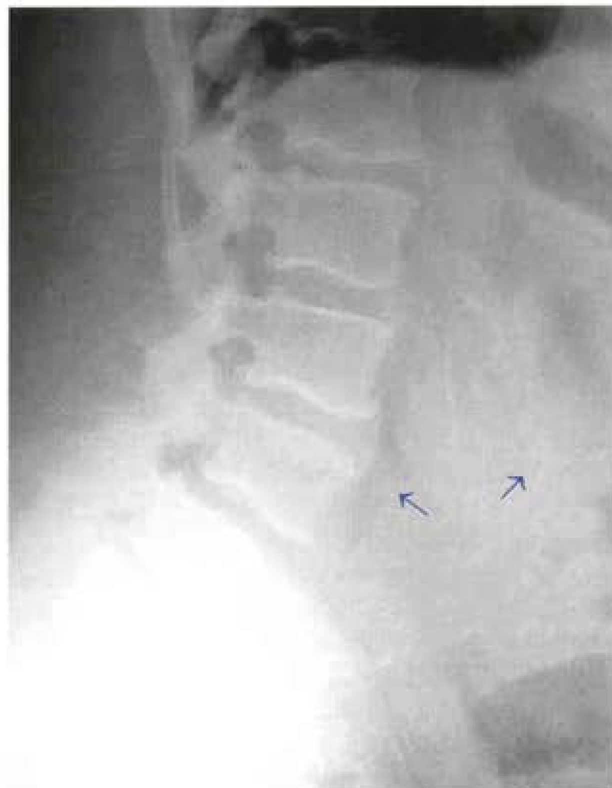
Answer Picture Quiz

Abdominal Aortic Aneurysm

Abdominal Aortic Aneurysm is frequently evident on plain radiograph especially on lateral view. Both walls must be calcified for a diagnosis. (as evident is the x-ray)

It can present with back pain. Age related and osteoporotic changes are evident on the x-ray shown which may distract from clinching the crucial diagnosis of Abdominal Aortic Aneurysm.



Original Article

THE INFLUENCE OF THE MODE OF ANESTHESIA ON THE NEONATAL WELL BEING AFTER THE CAESARIAN DELIVERY

Saima Najam and Lubna Riaz Dar

Objective: To evaluate the influence of the mode of anesthesia on the neonatal outcome after the caesarian delivery.

Material & Methods: All the patients who were going to have a caesarian section were enrolled to the trial & their demographic data along with the Apgar Score and need for the NICU (Neonatal intensive care unit) admission, was entered in a specially designed proforma. After the data collection (from 1st March 2010 to 28th February 2011) the data was entered in SPSS version 19 & was analyzed statistically.

Results: There were 1308 caesarian deliveries out of which 59.6% (n=779) were delivered electively while 40.4% (n=529) had an emergency delivery. The rate of general anesthesia versus spinal anesthesia was the same i.e. 59.2% (n=199) & 59.7% (n=580) respectively in elective delivery group & 40.8% (n=137) & 40.3% (n=392) respectively in emergency delivery group & this difference was found statistically insignificant. The Apgar Score of the neonates delivered to patients having general anesthesia was significantly poor as compared to the spinal anesthesia group & the rate of NICU admission is also high in general anesthesia group i.e. 10% (n=34) as compared to 5.8% (n=56); this difference was also statistically significant (p=0.018).

Conclusion: Spinal anesthesia is associated with better neonatal outcome as compared to general anesthesia in both emergency and elective C/Section group.

Key words: Neonates, caesarian section, general anesthesia, spinal anesthesia, apgar score.

Introduction

Obstetric anesthesia is one of the most important sub-specialties of anesthesia. Anesthetic methods used during c-section have advantages and disadvantages to both mothers and infants and may result in short and long term neonatal effects.

The spinal anesthesia is considered as more practical and safe compared to other techniques as it is simple to administer, needs minimal monitoring and the dose of drugs required to induce spinal anesthesia is 1.5 milliliter, therefore unlikely to produce systemic effects in the baby, less neonatal exposure to depressant drugs, decreased risk of maternal pulmonary aspiration to an awake mother at the time of the birth of the baby.[1] The disadvantages of the spinal anesthesia are fixed duration of anesthesia, risks of an extensive block, hypotension (9%)[2] and the risk of post dural puncture headache.[3,4]

The drugs used for general anesthesia are multiple and affect the baby directly from placental transfer and indirectly by maternal physiological and biomedical changes, which appear to be much more important. They may produce systemic effects in the baby leading to low Apgar score and sedation. In this technique there are risks of difficult intubations, maternal pulmonary aspiration, delayed recovery, nausea and vomiting. The incidence of maternal mortality may reach up to 10%.[2]

In 1952 Dr. Virginia Apgar, an obstetric anesthesiologist proposed the Apgar score as a means of rapid evaluation of the physical condition of infants shortly after the birth. The score are taken at one and five minutes after delivery of the baby. The five minutes score is regarded as the better predictor of survival in infancy in the long term. The 'one' minute score definitely is of value in assessing the effects of different drugs given to the mother during the c-section; this method is appealing as it is non invasive.[5]

The effects of general and regional anesthesia on neonates have been studied mainly on elective cases. We studied infants delivered by both elective and emergency c/section at Shalamar Hospital Lahore from 1st March 2010 to 28th February 2011, to determine the influence of the mode of anesthesia on the neonatal outcome.

Material & Methods

It was a cross sectional study conducted in a year's time i.e. from 1st March 2010 to 28th February 2011 in the OBGYN Department of Shalamar Hospital, which is a tertiary Care hospital in Lahore, Pakistan. We reported on 1308 patients who were delivered by

c-section, 59.6% (n=779) of which had elective c-section while 40.4% (n=529) had an emergency c-section. Almost equal percentage of patients received general and spinal anesthesia in each group i.e. the rate of general versus spinal in elective delivery group was 59.2% (n=199) and 59.7% (n=580) and in patients delivered through emergency c-section was 40.8% (n=137) and 40.3% (n=392) respectively; this difference was statistically insignificant (p=0.8).

The demographics and the obstetrical data were collected on a specially designed proforma. The Apgar score at five minutes and need for the NICU admission was recorded. The primary outcome was the Apgar score and need for the NICU admission. The data was entered in SPSS version 19 and was analyzed statistically. The significance level was set at 0.05 or less.

Results

The demographic data including the age and gravidity was not significantly different in 2 anesthesia groups.

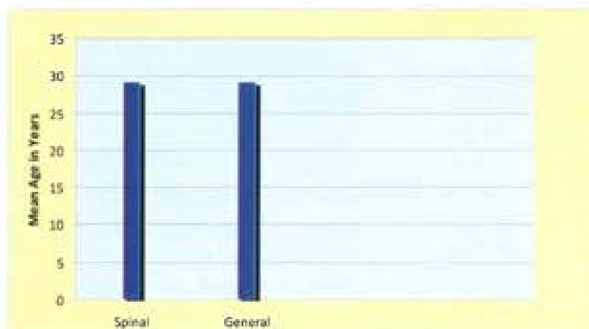


Fig-1: Distribution of cases in two groups according to the age of the patients.

The mean age was 29± 4.082 years in group I (spinal) and 28.98±4.023 years in general anesthesia group. (p>0.005) as shown in **fig 1**. The number of infants requiring NICU admission was 10.1% (n=34) in general anesthesia group, and 5.8% (n=56) in spinal anesthesia group respectively; this difference is statistically significant (p=0.018).

Discussion

The demographic data i.e. age and gravidity was not different in two groups. Both the elective and emergency c-sections were conducted under spinal & general anesthesia in almost the same number .

In this study, the Apgar score of the infants born to mothers who received spinal anesthesia was better as compared to those in the general anesthesia group. Similar results were found by Solangi SA et al who did the study on 160 patients in People's University of Medical and Health Sciences for Women, Shaheed Benazir Abad (Nawabshah) in 2009.[7] They recorded both the Apgar score and umbilical artery blood pH and found that spinal anesthesia was superior to general anesthesia. Similarly Hobson et al did a study on 137 patients in Mill Road Maternity Hospital, Mill Road Liverpool L62AH, UK in 2004 and revealed similar results.[8] The Apgar score of the infants was also found better in the spinal anesthesia group by Kolatalt in Siriraj Hospital, Mahidol University, Bangkok Thailand who compared it among 103 patients receiving general anesthesia and 118 receiving spinal anesthesia. He also included the epidural as a third group.[10] Afolabi et al in College of Medicine, University of Lagos, Ida Arabia, Lagos also found the superiority of the spinal anesthesia over general anesthesia in terms of neonatal outcome.[11] The study which found the general anesthesia better in terms of neonatal outcome over spinal anesthesia contrary to our results was by Radcliffe RM et al who did the study in John Radcliffe Hospital, Heading term Oxford, UK, though he also found that Apgar score was better i.e more than 7 in 93% of patients in spinal group as compared to 75% after general anesthesia.[7] Equivocal results of both spinal and general anesthesia were found by Zehra Nese Kavak et al in University of Marmara Istanbul, Turkey in 1999-2000,[9] Lalitha Krishnan et al,[6] Sigalas J et al in University General Hospital, Alexandrouspolis, Greece and Sadiqa Batool and Abdul Salam Malik in OBGYN Department of CMH, Sialkot from January 2007 to January 2008.[13]

Table-1: Distribution of cases in two groups according to the gravidity of the patients.

Gravidity	Spinal Anesthesia		General Anesthesia		Total	
	n	Percentage	n	Percentage	n	Percentage
Primigravidae	207	21.3	65	19.3	272	20.8
Multigravidae	740	76	266	79.1	1006	77
Grand Multigravidae	25	2.5	05	1.5	30	2.3
Total	972	100	336	100	1308	100

We also found that there is an increased rate of NICU admission in patients who received general anesthesia.

Conclusion

In terms of neonatal safety we conclude that spinal anesthesia is a better choice of anesthesia for Caesarian deliveries.

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Original Article

COMPARISION OF EFFICACY OF LEVOCETIRIZINE WITH MONTELUKAST AND LEVOCETIRIZINE ALONE IN PERSISTENT ALLERGIC RHINITIS

Habib Bashir, Mohammad Tariq, Munawar Jamil Khan and Anjum Khawar

Objective: To compare the efficacy of levocetirizine with montelukast and levocetirizine alone in patients with persistent allergic rhinitis in our setup.

Material & Methods: Patients with symptoms of AR attending ENT clinic were registered and divided into two groups based on drug given. Patients with odd numbers were included in group A receiving levocetirizine 5mg with montelukast 10mg once daily while patients with even numbers were included in group B receiving only levocetirizine 5mg once daily. Data was collected at visit 1 prior to medication, visit 2 one week after medication and visit 3 two weeks after medication. Medication history review, nasal symptom assessment and anterior rhinoscopy were done at each visit. Patients were evaluated for rhinorrhea, sneezing, nasal itching and nasal obstruction on a scale. Total symptom complex score (TSCS) was calculated by adding scores of all four variables under study using proforma. Lower the score more effective will be the drug.

Results: One hundred twenty four patients were included in study; 63 were male and 61 were female. TSCS was 9 -10 in 73.3% patients at visit 1 in levocetirizine + montelukast group that improved to 4-5 in 28.3% and 3- 4 in 65% patients at visit 2 and 3 respectively. Patients receiving levocetirizine alone had TSCS of 9 to 10 in 52.9% at visit 1 with an improvement to 3-4 in 9.4% and 49.1% at visit 2 and visit 3 respectively.

Conclusion: Levocetirizine with montelukast is superior to levocetirizine alone in controlling overall symptoms of AR.

Key words: Allergic rhinitis, Montelukast, Leukotriene receptor antagonist, Levocetirizine.

Introduction

Persistent allergic rhinitis (PAR) is a chronic inflammatory condition characterized by variety of nasal signs and symptoms not only impairing physical and social functioning but also increasing financial burden.[1] Antihistamines are mainstay of treatment.[2] Third generation antihistamines (levocetirizine and desloratadine) are amongst newer drugs that are gaining popularity due to their non-sedative, prolonged, safe and well-tolerated effects. Levo-cetirizine, a highly selective H_1 antihistamine, has additional benefits of nasal decongestion improving nasal airflow and is cost effective.[3,4,5,6] It has both short term and long term beneficial effects in the management of allergic rhinitis.[7] Monotherapy with antihistamines is no more a best option. Combination therapy is considered superior because of the fact that an allergic person is hypersensitive to multiple allergens. Addition of montelukast, a leukotriene receptor antagonist (LRA), to an antihistamine has a demonstrated effectiveness in treating PAR.[8,9] It has proven efficacy in terms of improving nasal symptoms and quality of life.[10] It has no significant drug interactions with additional benefits of having high safety profile and tolerability even after prolonged use.[11]

The purpose of this study was to select a better remedy in terms of alleviating symptoms of allergic rhinitis using drugs that were more effective with minimum untoward effects.

Material & Methods

Patients were enrolled from outdoor department of ENT Pakistan Institute of Medical Sciences Islamabad from 18th October 2008 to 17th April 2009. 124 patients with symptoms of AR attending ENT clinic were registered and divided into two groups based on drug given by non-probability (convenience) sampling. Patients were included based on demographic data, medical history, drug history and history of nasal allergy. Patients with odd numbers were included in group A receiving levocetirizine 5mg and montelukast 10mg once daily while patients with even numbers were included in group B receiving only levocetirizine 5mg once daily. Patients with bronchial asthma, nasal polyps and pregnant and lactating mothers were excluded from study. Informed consent was obtained prior to initiation of drug therapy as a part of ethical concern about inclusion in study, medicine given and benefits

and risks involved. Data was collected at visit 1 prior to medication, visit 2 one week after medication and visit 3 two weeks after medication. Medication history review, nasal symptom assessment and anterior rhinoscopy were done at each visit. Patients were evaluated for rhinorrhea, sneezing, nasal itching and nasal obstruction on a scale. Total symptom complex score (TSCS) was calculated by adding scores of all four variables under study using proforma. The efficacy of levocetirizine with montelukast was defined by their ability to reduce patient's symptoms of rhinorrhea, sneezing, nasal itching and/or nasal obstruction after two weeks of treatment. This was judged as per following scale:

1. No rhinorrhea
2. Mild rhinorrhea
3. Moderate rhinorrhea
4. Severe rhinorrhea

1. No sneezing
2. Mild sneezing
3. Moderate sneezing
4. Severe sneezing

1. Nasal obstruction Absent
2. Nasal obstruction Present

1. Nasal itching Absent
2. Nasal itching Present

Efficacy was determined not only on the basis of individual variable score but also on total symptom complex score (sum of all four variables). Lower the score, more effective would be the drug. The patients who did not have impairment of sleep, daily activities or work in school or no troublesome symptoms were labeled as having mild disease. The patients who had one or more of these symptoms without leave from work were considered as having moderate disease while those with leave from work were having severe disease. The data was stored and analyzed in SPSS version 10. Descriptive statistics were used to calculate mean and standard deviation for age. Frequency (percentages) was calculated for values of gender, rhinorrhea, sneezing, nasal itching and nasal obstruction. Chi-square test and independent samples t test were used as tests of significance. p value of ≤ 0.05 was considered as significant.

Results

A total of hundred and twenty four patients were included in this study over a period of six months from Oct 2008 to April 2009. The patients were divided into two groups; group A (patients with odd numbers) and group B (patients with even numbers). Group A was given levocetirizine 5 mg with montelukast 10 mg once daily and group B was given levocetirizine 5 mg alone for 2 weeks. The age of patients ranged between 13 and 46 years with a mean of 22 ± 7.5012 years. The two groups did not differ statistically with respect to age distribution (p=.157). Gender distribution was in favor of males with 63 males and 61 females. Chi-square test was used to determine the efficacy of drugs on individual variables that revealed statistically no significant difference between the two drug groups for rhinorrhea (p=1.00) and nasal itching (p=.341). However the other two individual variables showed significant difference in improvement between two

Table-1: Chi-square test for individual variable scores at all visits.

Symptoms	Severity	Group A			Group B			p value		
		Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3	Visit 1	Visit 2	Visit 3
Rhinorrhea	No	02	05	29	04	08	28	.665	.363	1.00
	Mild	05	20	19	05	24	21			
	Moderate	18	23	03	24	24	09			
	Severe	30	01		25					
Sneezing	No		02	19		03	19	.934	.000	.000
	Mild	01	13	23	03	21	28			
	Moderate	11	33	05	20	24	09			
	Severe	39	01	01	25	04				
Nasal obstruction	Present	57	09	03	49	15	02	.254	.000	.001
	Absent	05	53	59	13	47	60			
Nasal Itching	Present	49	09	06	52	04	03	.716	.001	.341
	Absent	11	53	56	10	58	59			

groups (sneezing p=.000 and nasal obstruction p=.001). The details of individual variable scores at each visit and p values are given in **table-I.** Independent samples t test was used to determine the overall efficacy of treatment regimen according to which mean initial Total Symptom Complex Score (TSCS) was 8.8 in group A and 8.2 in group B before the start of medications. At visit 2 it improved to 5.0 and 5.6 and at visit 3 it was further lowered to 3.8 and 4.6 respectively in both groups. The details at each visit with p values is given in **table-II.**

Table-2: Mean Total Symptom Complex Score (TSCS) at various visits.

Groups	A	B	Percentage
Mean TSCS at visit 1	8.8	8.2	.205
Mean TSCS at visit 3	5.5	5.6	.001
Mean TSCS at visit 3	3.8	4.6	.000

These results of independent samples t test showed that there is significant difference between the overall efficacy of levocetirizine and levocetirizine+ montelukast (p=.000), levocetirizine+montelukast being more effective than levocetirizine alone after two weeks of treatment.Persistent mild symptoms of rhinorrhea were reported in 40 patients (35%) while persistent mild sneezing in 51 (47%) patients in total study population at the completion of treatment at visit 3 with statistically no significant difference. Nasal obstruction and nasal itching were well controlled in both groups with statistically no significant difference.

Discussion

Allergic rhinitis represents a global health problem. In recent times, the incidence of allergic diseases has been increasing worldwide.[12] Published data on the prevalence of allergic diseases is lacking in Pakistan.[13] In allergic rhinitis, treatment is directed towards the inflammatory response. Avoidance of allergens is counseled but medication is usually needed for better control. This entails the use of oral antihistamines with or without other modes of therapy. Anti-histamines were introduced more than 50 years ago for the treatment of allergic rhinitis. Although first-generation antihistamines are clinically effective and are still available, their use is limited by their central nervous system (CNS) effects such as somnolence, sedation, drowsiness, fatigue, loss of attention and impaired psychomotor performance as well as anticholinergic effects including difficulty in micturition, impotence, constipation and other gastrointestinal symptoms.[14] Because of the sedative effects these drugs should be avoided in patients who undertake activities such as driving. They are not the drugs of choice in children and in geriatrics. The second-generation antihistamines have a more favorable side-effect profile lacking substantial sedative properties and have largely supplanted the earlier drugs.[15] The results of the present study provide an insight into the beneficial antihistaminic actions of levocetirizine alone and in combination with LRA. We found that levocetirizine with montelukast achieves superior control of allergic manifestations with better control for sneezing, nasal obstruction and itching (p<.05). As far as rhinorrhea is concerned no significant difference was noticed between two groups (p=.36, p=1). Schapowal et al investigated the efficacy of cetirizine in seasonal allergic rhinitis and observed the improvement in symptom severity scores.[16] A case-control study conducted by Walker in United Kingdom in teenagers found that symptomatic allergic rhinitis and antihistamine use are associated with significantly increased risk of unexpectedly dropping a grade in summer examinations. This was attributed not only to disease impact on quality of life but also to impaired cognition by anti-allergic medicines.[17] We in our study only assessed the beneficial antihistaminic effects without considering the side effects of both drugs. Walsh found levocetirizine an effective tool not only for immediate short-term allergic manifestations but also for long-term symptomatic relief.[18] This is consistent with our findings where combination therapy with levo-cetirizine showed greater reduction in TSCS in significantly more patients than that shown by levocetirizine alone at visit three (two weeks after the drug) (p=.000). Day and Briscoe assessed the efficacy of loratadine and montelukast upon nasal congestion and found that loratadine-montelukast treatment resulted in greater improvement in the mean nasal congestion score vs placebo.[19] Ciprandi et al in a pilot study reported decongestant effects about levo-cetirizine due to its better response to the symptom of nasal obstruction.[4] These results were similar to our inference where levocetirizine-montelukast treatment showed better response not only for nasal obstruction but also for sneezing and nasal itching (p<.05). Characteristically no statistically significant difference was noted for runny nose (p=.361 at visit 2 , p=1 at visit 3).

We found remarkably good overall control rate in

both groups. Complete resolution of symptoms in total cohort was 41.9% while mild symptoms persisted in 39.5% patients. As far as individual symptom cure is concerned it was better for nasal itching (91%) followed by nasal obstruction (89.7%), rhinorrhea (65%) and sneezing (49%) for total study population. Combination therapy with addition of local and/or systemic decongestants, a local steroid or even a first-generation antihistamine at a different timing may even be considered a superior approach in persistent AR.[20] However, the efficacy and side effects of such regimens needs to be rigorously evaluated and next-day sedation has been observed with such a regimen especially when combination of two antihistamines from different classes is used.[21]

A controlled study by Bousquet, Lund and Cauwenberge found that therapy for AR directed by a set of simple guidelines is more effective than therapy chosen by physicians.[22] ARIA guidelines are now available that recommend stepwise approach to treat AR keeping in view the potentially troublesome links of the disease especially with bronchial asthma.[23] These guidelines clearly address the severity of symptoms and quality of life parameters but there is a lack of quantitative analysis for severity assessment. A visual analog scale (VAS) is therefore recommended to assess the severity of symptoms of AR.[24] We in our study did not use this scale. Instead symptoms were categorized into mild, moderate or severe based on the presence of impairment of sleep, daily activities or work in school or troublesome symptoms with or without holidays from daily activities. We encountered an overall better response of levo-cetirizine with montelukast as compared to levo-cetirizine alone after one and two weeks of therapy (p=.000). Similar results were seen by Horak, Ciprandi and Day.[4]

Conclusion

There is statistically significant difference between levocetirizine -montelukast and levocetirizine alone as far as the improvement in most of the individual symptoms in symptomatic allergic rhinitis is concerned. Overall efficacy of combination therapy with levocetirizine and montelukast is more than levocetirizine alone in improving total symptom complex score in our study.

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Original Article

Breast Self Examination - Awareness and Practices Among Lady Health Workers

Rabia Arshad Usmani, Syed Ali Haider, Sana Iftikhar, Hafsa Rasool, and Anjum Razzaq

Objective: To find out the awareness and practices regarding breast self examination (BSE) among the lady health workers of Tehsil Arifwala, district Pakpatan, Punjab.

Material & Methods: This cross sectional study was conducted in July 2011. 300 LHW's fulfilling the inclusion criteria were selected through consecutive sampling technique. Information was collected regarding awareness and practices of BSE through interviews on questionnaire covering all variables. The BSE practices of LHW's were determined on the basis of two criteria:

1. Number of BSE steps performed (categorized as 'average' for performing >2 steps and 'below average' for performing one or two steps).
2. Interval of BSE (categorized as 'correct' for regular monthly interval and 'incorrect' for >1 month interval).

Data was entered and cleaned using Epi Data 3.1 and analyzed using Epi Info 3.5.1

Results: Mean age of participants was 32.06 ± 7.8 years. Majority were married (79%), rural dwellers (64.3%), had job experience up to 5 years (55.3%) and were educated above middle (53.7%). Majority 280 (93.3%) were aware of breast self examination but only 80 (28.5%) were practicing it. Out of 80 who were performing BSE, 34 (12.1%) were practicing BSE at correct interval and only 46 (16.4%) were practicing average steps. Significant relationship was found between the age and awareness while higher levels of job experience had a significant relationship with BSE practice.

Conclusion: The awareness level of LHW's regarding BSE was relatively high as compared to their practices of BSE. As a LHW has direct link with the community, there is a need to organize training courses for LHW's regarding correct BSE practices. Special emphasis should be paid to timeliness and steps of the procedure so that she can provide proper information to community for early detection of breast cancer.

Key words: Breast self examination, Lady health worker, Breast cancer.

Introduction

Breast cancer is a global health issue and a leading cause of death among women internationally.[1] With 1 million new cases in the world each year, it is the commonest malignancy in women and comprises 18% of all female cancers.[2,3,4] Breast cancer incidence rates are increasing in most regions of the world, especially in the developing nations.[5]

The incidence of breast cancer in Pakistani women is higher than the women in neighboring countries like India and Iran.[1,6] Around 90,000 cases are estimated to occur annually with a resultant 40,000 deaths each year.[7] Reasons for increase in incidence of breast cancer in the developing world include increased life expectancy, urbanization and adoption of western lifestyles. Although some risk reduction might be achieved with prevention, these strategies cannot eliminate the majority of breast cancers that develop in low and middle income countries where breast cancer is diagnosed in very late stages. Therefore, early detection of breast cancer via screening methods is the cornerstone for improving outcome and long term survival.[8] Currently there are three methods of breast cancer screening recommended by American Cancer Society and National Cancer Institute 1991. (a) Breast self examination (BSE) (b) Clinical Breast examination (c) mammography.[9,10] As facility of mammography is not readily available to each and every woman in Pakistan and is expensive as well, therefore Breast Self Examination is more convenient and can be done easily by the females themselves. Therefore, females should be given the proper knowledge and awareness of breast self examination as it is very easy to perform at home and can be helpful in the diagnosis and treatment of breast cancers at an early stage.[11] There are five steps of breast self examination which include observation of any change in skin, any discharge from nipples and gentle palpation of both breasts in standing and sitting postitions.

As recommended by American Cancer Society and National Cancer Institute, all the five steps should be practiced at correct interval i.e., every month. According to WHO, women older than 20 years should perform monthly breast self examination after their periods have ended. Postmenopausal women should perform the breast self examination on the same day of each month.[12,13]

Majority of Pakistani breast cancer patients present late due to lack of availability of screening tools and lack of awareness. Lady health worker is a community based care provider attached with National Program for Family Planning and Primary Health Care. She holds a pivotal role in providing correct information to the females in the community. In our socio-economic set up the only feasible solution to promote early detection of breast cancer is to create breast cancer and BSE awareness among female population through health education by LHWs. Evidence indicates that if diagnosed early through methods of breast cancer screening the cure rate may increase up to 97%.[14,15]

However the LHW Program has not yet launched training courses of LHW's regarding performing correct steps of BSE at monthly intervals. Hence the LHWs in Pakistan are lagging behind in providing correct information of BSE to the community.

The aim of this study was to determine the knowledge and practices of LHWs regarding BSE working in Tehsil Arifwala, for earlier detection of breast cancer.

Material & Methods

A cross sectional study was conducted on LHWs of Tehsil Arifwala, District Pakpatan, Punjab in July 2011. 300 LHW's fulfilling the inclusion criteria were selected through consecutive sampling technique.

The questionnaire consisted of sociodemographic variables, knowledge and practices of BSE, Demographic variables of LHW's included age, education, rural or urban background, job experience, marital status,. Source of knowledge was also recorded . The BSE practices of LHW's were determined on two criteria:

1. Number of BSE steps performed (categorized as 'average' for performing >2 steps and 'below average' for performing one or two steps).
2. Interval of BSE (categorized as 'correct' for regular monthly intervals and 'incorrect' for >1 month intervals).

Permission for carrying out the research was taken in advance from concerned authority. Informed consent was taken from every LHW included in the study. Data was collected through female interviewer who was trained to carry out the research process.

Data was entered and cleaned using Epi Data version 3.1 and data was analyzed using Epi Info version 3.5.1. Frequency tables were generated for all possible variables. Means and other parameters of central tendency were calculated for quantitative data. Chi square was applied to find out deviation between categorical variables and statistical significance was decided at cutoff value of $p<0.05$. The privacy and the confidentiality of the information was ensured and maintained.

Results

In this study 300 Lady Health Workers of Tehsil Arifwala were interviewed. Lady Health Workers belonging to age group above 30 yrs were 59%. The mean age of LHW's was 32.066 years and standard deviation was 7.880. Most of LHW's 193 (64.3%) were from rural background and 239 (79.7%) were married. LHW's having above middle education were 161 (53.7%). Those LHW's having job experience up to 5 years were 166 (55.3%). The mean job experience of LHW was 5.986 years and standard deviation was 3.5809 as shown in **table-1.**

The results showed that 280 (93.3%) LHW's were aware of BSE. Out of 280, only 34 (12.1%) LHW's were practicing BSE at correct interval, whereas majority 246 (87.9%) were practicing it at incorrect interval. Moreover, it was observed that only 46 (16.4%) were at average level of practicing steps of BSE while majority 234 (83.6%) were below average level of practicing BSE as shown in **table-2.**

The comparison of awareness of BSE with age of LHWs showed that among those who were above 30 years 99.6% were aware, while those between 20-30 years, 88.6% were aware of BSE ($p=0.012$). Comparison with job experience showed that among LHWs having job experience above 5 years 96.3% were aware of BSE ($p=0.052$) **(table-3).** The comparison of practices of BSE with demographic factors of LHW revealed that among LHWs having job experience up to 5 years only 7.3%, while LHWs of above 5 years job experience 17.8% were doing BSE practices at correct interval ($p=0.012$). However age, background, marital status and education of LHW were not significantly related with BSE practice.

Discussion

Breast self examination (BSE) provides an

Table-1: Frequency distribution of sociodemographic characteristics of lady health workers n = 300.

Characteristics		Frequency	Percentage
Age Group	20-30 years	123	41%
	Above 30 years	177	59%
Background	Rural	193	64.3%
	Urban	107	35.7%
Job experience	Up to 5 years	166	55.3%
	Above 5 years	134	44.7%
Martial status	Married	239	79.7%
	Unmarried	61	20.3%
Education of LHW	Up to Middle	139	46.3%
	Above Middle	161	53.7%

Table-2: Awareness and Practices of Breast Self Examination Among lady health workers n=300.

Characteristics		Frequency	Percentage
Awareness	Aware	280	93.3%
	Unaware	20	6.7%
Practices at	Correct interval	34	12.1%
	Incorect interval	246	87.9%
BSE Steps scoring	Average (>2 steps)	46	16.4%
	Below average	234	83.6%

Table 3: Comparison of sociodemographic characteristics with knowledge of lady health workers regarding-breast self examination.

Sociodemographic Characteristics		Awareness of BSE Yes (n=280)		No (n=20)		P-value
		Frequency	Percentage	Frequency	Percentage	
Age Group	20-30	109	88.6	14	11.4	
	>30 years	171	96.6	06	3.4	0.012
Background	Rural	182	94.3	11	5.7	
	Urban	98	91.6	09	8.4	0.509
Marital Status	Married	224	93.7	15	6.3	
	Unmarried	56	91.8	05	8.2	0.38
Education	Upto Middle	154	90.6	07	9.4	
	Above Middle	126	95.7	13	4.3	0.133
Job Experience						
	Up to 5 years	129	91.0	05	9.0	
	Above 5 years	151	96.3	15	3.7	0.052

Table 4: Comparison of sociodemographic characteristics with breast self examination practices at correct interval (n=280)

Sociodemographic Characteristics	Correct Interval				P-value
	Yes (n=34)		No (n=246)		
	Frequency	Percentage	Frequency	Percentage	
Age Group 20-30	25	8.3	146	91.7	
>30 years	09	14.6	100	85.4	0.1609
Background Rural	24	13.2	158	86.8	
Urban	10	10.2	88	89.8	0.591
Marital Status Married	28	12.5	196	87.5	
Unmarried	06	10.7	50	89.3	0.890
Education Up to Middle	22	9.5	132	90.5	
Above Middle	12	14.3	114	86.7	0.303
Upto 5 years Job	11	7.3	140	92.7	
Above 5 years Job	23	17.8	106	82.2	0.012

inexpensive method for early detection of breast tumors. Thus awareness and practices at correct and regular interval could protect women from morbidity and mortality due to breast cancer. This study was conducted among lady health workers of Tehsil Arifwala, district Pakpatan, province of Punjab to find out their awareness and practices regarding BSE. Relationship of socio-demographic factors with awareness and practices of breast self examination was also observed. The mean age of participants in this study was 32.063 years which is comparable with the study of SI Gilani et al[11] (32.39 years). The mean age in a Nigerian study was 37.3 years.[16] Majority (64.3%) LHWs had rural background and most of them (79.7%) were also married. Most of the LHWs were having educational status above middle level (53.7%) although the required educational level for the recruitment of LHW is middle. The mean job experience of LHW in our study was 5.98 years. The marital status of LHW depicts the cultural practices of rural Pakistan where females get married at early age. The level of awareness of BSE among the participants in this study was 93.3% which was quite high and depicts their positive health behavior. It was also comparable to a Nigerian study in which the level of knowledge was 84.6%.[9] The practicing of BSE in terms of correct interval (16.4%) and steps (12.1%) was alarmingly low in the study group. Comparable results were found in similar studies on health care workers in other developing countries; like 39% Nigerian[9], 6% Iranian[17] and 10% Egyptian[18] health workers were practicing BSE monthly. However, higher results were observed in a study conducted in Holy Family Hospital, Rawalpindi where 28.3% Pakistani females were practicing BSE. Most of these females were educated and urban residents.[11] The proportion of LHWs (87.9%) who did not practice BSE properly, were either practicing BSE at 3 to 6 months interval or even on yearly basis. Similar was the finding in Nigerian health workers study[9] in which 50% workers practiced BSE as recommended monthly, some 11.25% practiced it quarterly, 22.55% practiced it every six months and the remaining ones practiced it occasionally 10% and annually 6.25%. Breast cancer Ireland Society conducted a national survey and stressed that BSE should be performed at regular intervals and at same time every month so that the females know what is normal for them and can detect changes early.[19] It was found that increasing age, getting married, having above middle education and having job experience above five years, (p=0.00006), were the factors which made the participants more knowledgeable, their performance of steps of BSE and its interval also improved. Therefore, a criteria for recruitment of LHW could be that LHW should be married and educated up to matriculate. In studies performed in developed and developing countries, upon health personnel or the society, rates for BSE ranged from 6% to 95%.[10,20-23] In developed countries with a higher awareness for breast cancer, rates were higher.[24] The study revealed that health workers had awareness and did perform BSE, but the rates of those that did so

on a regular basis was low. This finding demonstrates the desire among this population to acquire correct knowledge regarding BSE. Also, this finding brings to light that if awareness and health education programs are conducted for LHW's, it might result in negative behaviors changing to positive health practices. BSE is an easily applied, cheap, and effective method for early breast cancer detection. It is vital to update LHW's with correct technique and interval of BSE so they impart correct knowledge to females.

Conclusion

The results of this study demonstrate a disparity between high levels of knowledge of BSE compared to a low level of practice among the lady health workers. Further, the practices are not proper as complete steps are not performed and not done at correct interval.

There is a need to organize training programs for LHWs about BSE steps and correct interval so as to reduce the knowledge-practice gap. Considering the role that lady health workers may play in communicating health behaviors to the general public, planning health education interventions for this group of females is essential.

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Original Article

ACCIDENT AND EMERGENCY NEUROIMAGING: IS AN OPTIMIZATION NEEDED IN ORDERED NON-ENHANCED CT SCANS FOR BRAIN IMAGING?

Mohammad Saleem Shehzad Cheema and Salman Atiq

Objective: To determine and characterize ordering of computed tomography scans for neuroimaging and to identify the frequency of negative non-enhanced computed tomography (NECT) in a prospective series of patients presenting to medical, surgical and pediatric floors of Accident and Emergency Department, so as to manipulate ordering practice by the referring physicians.

Material & Methods: This study was conducted in Department of Radiology, Services Institute of Medical Sciences/ Services Hospital, Lahore, between January and June 2010. The study consecutively included all the cases from Accident and Emergency Department with neurological symptoms and signs undergoing CT head referred from medical, surgical and pediatric floors. The patients' medical records were reviewed. The study population consisted of 2570 patients, including 1611 men and 959 women, who were 1-75 years old (mean 42 years).

Results: Interpretation of NECT heads was done for positive as well as negative cases. Of 2570 cases, 1155 cases (44.9%) were positive. The overall percentage of negative CT scans was high for medical emergencies, with only 481 cases (29.2%) out of 1647 revealing positive findings. The percentage of negative CT scans referred from surgical emergency was not as high as for medical emergencies, but the major head trauma was only productive for extra-axial bleed/ hematoma revealing 403 cases (44.6%). Minor head trauma was more commonly scanned with most of the CT scans head remarkable only for skull vault non-depressed fractures. Pediatric referrals positive percentage was again low with only 6 (28.5%) out of 21 cases positive for any underlying pathology.

Conclusions: Optimization in the neuroimaging should be encouraged for more thoughtful use of imaging modalities in Accidents and Emergency departments to ensure patients' benefit from continued imaging innovation. An urgent CT head scan is deemed appropriate if it leads to an immediate change in a patient's management. Unnecessary use of neuroimaging, in particular to CT scan, has long-term effects of accumulated diagnostic radiation. Appropriateness of the requests should be evaluated according to the various guidelines.

Keywords: Accident and Emergency, neuroimaging, computed tomography.

Introduction

The uncritical use of advanced and high-tech imaging methods has been under spotlight for quite sometime. The cross-sectional modalities including computed tomography (CT), magnetic resonance imaging (MRI), and positron-emission tomography-CT (PET-CT) has made diagnostic yield far better than before for almost all major systems of human body.[1] Imaging costs, however, have grown as well. Substantial fraction of imaging examinations are unnecessary and do not positively contribute to patient care, one of which is neruoimaging in Accident and Emergency department.[2]

Altered mental status poses a great challenge in the emergency department as it is a symptom complex with diversified etiologies. The challenge is to identify clinically patients with an acute neurological condition such as intracranial haemorrhage (ICH) or infarct, which would require timely sub-specialty treatment. Non-contrast computed tomography (CT) of the brain has been recommended as the initial imaging modality in the investigation of such patients.[3] However, not all patients with altered state of consciousness require a CT head but only those who would benefit from a quick decision-making following a CT of the brain. Non-enhanced computed tomographic (NECT) scan had been in use of presumed acute stroke to exclude hemorrhage and other possible causes for a presenting patient's signs and symptoms. It was not considered an imaging tool capable of yielding early prognostic information in ischemic stroke. More recently, with the adminis-

tration of intravenous tissue plasminogen activator (IV-tPA) in the first hours of stroke, CT scanning has demonstrated a possible role as a prognostic and triage test.[4] The observation of early infarct signs involving extensive areas of the middle cerebral artery territory within 6 hours has been implicated in poor outcome. Treatment with IV-tPA had no beneficial affect in this group and increased the likelihood of fatal intracranial hemorrhage. However, exclusion of this group with more subtle early signs of infarct has proven difficult in multicenter trial.[5] Tools capable of showing higher contrast between ischemic and non-ischemic tissue, such as diffusion-weighted MR imagers, have replaced CT scan.[6] However, with the widespread availability of CT scanning, it can be applied as a screening tool in the setting of acute ischemic stroke. Head injury remains one of the most common reasons for seeking medical attention after injury. The vast majority of head injuries are minor, but the optimal evaluation and treatment protocol of this large group of patients remains controversial.[7] Recommendations on the use of CT scan head vary from mandatory scanning in all patients to more selective use based on a constellation of findings on the history and physical examination. Hospital admission or prolonged supervised observation remains a current standard of practice for patients who have sustained a loss of consciousness even though diagnostic studies have excluded an intracranial injury.[8] The use of CT to screen patients with minor head injury for intracranial lesions has become routine, but such screening is expensive. Medicolegal considerations may cause medical providers to order a CT head and for the decision making either or not to admit such patients to the hospital. The aim of our study was to determine and characterize ordering of head computed tomography scans and to identify the frequency of negative non-enhanced computed tomography (NECT) head in a prospective series of patients presenting to Accident and Emergency Department on medical, surgical and pediatric floors so as to manipulate ordering practice by the referring physicians.

Material & Methods

This study was conducted in Department of Radiology, Services Institute of Medical Sciences/ Services Hospital, Lahore, between January and June 2010. CT scans were performed in patients with neurological symptoms and signs who were referred by physicians, neurophysicians and neurosurgeons attending Accidents/ Emergency Department of Services Hospital Lahore. We consecutively included all the cases of Accident and Emergency Department undergoing CT head referred from medical, surgical and pediatric floors. The patients' medical records were reviewed. The study population consisted of 2570 patients, including 1611 men and 959 women, who were 1-75 years old (mean 42 years). Computer generated requests were forwarded, however clinical information was inadequate in almost half of the referrals. Patients with focal neurologic deficit, unresponsiveness and hypertension who had an increased risk of a CT abnormality were referred from medical emergency. Head trauma, loss of consciousness, headache, and dizziness were found to be the common reasons for ordering CT head by surgical emergency. Minor head injury with normal findings on a brief neurologic examination (normal cranial nerves and normal strength and sensation in the arms and legs) and a score of 15 on the Glasgow Coma Scale, as determined by a physician on the patient's arrival at the emergency department were also referred. Fever with altered mental response was a common mode of referral from pediatric emergency. CT scanning was done on multidetector Aquilion Multi-Slice CT (Toshiba Medical Co Ltd, Tokyo, Japan). The CT scan covered the complete skull region. The radiation dose was kept minimum by the use of low mA with peak KV around 120. The CT scanning was performed in the supine position. The gantry was angled perpendicular to the hard palate. All CT scans were acquired without intravenous contrast. All non-enhanced CT head images were prospectively reviewed by experienced radiologists.

Results

Out of 2570 patients in total, 1647 cases from medical emergency, 902 cases from surgical emergency and 21 cases by pediatric emergency were sent for neuroimaging. Of the scans referred from medical emergency, 481 scans (29.2%) were abnormal with the most common abnormalities being 241 cases of ischeamic (50%) and 153 cases haemorrhagic (31%) stroke followed by space occupying lesions (SOL) identified in 48 cases (10%) and meningitis /encephalitis in 39 cases (9%). Indications that correlated highly with abnormal scans were altered mental state with focal weakness, most of which turned out to be stroke. About 144 cases of all the referrals (8.7%) remained equivocal of the 902 surgical emergency referrals, 668 scans (74%) were abnormal. Fracture of skull vault was the most common abnormality associated in all the scans

Table-1: Demographics of 2570 patients underwent A&E neuroimaging.

Males (m=1611)	Females (n=959)	Mean Age±SD
62.6%	37.4%	42 ±15.7

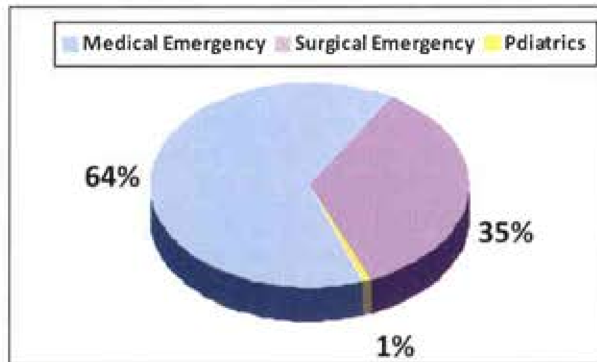
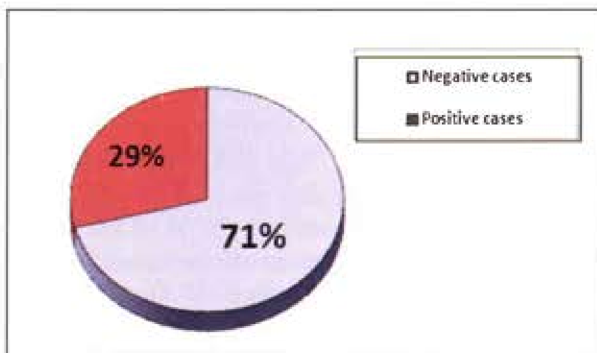


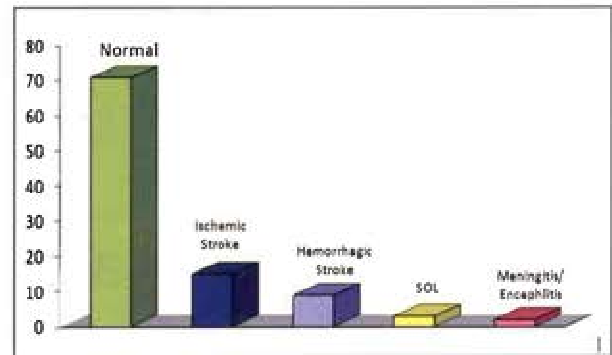
Fig-1: Percentages of referred 2570 cases from different A & E Departments.

comparing 591 cases (88.47%). Extra-axial bleed. Hematoma were seen in 403 cases (60%), with 276 cases of extradural and 127 cases (31%) of subdural bleed. Hemorrhagic contusion was found in 143 cases (21.4%) and subrachinoid hemorrhage in 40 cases (9.9%). Mechanism of injury and associated injuries were also reviewed, but we found it statistically insignificant. Most of the positive cases for CT findings were amnestic and semiconscious.

There were 21 referrals from pediatric emergency, out of which we found abnormality in only 6 cases (28.5%). 4 scans were positive for hydrocephalus and radiological signs of meningitis/ encephalitis, followed by 2 cases of congenital brain abnormalities (porencephaly, cerebral hypoplasia).

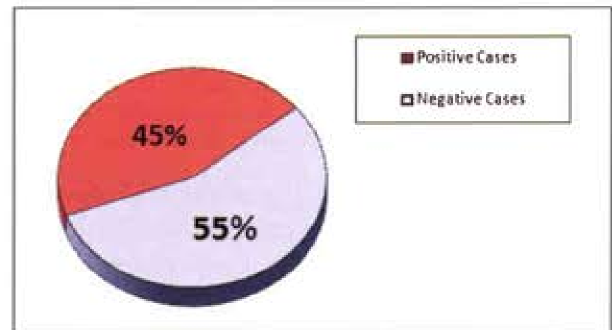


(a)



(b)

Fig.-2: (a). Comparison of positive and negative CT scans (in percentages) referred from medical emergency. (b). percentages of various groups of abnormalities detected on CT scans in comparison to normal CT scans referred from medical emergency.



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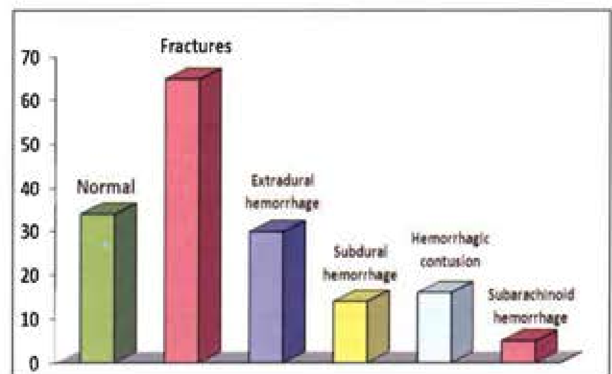
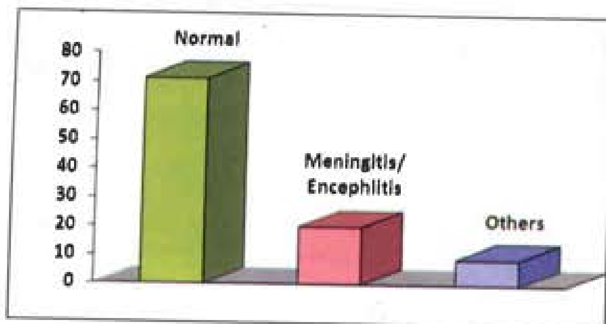
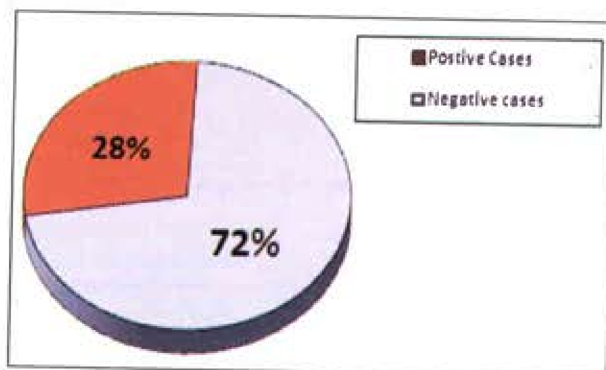


(b)

Fig-3: (a). Comparison of positive and negative CT scans (in percentages) referred from surgical emergency. (b). Percentages of various groups of abnormalities detected on CT scans in comparison to normal CT scans referred from surgical emergency.



(a)



(b)

Fig.-4: (a). Comparison of positive and negative CT scans (in percentages) referred from pediatric emergency. (b). Percentages of various groups of abnormalities detected on CT scans in comparison to normal CT scans referred from pediatric emergency.

Final interpretation of CT heads was done for positive as well as negative cases. Of 2570 cases, 1155 cases (44.9%) were positive. The overall percentage of negative CT scans was high for medical emergencies, with only 481 cases (29.2%) out of 1647 revealing positive findings.

Table-2: Final interpretation of positive and negative cases.

Interpretation of CT head	Positve Cases (n=1155)	Negative Cases (n=1415)
(N=2570	44.9%	55.1%

Discussion

Several interrelated factors have promoted the non-beneficial use of imaging.[9] Despite well-publicized concern over the possible long-term effects of accumulated diagnostic radiation, patients pressure their physicians to refer them for imaging studies even when imagingis unlikely to provide any value. There is an extensive literature validating the relationship between self-referral and significantly higher imaging utilization .[10] Radiological imaging is considered valuable when the probability of disease is neither very high nor very low but in the moderate range. Ideally, in determining whether a patient will undergo imaging, physicians should carefully weigh both the likelihood of disease and the test's accuracy in detecting and diagnosing abnormalities, ultimately minimizing unnecessary imaging. Legal actions have taken against physicians over failure to diagnose serious abnormalities resulting in overuse of cross-sectional imaging. A survey of physicians in USA showed that 28% of diagnostic imaging referrals are the part of defensive practices.[11] Interpretation of the CT scan is an important aspect which the referring physicians should keep in mind while ordering for cross-sectional neuroimaging. According to one survey in Australia, of all the CT scans ordered in emergency for brain, 21.6% were abnormal with the most common abnormalities being haemorrhage or infarction. Headache, transient ischaemic attack and seizure had low correlations with abnormal scans.[2] Schriger et al.[12] evaluated the ability to evaluate acute infarction on the basis of hypoattenuation. The percentage of physicians correctly determining acute infarction varied greatly across subspecialties and with the type of infarction present. In addition, short-interval (24-hour) scan was considered as a gold standard for the detection of significant hypoattenuation. This has allowed for a measure of accuracy in the ability of the early CT scan to discriminate >33% or <33% hypoattenuation in the middle cerebral artery (MCA) territory. Assuming the 24-hour scan is the gold standard, a high degree of sensitivity and specificity exists. Clinical symptoms and signs are the key factors while evaluating the patient either or not as a candidate for CT scan. Seven possible predictors of abnormal CT have been postulated as a result of altered mental state patients, i.e. mean age, drowsiness or unresponsiveness, previous cerebrovascular accident or epilepsy, tachycardia (> 120/min), bradycardia (< 60/min), and exposure to drugs [13]. Age is likely a confounding factor as it carries a variety of co-morbidities and treatments that might explain the association. All patients with positive CT scans after trauma has either headache, vomiting, an age over 60 years, drug or alcohol intoxication, deficits in short-term memory, physical evidence of trauma and seizure. Such patients can be identified by the presence of one or

more of these findings.[7] The importance of appropriateness of the out-of-hours computed tomography (CT) head scans (scans performed outside normal working hours), however, should be emphasized. A survey conducted in a large district general hospital in the United Kingdom for CT scan request and reports of adult patients were reviewed. Immediate change in management of 80% patients occurred, including intracranial bleed and hemorrhagic stroke. Out-of-hours CT head scans also facilitated early discharge of the patients with head injuries and headache from the hospital.[17] Although National Institute for Health and Clinical Excellence *(NICE)*. and Scottish Intercollegiate Guidelines Network guidelines *(SIGN)* have provided comprehensive guidelines and indications for CT scan in head injury, we feel that modifications can be made locally in keeping different mode of trauma. So far, there are no local guidelines, we recommend that review of international guidelines is needed to implement on our population as to improve the appropriateness of requests for CT scans in Accident and Emergency Departments.

Selection Criteria For "Adults"

Urgent scan if any of the following (results within 1 hour):

1. Glasgow Coma Scale (GCS) <13 when first assessed or GCS <15 two hours after injury
2. Suspected open or depressed skull fracture
3. Signs of base of skull fracture*
4. Post-traumatic seizure
5. Focal neurological deficit
6. >1 episode of vomiting (SIGN guidance suggests 2 distinct episodes of vomiting)
7. Coagulopathy+any amnesia or loss of consciousness since injury.

A CT scan is also recommended (within 8 hours of injury) if there is either:

a. More than 30 minutes of amnesia of events before impact
b. Or any amnesia or loss of consciousness since injury if:
   i) Aged =65 years
   ii) Coagulopathy or on warfarin
   iii) Dangerous mechanism of injury
   v) Road traffic accident (RTA) as a pedestrian
   vi) RTA - ejected from car
   Vii) Fall >1 m or >5 stairs

Selection Criteria For "Children"

Urgent scan if any of the following:

1. Witnessed loss of consciousness >5 minutes
2. Amnesia (antegrade or retrograde) >5 minutes
3. Abnormal drowsiness
4. =3 Discrete episodes of vomiting
5. Clinical suspicion of non-accidental injury
6. Post-traumatic seizure (no PMH of epilepsy)
7. GCS <14 in emergency room (Paediatric GCS <15 if aged <1)
8. Suspected open or depressed skull fracture or tense fontanelle
9. Signs of base of skull fracture*
10. Focal neurological deficit
11. Aged<1-bruise, swelling or laceration on head >5 cm
12. Dangerous mechanism of injury (high-speed RTA, fall from >3 m, high-speed projectile)

**Signs of basal skull fracture: haemotympanum, 'panda' eyes (bruising around the eyes), cerebrospinal fluid (CSF) leakage (ears or nose) or Battle's sign (bruising which sometimes occurs behind the ear in cases of basal skull fracture).*

NICE and SIGN Clinical Guidelines for "Triage assessment investigation" and early management of head injury in infants, children and adults.[14,15,16]

Conclusion

Optimization in the neuroimaging should be encouraged for more thoughtful use of imaging modalities in Accidents and Emergency departments to ensure patients' benefit from continued imaging innovation. An urgent CT head scan is deemed appropriate if it leads to an immediate change in a patient's management. Unnecessary use of neuroimaging, in particular CT scan, has long-term effects of accumulated diagnostic radiation. Appropriateness of the requests should be evaluated according to the various guidelines.

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Original Article

ODDS OF PROSTATE CANCER AMONG PAKISTANI MEN IN RELATION TO THEIR DIETARY PATTERNS

Shahid Mahmood, Ghazia Qasmi, Anjum Razzaq and Hafiz Azhar Ali Khan

Objective: To determine relationship between dietary pattern of Pakistani men and the odds of prostate cancer.

Material & Methods: Total of 195 cases of adenocarcinoma of prostate and 390 randomly selected controls were recruited for this retrospective study. Cases and controls were asked about their usual dietary pattern using validated food frequency questionnaire. NutriSurvey software version 2007 was used to compute amount of macro-nutrients and micro-nutrients consumption per week. Odds ratio was used as a measure of strength of association. Unconditional logistic regression was used to compute odds ratios after adjustment of known potential confounding factors and effect modifiers.

Results: Mean calories consumed per day for cases was 3720 ± 878 and for controls was 2918 ± 487 and this difference was statistically significant [t =11.87 at 255 df ; p<0.001). Red meat consumption was found to be strongly associated with prostate cancer risk [adjusted OR 2.23 for once a week, OR 10.67 for twice a week, OR 11.82 for thrice a week and OR 14.53 for daily]. On the other hand, consuming chicken for once a week was rather protective (adjusted OR 0.25; 95% CI. 0.14-0.44; p<0.001]. Weekly consumption of seasonal vegetables, fruits were found to play protective role [adjusted OR 0.01; 95% CI.0.005-0.03; p<0.001]. On the other hand, fat consumption demonstrated a strong relationship with prostate cancer risk such that those consuming 80 grams and above fats per day were at higher odds 7.95 (95% CI 4.38-14.43; p<0.001). Increased risk was also observed with calcium consumption [OR 2.03 (95% CI.1.21-3.42; p=0.006], however, phosphorous and Iron did not demonstrate any relationship with prostate cancer odds.

Conclusion: Consumption of increased quantities of fats, red meat and dairy products are associated with higher odds of prostate cancer in Pakistani men.

Key words: Pakistan, prostate, dietary pattern, risk, odds, red meat, fruits, vegetables, diary products.

Introduction

Age-adjusted incidence rate of prostate cancer in Pakistan is 5.3 per 100,000 person-years which although low compared to other Asian countries, increasing number of cases are being reported in recent years.[1] Data on risk factors associated with development of carcinoma of prostate in Pakistan is sparse. Studies in developed countries where this malignancy is the most frequently diagnosed among men, have identified advancing age, race and family history as the established risk factors.[2,3] In addition to genetic preponderance, environmental factors and lifestyle could explain the wide variance found in prostate cancer global incidence.[4] A wide variety of food elements in diet have been studied in relation to the risk of prostate cancer using descriptive and ecological study designs; however, most of these investigations were conducted on populations living in developed countries. There has been somewhat consistent observation that consumption of animal fat and red meat is found more commonly among prostate cancer cases. Mechanism by which fats contribute in cancer initiation or promotion is not clear, but fat induced oxidative stress may be involved in this process.[5] A positive association was also observed for dietary linolenic acid (RR. 3.43; 95% CI. 1.67-7.04).[6] Chronic excess of zinc may be associated with prostate cancer risk, although in vitro studies suggested opposition action.[7]

Some studies have implicated the use of dairy items like milk products in relation to prostate cancer risk. It is suggested that rising amount of calcium in dairy products may be associated with increased risk, whereas men who consumed low calcium and high phosphorus had an RR of 0.6 (95% CI.0.3-1.0).[8] Furthermore, increased consumption of tomatoes, pink guava, pink grapefruits, water melons, Papaya (containing lycopene), cruciferous vegetables

(onions, garlic) and foods containing selenium, vitamin E have shown to decrease the risk of prostate cancer, although the results are inconsistent.[9]

It has also been suggested that some individuals might have genetic susceptibility to cytochrome p450 which affects the relationship between certain elements in diet and prostate cancer risk.[10] Some metabolites like isothiocynates (ITC's) have been implicated which is formed from high glycosinonates present in cruciferous vegetables.[11]

Data on risk factors associated with development of carcinoma of prostate in Pakistan is meager and no information is available in relation to the dietary pattern of Pakistani men. Only few descriptive studies are available to review, which describe only the preliminary data regarding demographic features of the cases. Aim of this study was to determine relationship between the dietary pattern of Pakistani men in relation to prostate cancer risk.

Material & Methods

In this case control study which was conducted from February to October 2011 in Lahore, total of 195 newly diagnosed, histologically confirmed cases of adenocarcinoma of prostate, aged 40 years and above were recruited from Punjab Cancer registry, Institute of Nuclear Medicine and Oncology Lahore (INMOL) and Urology department of Shaukat Khanum Memorial Cancer Hospital Lahore. A comparison group of 390 subjects aged 40 years and above were selected using systematic random technique from urology, surgery and medicine departments of Mayo, Jinnah, Services, and Fatima Memorial Hospitals Lahore and Lady Reading Hospital Peshawar. Controls were screened by a team of qualified urologists and surgeons using clinical examination and by prostate specific antigen (PSA) testing. A value of 2.5 ng/ml and below was taken as a cut-off point for the decision. Information about usual dietary pattern of these participants was recorded on a pre-tested interview form in hospital settings. During the interview, questions about the usual dietary pattern before the diagnosis for cases and the time of hospital admission for controls was enquired using food frequency questionnaire for Pakistani foods devised by Human Nutrition Department of Agricultural University Peshawar. Food groups were classified as Cereals, Pulses, Dairy products, Meat & Meat products, Vegetables and Fruits and lastly Beverages. Cooked foods were measured in grams using standard serving utensils to determine serving size. Frequency of food was then multiplied with serving size to calculate food items consumed. In order to measure the contained macro-nutrients and micro-nutrients, NutriSurvey software version 2007 was utilized. Data was analyzed by STATA version 10, computing means and standard deviations for age, height, socioeconomic score, total energy consumption and physical activity score, whereas Pearson Chi-square for trend was used for ordered categories at one degree of freedom. Unconditional logistic regression technique was used to compute odds ratio after adjustment for known potential confounding factors. P-value of less than 0.05 was taken as statistically significant. Formal permission from concerned health authorities and consent of participants was obtained before conducting the interviews. Confidentiality of data was maintained through secure access to database. Ethical approval for this study was granted by Advanced Board of Studies, University of Health Sciences (UHS) Lahore.

Results

The purpose of this investigation was to determine relationship between dietary patterns of Pakistani men and the odds of developing prostate cancer. Mean age of cases was 69.77 ± 4.9 years and that of controls was 68.09 ± 5.5 years. Most of the cases belonged to rural areas (62.9% versus 37.4%). As regards ethnicity, out of total 195 cases, 131 (67.2%) were Punjabis, 37 (19%) were Pashtuns, 16 (8.2%) were Muhajirs and 11 (5.6%) were Hindko. In comparison, out of 390 controls recruited for the study, 281(72.1%) were Punjabis, 82 (21%) were Pashtuns, 21 (5.4%) were Muhajirs and 06 (1.5%) were Hindko. Upon combining the effect of education, income and occupation in an index based on weighted scores and then categorizing them in higher, middle and lower socioeconomic status, it was found that majority of cases belonged to the lower socioeconomic status, 95 (48.7%) in comparison to the control population who mostly were classified as having middle socio-economic status 208 (53.3%). Mean calories consumed per day for cases was 3720 ± 878 and for controls was 2918±487 and this difference was statistically significant [t =11.87 at 255 df ; $p<0.001$). However, both unadjusted [OR 0.99 with 95% CI.0.99-1.00; p=0.35] and adjusted [OR 1.00 with 95% CI. 0.99-1.00; p=0.43] odds ratios with unit increase in daily energy consumed did not show any association with the risk of prostate cancer. Many studies in developed countries have identified red

meat consumption as a significant risk factor for prostate cancer. Similar findings were also observed among Pakistani men. Proportions of cases 81 (41.5%) and controls 163 (41.8%) consuming red meat for only once a week were similar, however more cases than controls had consumed red meat for more than once a week [19% against 3.3% for twice a week and 8.7% against 2.3% for thrice a week]. These differences in proportions were also found significant [χ^2trend= 31.14 at 1 df; p<0.001], indicating a dose response relationship between red meat consumption and the risk of prostate cancer. Similarly, those who consumed red meat once a week were at 1.81 (95% CI.1.21-2.71) times the odds of outcome of interest as compared to the reference group; 10.38 (95% CI.5.15-20.90) times the odds for twice a week and 6.89 (95% CI.2.90-16.32) times the odds for thrice a week respectively. These estimates increased when adjusted for age, socioeconomic status, ethnicity, smoking status, activity level and family history of cancers [OR 2.23 for once a week, OR 10.67 for twice a week, OR 11.82 for thrice a week and OR 14.53 for daily consumption of red meat]. Confidence intervals for these estimates and p-values also indicated that in population red meat consumption would be strongly associated with increased odds of prostate cancer. On the other hand, consuming chicken for once a week was rather protective (adjusted OR 0.25; 95% CI. 0.14-0.44; p=<0.001]; however for other categories insignificant trend was found (p=0.45 for twice a week and p=0.50 for daily chicken consumption **(table 1)**. Overall effect examined using likelihood test indicated that chicken consumption would not be a good predictor for the risk of prostate cancer in population. Weekly consumption of seasonal vegetables was found to be more prevalent among controls than the cases. Adjusted estimates [OR 0.01; 95% CI.0.005-0.03 ; p<0.001 for once a week vegetable consumption and OR 0.11;95% CI.0.05-0.27; p<0.001] also pointed out a protective trend of vegetables against prostate cancer risk. There was a similar trend observed regarding fruit consumption among cases compared to the controls [32.3% against 26.2% for once a week and 7.2% against 10% for daily consumption]. This similarity in fruit consumption trend was also reflected by both test of significance [χ^2trend= 0.83 at 1 df; p=0.36] and regression modeling [adjusted OR 1.03; 95% CI.0.54-1.97; p=0.91 for once a week fruit consumption to OR 1.01 95% CI.0.53-2.26; p=0.13]. As regards consumption of dairy products, total of 193 (49.5%) controls consumed yogurt at least once a week as compared to 17.9% in cases, whereas 27.4% controls did not report consumption of yogurt at all as compared to corresponding cases (9%). But these differences of proportions were found statistically significant [χ^2trend= 126.2 at 1 df; p<0.001], which indicates a strong relationship between trend of yogurt consumption and prostate cancer. Both black and green tea consumption was studied to find out whether these had any protective role as described by some studies. Neither black nor green tea consumption was found to have significant protective role. Trend of protein consumption among cases showed that 66 (33.8%) of cases consumed between 50-64 g/day of proteins, whereas corresponding proportion for controls was 212 (54.4%). However, cases (22.6%) consumed more proteins in range of 80+ g/day than the corresponding controls 12 (3.1%) [χ^2trend= 1.87 at 1 df; p=0.17]. This difference of proportion was statistically significant [χ^2trend =41.74 at 1 df; p<0.001] indicating that these two populations were independent. On the other hand, in case of carbohydrate consumption, it was found that those consuming 190 grams and above were not associated with rise in odds for prostate cancer [adjusted OR 0.20 (95% CI.0.02- 2.14; p=0.17]. However, fat consumption demonstrated a strong relationship with prostate cancer risk [adjusted OR for those consuming 65-79 grams/day fats was 5.08 (95% CI.2.86-9.02) and for 80+ grams 7.95 (95% CI.4.38-14.43)]. P-value of <0.001 provided a strong evidence against null hypothesis **(table 2).**

Consumption of dietary fibers of more than 20 grams per day was found to play a protective role against prostate cancer risk [OR 0.27; 95% CI.0.08-0.87; p=0.02]. Furthermore, no association was demonstrated between phosphorous [OR 0.69; 95% CI.0.30-1.61; p=0.40] and iron [OR 0.91; 95% 0.59-1.39; p=0.67] consumption **(table 2).** Nevertheless, consumers of 400-500 mg calcium per day were 2.03 (95% CI.1.21-3.42; p=0.006) times at higher odds of outcome of interest than those who consumed less than 400 mg / day of dietary calcium. Moreover, with increasing consumption (more than 500 mg/day), the odds ratio increased to 9.89 [95% CI.5.36-18.25;p<0.001].

Discussion

Prostate cancer is the most common malignancy among males in Western Europe, Australia and North America. Although its burden in other countries,

Table-1: Odds of prostate cancer in relation to dietary patterns in Pakistani men.

Characteristics	Unadjusted Estimates			Adjusted estimates*		
	Odds Ratio	95%CI.	P-value	Adj. Odd Ratio	95%CI.	P-value
Red Meat Consumption						
No red meat in a week	**01**	**Reference**		**01**	**Reference**	
Once a week	1.81	1.21-2.71	0.004	2.23	1.27-3.87	0.005
Twice a week	10.38	5.15-20.90	<0.001	10.67	4.05-28.10	0.005
Thrice a week	6.89	2.90-16.32	<0.001	11.82	2.88-48.54	0.005
Daily	2.73	0.91-8.22t	0.073	14.53	2.58-58.87	59.0%
Chicken Meat Consumption						
No chicken in a week	**01**	**Reference**		**01**	**Reference**	
Once a week	0.29	0.19-0.43	<0.001	0.25	0.14-0.44	0.005
Twice a week	10.38	0.45-1.46	0.49	0.72	0.31-1.68	<0.001
Thrice a week	6.89	0.22-1.31	0.17	0.20	0.05-0.67	0.001
Daily	2.73	0.44-8.25	0.37	0.54	0.08-3.33	<0.001
Seasonal Vegetables						
No vegetables in a week	**01**	**Reference**		**01**	**Reference**	
Once a week	0.29	0.008-0.03	<0.001	0.01	0.005-0.03	<0.001
Twice a week	0.81	0.03-0.11	<0.001	0.05	0.02-0.10	<0.001
Thrice a week	0.54	0.05-0.22	<0.001	0.11	0.05-0.27	<0.001
Daiy	1.92	0.16-9.62	<0.001	0.32	0.14-0.73	0.008
Seasonal fruits						
No fruit in a week	**01**	**Reference**		**01**	**Reference**	
Once a week	1.29	0.81-2.06	0.26	1.03	0.541.97	0.91
Twice a week	0.92	0.56-1.49	0.73	0.75	0.38-1.49	0.42
Thrice a week	1.17	0.63-2.17	0.59	10.71	0.30-1.66	0.54
Daily	0.75	0.37-1.51	0.43	1.01	0.53-2.26	0.13
Dairy Products (Yogurts)						
No yogurt in a week	**01**	**Reference**		**01**	**Reference**	
Once a week	1.07	0.58-1.99	0.81	0.62	0.29-1.30	0.21
Twice a week	5.59	2.96-10.56	<0.001	5.83	2.65-12.80	<0.001
Thrice a week	10.03	4.53-22.20	<0.001	11.76	4.23-32.67	<0.001
Daily	17.31	8.70-34.46	<0.001	23.01	9.53-53.46	<0.001

** Adjusted for age, residence, socioeconomic status, physical activity, ethnicity, smoking status, daily calories intake.*

especially South East Asian states and China is comparatively low, increasing number of cases are being reported.[2,3] Diet is the combination of food which is consumed by organisms for their energy requirements. However, this could reflect the social status in many cultures. Since diet patterns are Constructed as part of socialization process, dietary decisions are influenced by cultural norms, values, economics and religious affiliations. These patterns can vary based on area of residence, social class,

Table-2: Odds of prostate cancer in relation to Macro-nutrient and Mineral consumption.

Characteristics	Unadjusted Estimates			Adjusted estimates*		
	Odds Ratio	95%CI.	p-value	Adj. Odd Ratio	95%CI.	p-value
Proteins (gm/day)						
Less than 50g	**01**	**Reference**		**01**	**Reference**	
50-64g	1.81	0.47-1.38	0.44	0.64	0.35-1.38	0.15
65-79g	1.57	0.90-2.74	0.10	1.32	0.69-2.52	0.40
80g and above	9.58	4.38-20.9	<0.001	6.60	2.75-15.83	<0.001
Carbohydrates (gm/day)						
Less than 150g	**01**	**Reference**		**01**	**Reference**	
150-169g	0.24	0.03-1.79	0.16	0.07	0.006-0.98	0.04
170-189g	0.22	0.03-1.62	0.14	0.10	0.009-1.23	0.08
190g & above	0.34	0.05-2.08	0.24	0.20	0.02-2.14	0.17
Fats (gm/day)						
Less than 50g	**01**	**Reference**		**01**	**Reference**	
50-64g	2.87	1.67-4.93	<0.001	3.23	1.67-6.23	<0.001
65-79g	4.24	2.62-6.84	<0.001	5.08	2.86-9.02	<0.001
80g and above	8.63	5.14-14.5	<0.001	7.95	4.38-14.43	<0.001
Dietary Fiber (gm/day)						
Less than 10g	**01**	**Reference**		**01**	**Reference**	
10-20g	0.11	0.04-0.28	<0.001	0.10	0.03-0.32	<0.001
More than 20g	0.20	0.01-0.53	<0.001	0.27	0.08-0.87	0.028
Calcium (mg/day)						
Less than 400 mg	**01**	**Reference**		**01**	**Reference**	
400-500g	2.05	1.32-3.20	0.001	2.03	1.21-3.42	0.006
More than 500g	8.18	4.96-13.4	<0.001	9.89	5.36-18.25	0.90
Phosphorous (mg/day)						
Less than 600mg	**01**	**Reference**		**01**	**Reference**	
600-700mg	0.58	0.28-1.19	0.14	0.69	0.30-1.61	0.40
More than 700mg	0.92	0.50-1.71	0.81	1.04	0.50-2.17	0.90
Iron (mg/day)						
Less than 10mg	**01**	**Reference**		**01**	**Reference**	
10-15mg	0.92	0.64-1.32	0.66	0.91	0.59-1.39	0.67
More than 15mg	1.44	0.69-3.02	0.32	1.90	0.79-4.54	0.14

** Adjusted for age, residence, socioeconomic status, physical activity, ethnicity, smoking status, daily calories intake.*

income level, health and disease status and education. In our study universe, there are considerable variations in diet consumption. Patterns of diet differ between rural and urban areas and among social classes. For instance, beef consumption is more predominant in rural areas and also urban areas of

Pashtun belt. There are wide variations in vegetable and fruit consumption. Cooking methodology and food mix also plays an essential role in final provision or non availability of nutrients. There has been a substantial intellectual work dedicated to the study of the dietary patterns in relation to prostate cancer risk in developed countries, however information are scarce for developing countries.

Kolonel at al[5] mentioned that animal fat and meat consumption especially red meat consumption was significantly higher among prostate cancer cases and amount of saturated fat consumption was associated with elevated risk of prostate cancer. Current study reached a similar conclusion that odds of prostate cancer increases exponentially with increased consumption of red meat and fat; however, relationship with white meat was insignificant. The association with more fat consumption also has the biological plausibility that this might induce alterations in hormone profiles, fat induced oxidative stress & production of DNA reactive intermediates.[12] The protective role of vegetables shown in our results is consistent with the findings of Kristal et al.[10] and Hsing et al.[2] However, whether mixing vegetables with meat which is the tradition in this part of the world would provide protection is still to be examined. Moreover, seasonal vegetables and fruits providing dietary fibers demonstrated an inverse relationship with prostate cancer in the current study. Consumption of dairy products (yogurt) was found to increase the risk of prostate cancer in our study. This elevated consumption may be the source of higher calcium in diet which has also shown a significant association with higher odds of prostate cancer. Furthermore, consumption of yogurt and milk products is widely prevalent both in urban and rural areas of Pakistan as part of its link with agrarian tradition. Similar role of calcium was also reported by Rodriguez et al[13], Chan et al.[14] and Tavani et al.[8] explaining that calcium may down regulate the vitamin D anti-proliferative effect on prostate cancer. However, there are difficulties in implicating calcium as an etiological factor due to differences in calcium bio-availability after intake, difficulty in measuring calcium intake. Findings of this study should be interpreted considering its design and methodological limitations. Being a case control design, the study might have limited power to detect association and recall issues. However, these limitations were minimized using validated questionnaire and adequate training of interviewers.

Conclusion

Odds of prostate cancer are higher among those Pakistani men who consume higher quantities of red meat, fats and dairy products in their diet. On the other hand, protective function was demonstrated for regular use of vegetables and fruits.

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Case Series

CHRONIC GRANULOMATOUS INFLAMMATION OF THE ABDOMINAL WALL AFTER LAPAROSCOPY: A LOOK AT HIGH LEVEL DISINFECTION

Nauyan Ali, Imdad Ahmad Zahid, Somer Masood, Noman Ahmed, Javed Raza Gardezi

Background: Port site infections after laparoscopic surgery are a known complication and take away a lot of benefits attributed to the minimal access approach. Detecting the flora responsible is essential and atypical mycobacteria must also be considered.

Case Series: This case series is a compilation of the accounts of ten different patients with chronic granulomatous inflammation of the anterior abdominal wall presenting with port site discharging sinuses and lumps after laparoscopic surgery.

Conclusion: Atypical mycobacterial infections must be considered in patients with persistent wound infections after laparoscopic surgery and warrants a revision of the high level disinfection (HLD) process.

Key words: Port Site Infection, High Level Disinfection, Chronic Granulomatous Inflammation.

Introduction

Laparoscopic surgery has many benefits which include decreased post operative pain, decreased rate of wound infection, shorter hospital stay, early resumption of daily activity and of course cosmesis. () Wound infection although reduced with the laparoscopic approach is not entirely nonexistent. () When all has gone well as regards the abdominal procedure the port site wound infection takes away the advantages of the laparoscopic approach. The pain scores rise, hospital stay increase, productivity suffers and the cosmetic wound which was sub centimeter to begin with turns to an ugly scar.

Despite using various strategies to prevent wound soiling from intra abdominal contents e.g retrieval bags, lavage of wounds before closure and using antibiotic coverage, port site infections still remain a cause of postoperative morbidity.()

This case series puts forward an account of ten patients who presented with persistent port site infections refractory to conventional treatment after laparoscopic surgery. The three different ways these patients presented were a discharging sinus, multiple sinuses with lateral tracts and definitive lumps.

Presentation as:

1) Discharging Sinus

Five patients all middle aged females who had undergone a laparoscopic Cholecystectomy for chronic calculous cholecystitis presented four to six weeks postoperatively with purulent discharge from the epigastric port site wound. The wounds showed a discharging sinus. No significant cellulitis or collection appreciated clinically. A soft tissue ultrasound scan showed no collection, foreign body (clips, stones) or intra peritoneal communication. The patients were managed conservatively with culture of the discharge dispatched and the patient prescribed a course of oral co-amoxiclav. The cultures showed no growth but the patient's discharge continued although it was reduced in quantity.

After changing the spectrum of the antibiotic cover and seeing no response to conservative management surgical exploration of the wounds was carried out. The surgical exploration showed no pus cavities or foreign materials but the soft tissues i.e. the subcutaneous fat was seen to have lost its luster, debrinous to look at and was fibrous to touch.

The wounds were surgically excised and the specimen sent for tissue culture and also histopathology. The tissue cultures were negative while the histology revealed fibrocollagenous tissue containing multiple granulomas comprising epithelioid cells, multinucleated granulomas and lymphocytes. Considering the rampant endemicity of tuberculosis in our environment AFB staining and cultures were obtained which were negative.The wounds were left to heal by secondary intention.

2) Discharging sinuses with lateral subcutaneous tracts

These 2 patients were no different from the first group with the same presentations and same

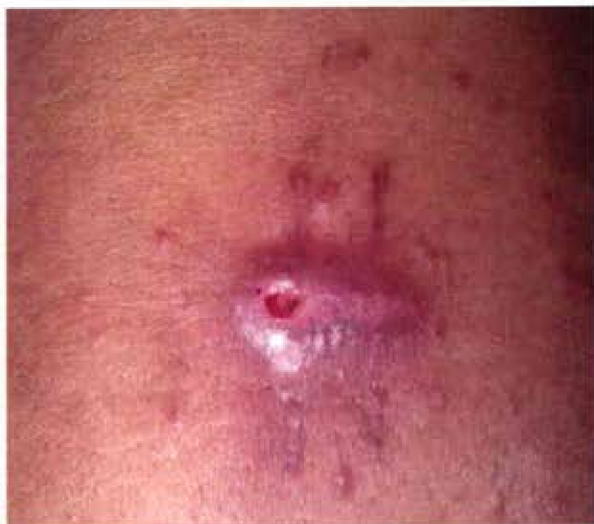

Figure-1: Discharging sinus epigastric port.

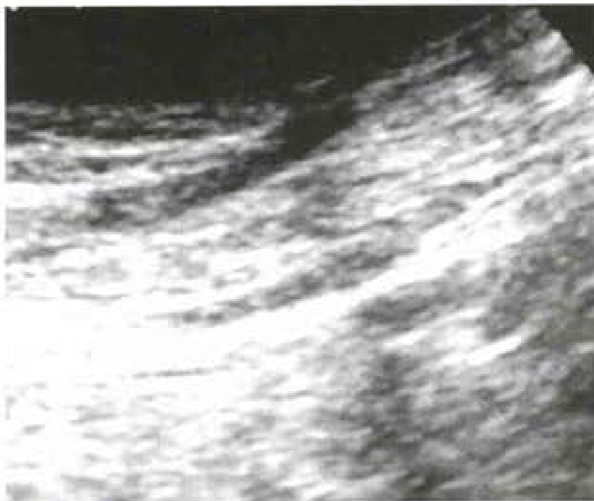

Figure-2: USG showing tract running down the anterior abdominal wall.

2) Discharging sinuses with lateral subcutaneous tracts:

These 2 patients were no different from the first group with the same presentations and same workup. The surgical exploration however revealed that the epigastric port wounds had lateral extensions (tracts) in the subcutaneous tissues which had to be completely excised. Again the tissue cultures were negative and the histopathology revealed chronic granulomatous inflammation. The wounds healing by secondary intention were covered by a protracted 2 weeks course of broad spectrum antibiotics.

3) Lumps / Nodules:

The third patient group comprising 3 patients again postoperative cases of laparoscopic cholecystectomy presented 2 months after surgery with a lump in the anterior abdominal wall. The lumps were firm, tender, partly mobile and non reducible. Clinically it was a soft tissue swelling arising above the muscular plane. The soft tissue ultrasound showed a debrinous collection above the muscles with no intra peritoneal communication. It was resistant to aspiration so a surgical course was adopted which showed infected soft tissues and a purulent collection.

The lumps were excised, wounds left open, pus & tissue sent for culture and histology. The pus and tissue cultures were negative while the histopathology again narrated chronic granulomatous inflammation.

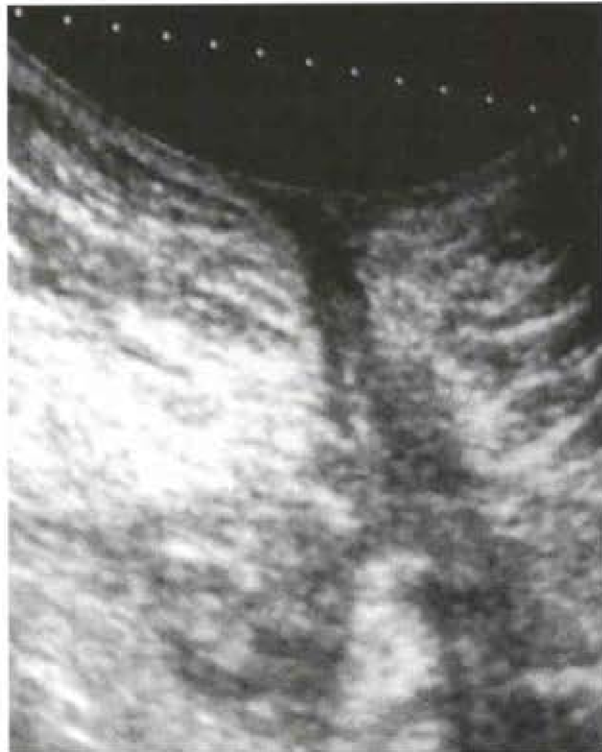

Figure-3: USG shows multiple tracts extending into the subcutaneous planes..

4) Lumps / Nodules:

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Table-1: Distribution of patients according to clinical presentation .

Clinical Presentations	Discharging Sinus	Sinus with Multiples tracts	Lumps/ Nodules
Number of Patients	05	02	03

Discussion

Wound infection, commonly port site infection is nothing new to the laparoscopic surgeon. The factors responsible being contact with viscera, spillage of gastrointestinal contents, immunosupression and a breach in sterilization.[9] Notorious for spoiling the "fun" wound infections at times can be very resistant to treatment, develop complications like cellulitis, abcess and sinuses.[6]

Much has been written and documented about this complication and treatments devised. The use of synthetic impervious specimen retrieval bags to avoid contact with the skin of the delivered organs, search for foreign bodies like stones, metallic clips, meticulous techniques to avoid spillage and the use of prophylactic antibiotics all have their part to play. However the most overlooked and the most common causative factor is a breach in sterilization and that is what this refractory to treatment case series points at.

All the patients in our case series were without any comorbidities like diabetes or evidence of immunosupression. They had no close contact with tuberculosis nor were ever known cases of the disease themselves. The gallbladder histology in all the cases was chronic cholecystitis and no evidence of malignancy or TB was ever noted.

The presentation of discharging sinuses with chronic granulomatous inflammation in an environment where mycobacterium tuberculosis is rampant leads one to suspect a tubercular etiology in the infective pathology of the anterior abdominal wall. With the routine cultures negative for the common comensals one must be weary of atypical organisms as well.

Chronic granulomatous inflammation as a histopathological diagnosis could not be solely attributed to tuberculosis and the negative AFB staining and cultures proved it to be the case as well. The other possibility to be explored was infection with atypical mycobacteria and the search of their origin sought.[7,8]

The varied clinical presentations with a possible common etiological factor made us address very basic questions;

- What organisms are involved in the infective process?
- What is the source of this infection?
- Is High Level Disinfection (HLD) a satisfactory technique for laparoscopic instruments?
- Can we use HLD to reuse disposable instruments?
- Are the skin granulomas truly infective?

To start with the cultures sent from discharge were always negative for gram positive and negative microorganisms. This might be attributed to repeated use of antibiotics prescribed over the course and late presentation to the surgical team. In addition to that mycobacterial cultures were requested only after a protracted antibiotic usage and even than only when the histopathology showed chronic granulomatous inflammation.[9] AFB cultures and staining was also sent. The AFB staining showed no evidence of mycobacterium tuberculosis and the mycobacterial cultures were also negative.

As regards the source of the microorganisms spillage was ruled out in all cases. Almost all the port sites infected were epigastric ports away from the umbilicus which was infected in only one case hence excluding the resident umbilical organisms.

The instruments used for the procedure varied from reusable trocars prepared using HLD to new disposable ones but the common entity was the laparoscopic hand instruments which were all disinfected using the same technique.

This leads to another question whether HLD is sufficient to prevent such infective complications? The traditional soak of 20 minutes in 2% glutaraldehyde solution of various commercial origins was employed.[10] The instruments were washed with tap

Glutaraldehyde Solution one on top of each other for 20 minutes.

The soakage time was always ensured and never compromised. The soaked instruments than dipped in saline solution for removal of its chemical coating before usage.

The HLD process when scrutinized unearthed major breaches. Regardless of the technique used to wash or soak there was no practical method to monitor the efficacy of the HLD process. The pH of the solution which was supposed to be alkaline was not monitored. The concentration of the solution had to be ensured and there was no practical way of assessing the pH.

The tanks in which the instruments were soaked in had no satisfactory way of being disinfected and on top of it there was no protocol devised to routinely culture the various utensils, or remove the inner films of these containers other than using common detergents.

Fig-4: Soak of laparoscopic instruments one on top of each other in 2% Glutaraldehyde solution.

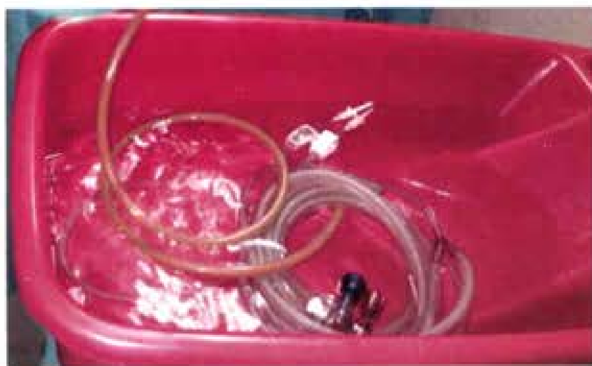

Fig-5: Washing of disinfected instruments after the soak in Glutaraldehyde solution.

Disinfection describes a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects. Unlike sterilization, disinfection is not sporicidal. A few disinfectants will kill spores with prolonged exposure times (312 hours); these are called chemical sterilants. At similar concentrations but with shorter exposure periods (e.g., 20 minutes for 2% glutaraldehyde), these same disinfectants will kill all microorganisms except large numbers of bacterial spores; they are called high-level disinfectants.

The FDA definition of high-level disinfection is a sterilant used for a shorter contact time to achieve a 6-log10 kill of an appropriate Mycobacterium species. Cleaning followed by high-level disinfection should eliminate enough pathogens to prevent transmission of infection.

Laparoscopes entering sterile tissue ideally should be sterilized between patients. However, in the United States, this equipment sometimes undergoes only high-level disinfection between patients. (,) Although sterilization is preferred, no reports have been published of outbreaks resulting from high-level disinfection of these scopes when they are properly cleaned and high-level disinfected.

Rinsing instruments and flushing channels with sterile saline, filtered water, or tap water will prevent adverse effects associated with the disinfectant retained. Items can be rinsed and flushed using sterile water after high-level disinfection to prevent contamination with organisms in tap water, such as nontuberculous mycobacteria, (,,) Legionella, (,,) or gram-negative bacilli such as Pseudomonas. Alternatively, a tapwater or filtered water (0.2µ filter) rinse should be followed by an alcohol rinse and forced air drying. () Forced-air drying markedly reduces bacterial contamination. After rinsing, items should be dried and stored (e.g., packaged) in a manner that protects them from recontamination.

Although high-level disinfection appears to be the minimum standard for processing laparoscopes between patients, () this practice continues to be debated, () Proponents of high-level disinfection refer to membership surveys or institutional experiences () involving more than 117,000 and 10,000 laparoscopic procedures, respectively, that cite a low risk for infection (<0.3%) with high-level disinfection. Proponents of sterilization focus on the possibility of transmitting infection by spore-forming organisms.

Researchers have proposed several reasons why sterility was not necessary for all laparoscopic equipment: only a limited number of organisms (usually <10) are introduced into the peritoneal cavity during laparoscopy; minimal damage is done to inner

abdominal structures with little devitalized tissue; the peritoneal cavity tolerates small numbers of spore-forming bacteria; equipment is simple to clean and disinfect; surgical sterility is relative; the natural bioburden on rigid lumen devices is low () and no evidence exists that high-level disinfection instead of sterilization increases the risk for infection. ()

Although the debate for high-level disinfection versus sterilization of laparoscopes will go unsettled until well-designed, randomized clinical trials are published, this guideline should be followed. () That is, laparoscopes that enter normally sterile tissue should be sterilized before each use; if this is not feasible, they should receive at least high-level disinfection.

The activity of germicides against microorganisms depends on a number of [illegible]tors, some of which are intrinsic qualities of the organism, others are chemical and external physical environment and these include;

- Number and Location of Microorganisms
- Innate Resistance of Microorganisms
- Concentration and Potency of Disinfectants

Glutaraldehyde is used most commonly as a high-level disinfectant for medical equipment and reuse of laparoscopic disposable plastic trocars. ()Glutaraldehyde is a saturated dialdehyde that has gained wide acceptance as a high-level disinfectant and chemical sterilant. Aqueous solutions of glutaraldehyde are acidic and generally in this state are not sporicidal. Only when the solution is "activated" (made alkaline) by use of alkalinating agents to pH 7.58.5 does the solution become sporicidal. The use of glutaraldehyde-based solutions in health-care facilities is widespread because of their advantages, including excellent biocidal properties; activity in the presence of organic matter (20% bovine serum); and noncorrosive action to equipment. The in vitro inactivation of microorganisms by glutaraldehyde has been extensively investigated and reviewed. () Several investigators showed that >2% aqueous solutions of glutaraldehyde, buffered to pH 7.58.5 with sodium bicarbonate effectively killed vegetative bacteria in <2 minutes; M. tuberculosis, fungi, and viruses in <10 minutes; and spores of Bacillus and Clostridium species in 3 hours. () Spores of C. difficile are more rapidly killed by 2% glutaraldehyde than are spores of other species of Clostridium and Bacillus.

Microorganisms with substantial resistance to glutaraldehyde have been reported, including some mycobacteria (M. chelonae, Mycobacterium avium-intracellulare, M. [illegible]enopi), () Methylobacterium mesophilicum, Tr[illegible]hosp[illegible]on, fungal ascospores (e.g., Microascus [illegible]reus, Cheatomium globosum), and Cryptospori[illegible]a, M. chelonae persisted in a 0.2% glutaraldehyde solution used to store porcine prosthetic heart valves. Two percent alkaline glutaraldehyde has slow action (20 to >30 minutes) against M. tuberculosis. ()

Chemical test strips or liquid chemical monitors () are available for determining whether an effective concentration of glutaraldehyde is present despite repeated use and dilution. The frequency of testing should be based on how frequently the solutions are used (e.g., used daily, test daily; used weekly, test before use; used 30 times per day, test each 10th use), but the strips should not be used to extend the use life beyond the expiration date.

Several physical and chemical factors also influence disinfectant procedures: temperature, pH, relative humidity, and water hardness. The activity of most disinfectants increases as the temperature increases, but some exceptions exist. Furthermore, too great an increase in temperature causes the disinfectant to degrade and weakens its germicidal activity and thus might produce a potential health hazard. An increase in pH improves the antimicrobial activity of some disinfectants (e.g., glutaraldehyde, quaternary ammonium compounds) but decreases the antimicrobial activity of others (e.g., phenols, hypochlorites, and iodine). The pH influences the antimicrobial activity by altering the disinfectant molecule or the cell surface. () In addition organic and inorganic matter, duration of exposure and the presence of biofilms must also be considered when employing the high level disinfection procedure.

Conclusion

This case series is just the initial presentation of a multitude of patients who present with port site infections. These patients are still in follow up and continue to have wound related problems. Scrutiny of our HLD process points to major shortcomings in the proper application and especially monitoring of the HLD process. The practice we employ is not unique or especially lacking. It is the same as the rest country wide. Putting forth data, continuing efforts to evaluate our practices and formulating a standard protocol is what is required.

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How Many Calories in Your Fast-Food Meal? Guess Again...!

Diners underestimated by as much as 500 calories in study:

People who eat at fast-food restaurants are consuming significantly more calories than they realize -- and teens are the worst offenders, a new study found.

"Teens underestimate the number of calories in their meals by as much as 34 percent, parents of school-age children by as much as 23 percent, and adults by as much as 20 percent," study lead researcher, Dr. Jason Block, said in a news release from the Robert Wood Johnson Foundation, which helped fund the study.

Block, of the Harvard Medical School/Harvard Pilgrim Health Care Institute, and his colleagues surveyed nearly 3,400 adults, teens and children who ate at 89 fast-food restaurants in four New England cities.

The investigators compared the difference between the number of calories the participants thought was in the fast food they ordered with the actual number of calories in their meal.

The study, published May 24 in *BMJ*, found the meals ordered by adults contained an average of 836 calories. However, adults thought the food they ordered had 175 fewer calories.

Meanwhile, teens on average underestimated the number of calories in their 756-calorie meal by 259 calories. The study also showed that 25 percent of all participants underestimated the caloric content of their meals by at least 500 calories.

Meanwhile, a second study suggests that calorie labels on menus or on restaurant menu boards are effective in prompting people to buy meals with fewer calories.

That study, published in the June *American Journal of Preventive Medicine*, examined the impact of menu-labeling regulation in King County, Wash.

The researchers surveyed more than 7,300 people aged 14 and older who dined at 10 restaurant chains, including Subway, McDonald's, Taco Bell and Starbucks, before the law took effect, and again six and 18 months after the law was implemented.

Although no change in purchases was seen six months after the menu labeling law took effect, the study revealed that after 18 months, the average calories per purchase at chain restaurants fell by 38 calories, from 908 calories to 870 calories.

"Menu labeling is critical because Americans spend nearly half of their food dollars on foods prepared outside the home, which tend to be higher in calories and less healthy than what we eat at home," said researcher Dr. James Krieger, with Public Health--Seattle & King County, in the news release. "Over time, people seem to respond to the availability of information and use it to inform their purchases."

SOURCE: Robert Wood Johnson Foundation, news release, May 23, 2013

Health Day

Bed-Sharing Raises SIDS Risk Fivefold, Study Finds

Number of cases would drop dramatically if parents did not sleep with their babies, researchers noted:

The risk of sudden infant death syndrome (SIDS) is five times higher when parents sleep with their infant, a new study finds.

British researchers noted that bed-sharing increases the risk for SIDS even if parents do not drink, use illegal drugs or smoke. They advised that rates of SIDS, which is a major cause of infant death in developed countries, would drop dramatically if parents did not sleep with their babies.

In the United States, all parents are advised to not sleep with infants less than 3 months old. However, in England only certain parents, such as those who smoke, drink or use drugs, are advised to do the same. Based on their findings, the researchers said a stronger stance against bed-sharing for infants is needed in that country.

The study, led by Robert Carpenter, a professor at the London School of Hygiene and Tropical Medicine, involved data on 1,472 SIDS cases and 4,679 "controls" published in five different sets of data from the United Kingdom, Europe and Australasia.

he researchers added that even among very low-risk breast-fed babies, 81 percent of SIDS deaths in infants under the age of 3 months could have been prevented by not co-sleeping. In cases where neither parent smoked, the baby was breast-fed and the mother did not drink or take drugs, the risk for SIDS was still five times higher than if the baby slept in a crib next to the parents' bed. The study authors pointed out that the parents of 22 percent of the infants who died from SIDS had been sleeping with their child at the time of death.

The investigators pointed out the risk for SIDS

Drops as babies get older. Still, they noted, the risk was much higher if either parent smoked, or if the mother had at least two drinks within 24 hours or had used illegal drugs, such as marijuana, at any time since the baby was born.

"We do not suggest that babies should not be brought into the parent's bed for comfort and feeding," the researchers wrote. "This has been investigated in previous studies and has not been found to be a risk factor, provided the infant is returned to his or her own cot for sleep."

The study was published in the current online edition of the journal *BMJ Open*.

SOURCE: London School of Hygiene and Tropical Medicine, news release, May 2013

HealthDay

Docs Should Ask Heart Patients About Quality of Life

Surveys reveal how well people are doing mentally, physically, experts say:

Completing quality-of-life surveys at a doctor's office could help heart disease patients live longer and have better lives, according to a new statement from the American Heart Association.

The statement urged doctors to use these surveys to assess patients' heart health. The surveys reveal the impact of heart disease on patients, including their symptoms, quality of life, and ability to function physically and mentally.

Quality-of-life surveys can also help predict future events such as heart attack, hospitalization, costs of care and death, according to the statement published May 6 in the journal *Circulation*.

"Ultimately, efforts to improve the health care system will only be successful if they translate into better patient outcomes -- not just longevity, but also how well patients live," statement lead author Dr. John Rumsfeld said in an AHA news release.

"This statement recommends increasing the standardized measurement of patient health status -- so we can better understand, monitor and minimize the burden of disease on patients' lives," he explained.

Researchers have successfully used patient surveys in clinical trials and other studies, they but aren't used enough in routine health care, according to Rumsfeld, national director of cardiology for the U.S. Veterans Health Administration and a professor of medicine at the University of Colorado School of Medicine, in Denver.

He suggested that doctors should have patients complete health status surveys during their routine visits in order to assess their heart health. Along with changes in physical health that might indicate an increased risk for serious problems or death, surveys can help reveal depression, which is common among heart disease patients and can significantly worsen their heart health.

"Identification and treatment of depression in cardiovascular patients can improve their quality of life," Rumsfeld said in the news release.

SOURCE: American Heart Association, news release, May 6, 2013

HealthDay

Guidelines

HYPERTENSION

Summary of clinical management guidelines of primary hypertension in adults.

(Reproduced from NICE guidelines-Aug, 2011)

Hypertension is one of the most widely diagnosed conditions and is responsible for major burden on health care professionals. Associated morbidity and mortality cost forms the major part of health budget. Different authorities have issued guidelines to standardize the management of hypertensive patient right from primary care level. Guidelines issued by National Institute of Health and Care Excellence (NICE) occupy a standard among such guidelines.

Overview and step up approach is shown in the chart on next page, which is quite self-explanatory. The key points to be remembered with particular reference to Pakistani population are;

? Majority of patients with primary hypertension are diagnosed before 55 years of age.

? Pakistani population doesn't fall into "black patient" category.

? Offer step-1 treatment to every patient with stage-2 hypertension and patients with stage 1 hypertension having cardiovascular risk.

? If possible, prescribe once daily dosage drug.

? Offer same treatment to patients with isolated systolic hypertension as for those with both raised systolic and diastolic blood pressure.

? If a patient has been started on a treatment before the age of 55 years and is well controlled on it, it should not be changed or altered when he or she crosses the 55 year age limit.

? ARBs are equivalent in efficacy to ACEi but has lesser side effect profile but at higher cost.

? Do not combine ACEi and ARB.

? β-blockers are not recommended in step-1 treatment but may be used in young patient with sympathetic overdrive.

? Add step on therapy if the target blood pressure is not achieved when the next dose of drug is due. Further monitoring can be facilitated by ambulatory blood pressure monitoring.

? On step-1 treatment, if Calcium channel blocker is not tolerated or patient has edema or heart failure or is at risk for developing heart failure, a thiazide diuretic can replace CCB.

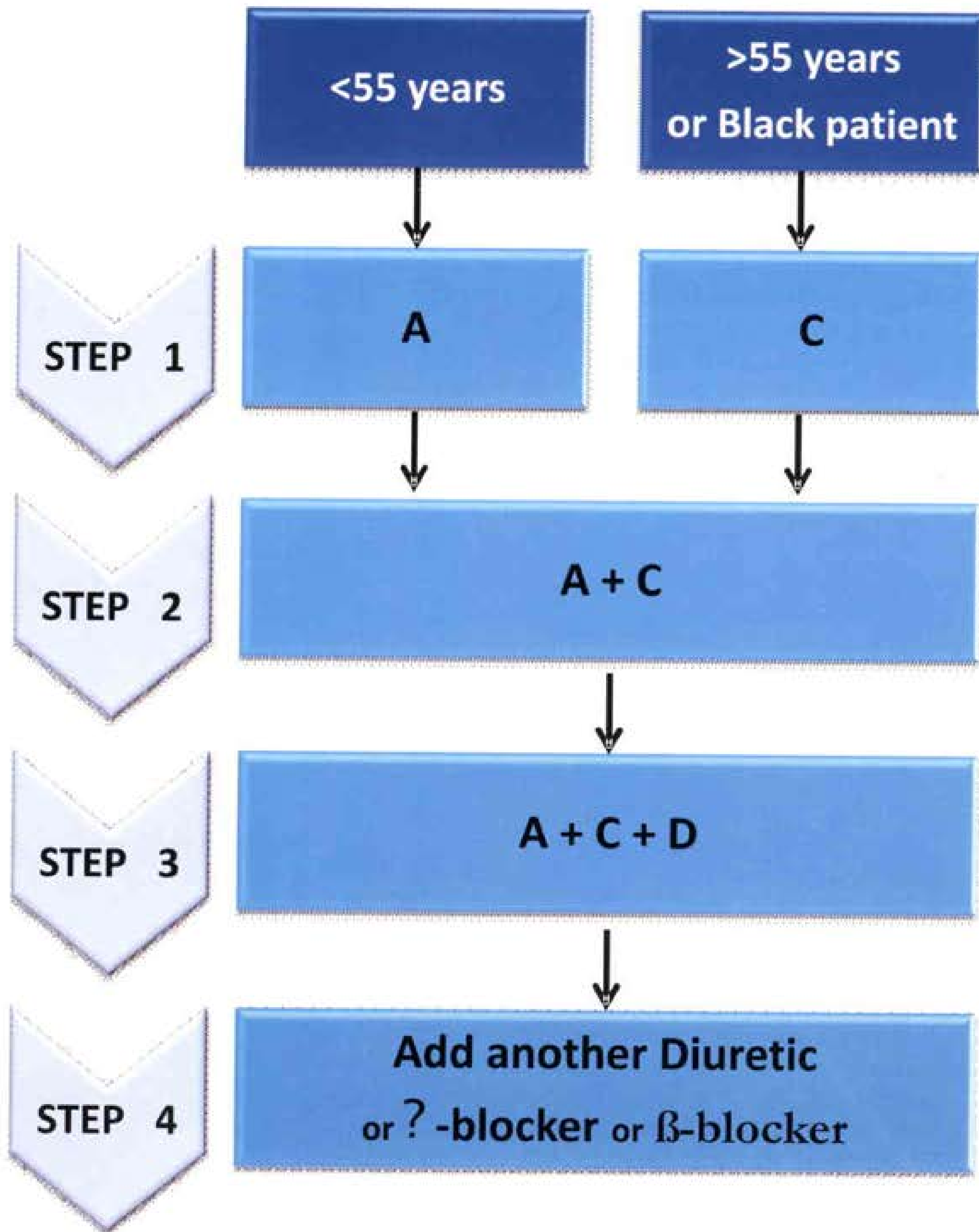
? If blood pressure is not controlled at step-3, consider adding another diuretic (i.e., sequential blockade) or an ?-blocker or β-blocker if further diuretics are not tolerated.

? In case of uncontrolled blood pressure, before moving to step-up treatment, ensure compliance and adequate dosage of each drug at adequate intervals.

? Enforce life style changes throughout all the steps.

I am hopeful that this concisely summarized form of treatment guidelines will help the reader and the benefit will reach the patient ultimately.

HYPERTENSION TREATMENT GUIDELINES



A = ACEi or ARBs
C = Calcium Channel Blockers
D = Diuretic

Reproduced from NICE guidelines Aug, 2011.
http://www.nice.org.uk/nicemedia/live/13561/56015/56015.pdf