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Role of Proper Fascial Closure in Reducing Port Site Hernia After Laparoscopic Surgery

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CONTENTS

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Original Article

CURRENT CONTRACEPTIVE PREVALENCE RATE AND ITS CORRELATES IN AN MCH COVERED COMMUNITY OF LAHORE

Summia Khan, Humaira Zareen, Anjum Razzaq and Muhammad Umar Farooq

Objective: To determine the current Contraceptive Prevalence Rate (CPR) and its correlates among married women of childbearing age in an MCH covered community of Lahore city, Pakistan.

Methods: This cross sectional study was conducted during October to December 2017 in the catchment area of the MCH centers of Institute of Public Health Lahore. Out of 450 married women of childbearing age, 200 women were included, using simple random sampling technique. Data was collected by interviewing participants using a pre tested questionnaire. SPSS version 24.0 was used for analysis that included descriptive statistics and application of Chi Square test.

Results: The calculated CPR in study population was 41% whereas mCPR was 36%. Use of condoms was the most common contraceptive method. Age of wife, age of husband, number of children, knowledge about family planning, living sons, family planning counseling and discussion about family planning between spouses were significantly associated with contraceptive use. Reasons of not using contraceptives included fear of side effects, previous history of side effects, disapproval from husband, lack of information, disapproval from mother in law, infrequent sexual activity, history of latex allergy in either partner and breast feeding.

Conclusions: The current CPR is way below the expected target value of 50% for Pakistan suggesting that the efforts in terms of health education and behavior change communication need to be stressed. There is a scope to improve health education system, plan a structured counseling for family planning, decrease obstacles and address current issues to meet contraception needs.

Keywords: family planning, population welfare, contraception, CPR, mCPR, contraceptive methods.

Introduction

World population has rapidly increased to 7.5 billion and will reach 9.8 billion in 2050 due to high fertility, uncontrolled births and low contraceptive use.[1] Developing countries account for more than 95% of world's population because of high birth rate and young population. High population burden is an important public health challenge for developing countries.[2] It is difficult to provide quality life, education, basic needs, food, shelter and health care facilities to so many heads and mouths. Promotion and implementation of good and effective family planning program can combat poverty, control 32% of maternal and 10% of childhood deaths.[3,4,5]

High fertility, unwanted, unintentional and unplanned pregnancy adds to the burden on maternal and child health.[6] There is increased risk of maternal malnutrition, death, preterm delivery, complications during birth, low birth weight babies and perinatal deaths.[7,8] The simple solution to so many problems is child spacing and family planning which is an effective intervention.[9,10]

Pakistan was created in 1947 and in 1950 its population was 37 million; now with the census of 2017 it has become the 5th most populous country with a population of 207.8 million.[11,12] Family planning program was implemented in 1960s in Pakistan and since then its promotion is a priority but has not been able to create an impact on population control. Pakistan is in the phase of demographic transition; its mortality has declined but not fertility. Fertility rate is 3.8 and is more among rural and less educated women. Pakistan has low contraceptive prevalence rate (35%) and high unmet needs (25%). There is limitation of informed choices for family planning methods.[13,14]

In Pakistan, there is a clear imbalance between the population's needs and available resources for spacing and limiting childbirth as desired by afamily. If population grows at the same pace it will exceed 295 million by 2050.[3,4] Pakistan was a signatory to

Millennium Development Goals (MDGs) and now Sustainable Development Goals (SDGs). Government has prioritized SDGs; in 2012 Summit conference in London, Pakistan committed to the target of CPR up to 55% by 2020 which has now been revised to 50%. Present CPR of Pakistan (35.5%) is lowest in Asia, lower than the neighboring countries like Bangladesh, India, Nepal and Sri Lanka. Public and private sectors need to focus on target to achieve 50% CPR by 2020. Along with uncontrolled population, Pakistan is also facing the burden of high maternal, perinatal, neonatal, infant and child morbidity and mortality.[15,16,17]

There are two MCH Centers in MCH department of IPH Lahore, Pakistan which provide promotive, preventive, curative and rehabilitative services to mothers and children of the area. Home visiting and registration of the families is done in catchment area to provide antenatal, natal and postnatal services to mothers, along with counseling regarding breast feeding, newborn care, child and adolescent health care and school health information through health education. Regular growth monitoring of children and Expanded Program on Immunization services are also available for children. Family planning services and awareness about STDs is a component of the services. The two MCH centers are meant for teaching, training and research of postgraduate students in addition to provision of services.

The purpose of present study was to find out the current Contraceptive Prevalence Rate (CPR) in the study population, factors affecting it and to comment on the reasons why contraception is not being adopted by the non-users in the study population. The study will help to evaluate the quality of the services provided by the MCH centers.

Methods

It was a cross sectional study which was conducted in the catchment area covered by the two MCH centers working in IPH Lahore between October and December 2017. The study population comprised of 450 married women of childbearing age that were fecund and sexually active. A sample of 200 women was selected using simple random sampling technique.

Data was collected with the help of anonymous, standardized and pre tested questionnaire. The investigator surveyed catchment area of IPH, accompanied by the lady health visitors working in the area and interviewed the women.

Data was entered, cleaned and analyzed using SPSS version 24.0. Frequency tables were generated for all possible variables. Means and standard deviation were calculated for continuous data. Chi square was applied to find out association between categorical variables.

The study was approved by the ethical review committee of Institute of Public Health Lahore. Verbal consent was taken from the women and only those were consenting were interviewed. All the data was kept confidential.

Results

Two hundred fecund and sexually active females participated in this study. About 73% were between 15-35 years of age, with mean age 31.23 ±5.74 years. Ninety three percent were Muslims, 87.5% were housewives, 63% were living in joint family and83.5% were literate. Regarding age of the husbands, 57% were 30-39 years of age with mean age 34.67±6.02 years; 87.5% were literate. About two thirds of husbands (66.5%) were unskilled laborers and 68% were doing private jobs. Mean monthly income was 26,552.50±17,537.49 Pak rupees. The age of 77.5% women at the time of marriage ranged between 15-24 years with a mean of 21.83±3.41 years; duration of marriage was less than 10 years in majority of cases. About seventy six percent women experienced first child birth at the age range of 16 to 25 years with the mean age of 23.10±3.52 years.

Fifty two percent women had two children or less while 76% families had at least one living son. Results showed that 80.4% participants had youngest child of less than or equal to five years and in 53.3% cases it was a girl; 77.5% families had never experienced child mortality. In 53.2% cases, inter-pregnancy gap was less than two years, and in69% cases it was above two years with a mean of 2.96±0.85 years. Sixty five percent women mentioned that ideal number of children should be more than 2. Forty one percent showed preference for a boy, 10% opted for a girl while 49% had no preference. Lesser proportion of wives (51%) had desire for more children compared to husbands (57%).

Majority of the respondents (87.5%) had knowledge about family planning; only 34.9% of the respondents knew about three or more methods of contraception. Forty one percent of the respondents were using contraception. Of the contraceptive users (n=82) 87.8% reported using modern methods (**Table1**). Condom was the most frequently (48.8%) used method, followed by intrauterine contraceptive device (IUCD) (18.3%). Traditional methods mainly coitus interruptus and abstinence were used by 12.2% couples followed by tablets (7.3%), injectables (6.1%) and tubal ligation (6.1%). Norplant was used by only

one participant (1.2%).

Age of wife, age of husband, number of children, knowledge about family planning, living sons, family planning counseling and discussion about family planning between spouses were significantly associated with contraceptive use **(Table 2 & 3).**

The association of knowledge and attitude towards family planning with contraceptive use among married women of childbearing age is shown in **(Table-4)**. Knowledge about FP methods, decision

Table-1: Frequency of contraceptive use among married women of childbearing age in the catchment area of MCH centers of IPH Lahore (n = 200).

Group A	Group B	Post-treatment
Contraceptive use		
Yes	82	41%
No	118	59%
Types of contraceptives used (n=82)		
Modern contraceptives	72	87.80%
Traditional contraceptives	10	12.19%

Table-2: Association between socio-demographic factors and contraceptive use among married women of childbearing age in the catchment area of MCH centers of IPH Lahore (n = 200)

Characteristics	Contraceptives Use Yes n %	No n %	P-value
Age of wife			
=25 Years	05 (20)	20 (80)	0.022*
> 25 years	77 (44)	98 (56)	
Education of wife			
Illiterate	11 (33.3)	22 (66.7)	0.327
Literate	71 (42.5)	96 (75.5)	
Age of Husband			
20-35 Years	42 (33.3)	82 (66.1)	0.009
> 35 years	40 (52.6)	36 (47.4)	
Education of Husband			
Illiterate	12 (46.2)	14 (53.8)	0.567
Literate	70 (40.2)	104 (59.8)	
Family Income			
5,000-2500	52 (39.4)	80 (60.6)	0.520
26,000-100,000	30 (44.1)	38 (55.9)	

**Statistically significant*

Table-3: Association between reproductive characteristics and contraceptive useamong married women of childbearing age in the catchment area of MCH centers of IPH Lahore (n = 200).

Characteristics	Contraceptives Use Yes n %	No n %	p-value
Duration of Marriage			
=10 Years	48 (36.9)	82 (63.1)	0.110
> 10 years	34 (48.6)	36 (51.4)	
Number of Children			
= 3	32 (30.8)	72 (69.2)	0.002*
> 3	50 (52)	67 (56.8)	
Gender Preference			
Boy	31 (37.8)	51 (62.2)	0.444
Girl	51 (43.2)	67 (56.8)	
Living Sons			
Yes	69 (45.4)	83 (54.6)	0.025*
No	13 (27.1)	35 (72.9)	
Wife's desire for more children			
Yes	29 (28.4)	73 (71.6)	.000*
No	53 54.1)	45 (45.9)	
Husban's desire for more children			
Yes	37 (32.5)	77 (67.5)	0.005
No	45 (52.3)	41 (47.7)	

**Statistically significant*

Table-4: Association between knowledge and attitude towards family planning and contraceptive useamong married women of childbearing age in the catchment area of MCH centers of IPH Lahore (n = 200).

Characteristics	Contraceptives Use Yes n %	No n %	p-value
Knowledge about family planing (FP) methods			
Yes	81 (46.3)	94 (53.7)	0.000*
No	01 (4)	24 (96)	
Decision making about FP method			
Husband	20 (29)	49 (71)	0.012*
Others	62 (47.3)	69 (52.7)	
Discussion between spouses about FP methods			
Yes	60 (48.8)	63 (51.2)	0.005*
No	22 (28.6)	55 (71.4)	

Family planning allowed in religion			
Yes	41 (46.1)	48 (53.9)	0.192
No	41 (36.9)	70 (71.4)	
Family planning counseling			
Yes	54 (54)	46 (46)	0.000*
No	28 (28)	72 (72)	

**Statistically significant*

making about FP methods by husband or others, discussion between spouses about FP methods and family planning counseling had significant association with contraceptive use.

Reasons of not using contraceptives included fear of side effects, previous history of side effects, disapproval from husband, lack of information, disapproval from mother in law, infrequent sexual activity, history of latex allergy in either partner and breast feeding **(Fig-1)**.

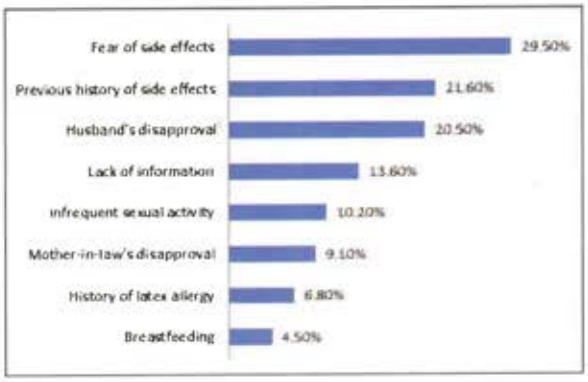

Fig-1: Reasons for not using contraceptives among married women of childbearing age in the catchment area of MCH centers of IPH Lahore (n = 200).

Discussion

This cross-sectional study was done to find out the current Contraceptive Prevalence Rate (CPR) in the study population, factors affecting it and to comment on the reasons why contraception is not being adopted by the non-users in the study population. Two Hundred married fecund women were interviewed through a pre-tested questionnaire, in which 82(41%) were using a contraceptive method;72 of these (87.8%) were using modern methods and 10(12.2%) were using traditional methods hence Modern Contraceptive Prevalence Rate (mCPR) was72(36%) which is comparable with Contraceptive Prevalence Report 2015-2016 released by Pakistan Bureau of Statistics which showed that mCPR was 35.5% while mCPR for Punjab was 38.9%.[14]

Pakistan Demographic & Health Survey (PDHS) 2012-13 shows that CPR was 35% and mCPR was 26%.[12] BetterCPR in present study is because it is in the catchment area of MCH department of IPH from where regular home visits, family planning counseling and health education sessions are conducted. According to PDHS, more than a quarter are using modern methods and 9% are using traditional methods. PDHS gave a range for mCPR as low as 16% for Baluchistan to as high as 44% for Islamabad.[14] In this study traditional method percentage is 12.2% as women have history of previous side effects, fear of side effects and non-availability of all types of methods at MCH center. However, a study done in Rawalpindi, Pakistan showed CPR of 56%;48.9% for modern methods and 7.1% for traditional methods; here the CPR is slightly higher because it addressed employed illiterate women working in schools, colleges, hospitals, offices and households. Another study in Rawalpindi showed CPR of 58.7% which is quite high because of convenient sampling done in hospitals' setting.[23-25] Contraceptive prevalence was found to be 69.7%in Botswana; because of high prevalence of HIV/AIDS there is increased use of contraceptives.[1] CPR was 79% in Dangila Town,AwiZone,Amhara,[2] 12.7% in Burkina Faso,[2] 80.4% in Nigeria,[10] 48.4% in Shire-Enda-Slassie, Ethiopia,[3,24] 26.25% in Eastern Sudan, 58.8% in Pondicherry India,48.94% in North Kerala India and 59.4% in Mumbai slum area.[6,24,26]

PDHS 2012-13 reports that 99% of women who ever got married know about at least one method of contraception while in this study 87.5% had this knowledge.[12,15] The possible explanation of this difference could be an incomplete coverage of the studied population by the staff of MCH centers.

The present study showed significant association of contraceptive use with age of wife and husband, number of children, living sons, husband and wife's desire for more children, knowledge about family planning, discussion about family planning between spouses and family planning counseling.

Education of wife and husband has a positive role in contraceptive use. Current study showed that contraceptive use is more among literate women, although this difference is not significant. Education of the women increases accessibility and decision making power of women and is proved by many studies done in developed and developing countries.[18,19] It is the need of time that special

attention be paid to a girl's education.[10,12,16,17]
Regular health education sessions on family planning addressing women of childbearing age, during antenatal and postnatal period arethe key to success. There is need to minimize the missed opportunities for family planning. Health care facilities providing maternal and child health services should have full range of contraceptive methods. Although the majority of the respondents knew at least one method of contraception, current contraceptive practice was far from the ideal.

Conclusion

The current CPR is way below the expected target value of 50% for Pakistan suggesting that the efforts in terms of health education and behavior change communication need to be stressed upon with new zeal and vigor. There is a scope to improve health education system, plan a structured counseling for family planning, decrease obstacles and address current issues to meet contraception needs.

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Original Article

FREQUENCY AND ETIOLOGY OF VENTILATOR-ASSOCIATED PNEUMONIA IN PEDIATRIC INTENSIVE CARE UNIT OF SERVICES HOSPITAL LAHORE

Muhammad Saleem, Muhammad Abbas, Muhammad Khalid Masood, Muhammad Idris Mazhar, Ayesha Abbas and Zainab Abbas

Objective: To determine the frequency of ventilator associated pneumonia in children and to find out the common causative organisms involved in ventilator associated pneumonia.

Methods: This cross sectional study was conducted in department of Pediatrics, Services Hospital Lahore over a period of one year from July 2014 to June 2015. Ethical approval was taken from institutional review committee. A total of 200 children were included in study after taking informed consent. Data was collected by using predesigned questionnaire. The data was analyzed by SPSS version 21.

Results: Out of total 200 children, 43.5 % (n=87) were between 1-6 years of age, while 56.5% (n=113) were between 7-12 years of age, mean ±SD was 6.63±3.12 years. 59.5 % (n=119) were males and 40.5 %(n=81) females. Frequency of ventilator associated pneumonia in children was 8.5% (n=17). Causative organism in cases with VAP in children shows 52.94% (n=9) Pseudomonas, 29.41% (n=5) Klebsiella, 11.77% (n=2) E.Coli and 5.88%(n=1) other causative organism.

Conclusions: The frequency of VAP is quite high in children on mechanical ventilation. A high suspicion and timely intervention can reduce morbidity and mortality associated with this disorder.

Keywords: ventilator associated pneumonia, frequency, common causative organisms.

Introduction

Ventilator-associated pneumonia (VAP) is a type of nosocomial pneumonia that occurs in patients who receive mechanical ventilation. It is usually acquired in the hospital setting approximately 4872 hours after mechanical ventilation.[1] VAP is different from community acquired pneumonia not only from etiological point of view but also in context with its pathophysiology, risk factors, management strategies and outcome.[2] It is of two types, early onset and late onset. Early-onset VAP occurs during the first four days of mechanical ventilation and is usually caused by antibiotic sensitive bacteria. Late-onset VAP develops five or more days after initiation of mechanical ventilation and is caused by multidrug-resistant (MDR) pathogens.[3]

The frequency of VAP varies in different age groups and intensive care settings. It is the second most frequent nosocomial infection in pediatric intensive care units (PICUs) in the United States. The incidence of VAP ranges from 1351 per 1,000 ventilation days.[4] A number of risk factors like duration of mechanical ventilation, recurrent change in ventilator tubing, kind of circuit used, feeding tube, reintubation etc. has been studied as some important risk factors for VAT.[5,6,7]

The mean duration of occurrence of VAP is around 57 days. The mortality associated with VAP ranges from 2476 per cent, and is even higher among critically ill patients.[8] Much work has been done on VAP in adults, but research data on VAP in children is sparse.[9]

Diagnosis of VAP has been a subject of on-going debate. High clinical suspicion along with radiological examination and culture of respiratory secretions are required for the diagnosis of VAP. VAP is not only associated with increased mortality but also increases the length of ICU stay, the cost of treatment and the chances of ventilator dependence.[10]

It is important to identify the burden of VAP in any setup, so that prevention strategies can be implemented and strengthened. Amongst the challenges in any intensive care settings, curtailing nosocomial infections like VAP is an important issue. The prevalence of VAP in different setups varies.[11,12]

A recent study[8] conducted in Pakistan shows that out of the 93 children requiring mechanical ventilation, 16 developed VAP (17%), 23 (25%) show positive culture on tracheal aspirate and common organisms isolated were Pseudomonas 15 (65%), Klebsiella 5 (22%), E. Coli 2 (8%) and other 1 (4%).[13] While another study[2] reported that overall VAP occurs in 3 to 10% of ventilated pediatric ICU (PICU) patients.

As all above mentioned studies are showing a significant difference in frequency of VAT in different set ups so there is a need to further study this subject in local set up so that the burden of VAP and its causative organisms in our population may be identified, and prevention strategies can be implemented and empirical therapy can be started based on identified organism.

Methods

This cross sectional study was conducted in Pediatric Intensive Care Unit of Services Hospital Lahore from July 2014 to June 2015, after getting approval from Institutional review board.

Convenient non probability sampling technique was used and a total of two hundreds children admitted in Pediatric Intensive Care Unit of Services Hospital, Lahore who underwent mechanical ventilation, were included. Already diagnosed cases of pneumonia (on history and medical record), patients presenting with cardiac failure (on physical examination i.e edema, raised Jugular Venous Pressure and basal crepitations in chest) were excluded from study. Informed consent was taken from parents. Demographic profile (age and gender) was recorded. Every child on mechanical ventilator was followed till complete treatment on ventilator. The patients were assessed for the development of ventilator-associated-pneumonia. Tracheal aspirate were taken from the tip of endotracheal tube and sent to laboratory for culture and sensitivity. Chest x-rays were done in all cases. All this information was recorded by the researcher himself on a pre-designed proforma. The data was analyzed through SPSS version 21. Mean +SD was calculated for age. Frequency and percentages were calculated for categorical variables. Stratification for age and gender was done to control the effect modifiers. Post stratification chi-square test was applied. P-value ≤ 0.05 was considered significant.

Results

A total of 200 cases fulfilling the inclusion /exclusion criteria were enrolled to determine the frequency of ventilator associated pneumonia (VAP) in children along with causative organisms.

Age distribution of the patients shows that 43.5% (n=87) were between 1-6 years of age while 56.5% (n=113) were between 7-12 years of age, mean +SD was calculated as 6.63+3.12 years.**(Table-1)** Patients were distributed according to gender showing 59.5% (n=119) male and 40.5% (n=81) Females. **(Table- 2)**

Table-1: Age distribution (n=200).

Age (in years)	No. of Patients	Percentage (%)
21 - 6	87	43.5
7-12	113	56.5%
Total	200	100%
Mean±SD	6.63± 3.12	

Table-2: Gender distribution (n=200).

Sex	No. of Patients	Percentage (%)
Male	119	59.5%
Female	81	4.05%
Total	200	100%

Table-3: Frequency of ventilator associated pneumonia in children (n=200).

VAP	No. of Patients	Percentage (%)
Yes	17	8.5%
No	183	91.5%
Total	200	100%

Table-1: Frequency of causative organisms in cases with ventilator associated pneumonia in children (n=17).

Causative Organisms	N.o of Patients	Percentage (%)
Pseudomonas	09	52.94%
Klebsiella	05	29.41%
E.Coli	02	11.77
Staphylococcus Auresus	01	5.88%

Table-5: Stratification for ventilator associated pneumonia in children with regards to age (n=200).

Age (in years)	VAP (n=17) Yes	No	P-Value
1-6	08	79	
7-12	09	104	0.75

Table-6: Stratification for ventilator associated pneumonia in children with regards to gender (n=200).

Gender	VAP (n=17) Yes	No	P-Value
Male	07	112	
Female	10	71	0.10

Frequency of ventilator associated pneumonia in children was recorded in 8.5% (n=17) while 91.5% (n=183) cases did not develop VAP. **(Table-3)**
Frequency of causative organisms in cases with ventilator associated pneumonia in children was recorded where out of 17 cases of VAP, 52.94% (n=9) had Pseudomonas, 29.41% (n=5) had Klebsiella, 11.77% (n=2) had E.Coli and 5.88% (n=1) had Staphylococcus aureus **(Table-4).** Stratification for VAP in children with regards to age shows that out of 17 cases, 8 were between 1-6 years and 9 were 7-12 years of age, p-value was calculated as 0.75 **(Table-5).** Stratification for ventilator associated pneumonia in children with regards to gender shows that out of 17 cases, 7 were male and 10 were female, p-value was calculated as 0.10 **(Table-6).**

Discussion

Healthcare-associated infections (HAIs) are associated with morbidity, mortality, and prolonged hospitalization, and represent a serious threat to patient safety. Hospitalized children especially admitted in PICU are more vulnerable. The use of invasive devices in PICUs, such as central vascular lines and mechanical ventilation make them more prone to develop pneumonias and sepsis. In this study, we planned to find out the causative organism and the frequency of ventilator associated pneumonia in children admitted in PICU Services Hospital Lahore. In our study, 43.5% (n=87) were between 1-6 years of age while 56.5% (n=113) were between 7-12 years of age, mean ±SD was calculated as 6.63±3.12 years, 59.5% (n=119) male and 40.5% (n=81) females. Frequency of ventilator associated pneumonia in children was recorded in 8.5% (n=17). Causative organism in cases with ventilator associated pneumonia in children shows that out 17 cases of VAP, 52.94% (n=9) had Pseudomonas, 29.41% (n=5) had Klebsiella, 11.77% (n=2) had E.Coli and 5.88% (n=1) had Staphylococcus aureus. A recent study by Hamid et al[13] conducted in Pakistan, out of the 93 children requiring mechanical ventilation, 16 developed VAP (17%), 23 (25%) show positive culture on tracheal aspirate and common organisms isolated were Pseudomonas 15 (65 %), Klebsiella 5 (22%) and E.Coli 2 (8%), other 1(4%).[13] These findings regarding frequency of VAP are quite different from present study but causative organisms are similar. Regarding etiology the results are similar. Foglia and others[2] reported that overall VAP occurs in 3 to 10% of ventilated pediatric ICU (PICU) patients; our findings are consistent with this study. Shaath and others[14] investigated the incidence of VAP in children after cardiac surgery and its impact on morbidity and mortality. One hundred thirty-seven patients were recruited, 65 (48%) female and 72 (52%) male and recorded VAP occurred in 9 patients (6.6%); these findings are similar to our study although these children had associated cardiac disease. Gautam [15] determined the incidence, risk factors and impact of ventilator-associated pneumonia (VAP) in a mixed tertiary paediatric intensive care unit. Out of 692 invasively ventilated patients, 269 (38.9%) were ventilated for > 48 hours. Eighteen (6.7%) patients had episodes of VAP. Yankov and others[16] are of the view that Ventilator-associated pneumonias have been estimated to be the second most common nosocomial infections among children treated in intensive care units. They occur in mechanically ventilated patients through endotracheal tube or tracheostomy. The ventilator associated pneumonia is associated with a longer antibiotic treatment, greater duration of mechanical ventilation (MV) and higher mortality rates in children. The condition is also associated with a higher cost of the treatment. The common causative organism of nosocomial infections in this age are P. aeruginosa, E. coli and K. pneumoniae. The pathogenesis of the condition is inadequately studied but the aspiration of gastric contents and immune deficiency are proven risk factors. Two mechanisms have a major role in the development of the disease: micro-aspiration of gastric contents and colonization of the lower airways with pathogens. The above discussion reflects that frequency of ventilator associated pneumonia in children varies greatly among different authors from 6 % to 17%. In our clinical setup, the result is comparable to other studies.

Conclusion

The frequency of ventilator associated pneumonia is high among children. High clinical suspicion along with radiological examination and culture of respiratory secretions are required for the diagnosis of VAP. So, it is recommended that every child who is on mechanical ventilator for >48 hours, suspicion of VAP should be high. As Pseudomonas is a leading causative organism followed by Klebsiella and E.Coli, it is also required that every set-up should have their surveillance in order to know the frequency of the problem.

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Original Article

FREQUENCY OF GASTROESOPHAGEAL REFLUX DISEASE IN PATIENTS WITH ASTHMA

Muhammad Awais Abid, Satia Waheed, Azhar Hussain, Sajid Nisar and Ra'ana Yaseen

Objective: To analyze the frequency of Gastroesophageal reflux disease in patients with asthma in our population.

Methods: A cross sectional study that was conducted through medical out-patient Department services hospital Lahore.100 asthmatic patients, among those 59 females and 41 males were screened for GERD in outpatient department. Patients were selected between age 20 and 70 years. The study was completed in six months. The calculated sample size was 100 cases, with 10% margin of error, 95% confidence level, taking expected percentage of GERD 36% in patients with asthma. Data was collected and compiled in the computer and analyzed using SPSS version 11 for Windows. Quantitative variables included age and expressed as mean±standard deviation.

Results: Out of 100 patients with asthma, 33% were found to have symptoms of GERD. Female patients were 59% and 34% suffered from GERD. In males, out of 41% asthmatics, 19% suffered from GERD.

Conclusions: Therefore we can conclude there is a high frequency of GERD in patients with asthma in our population. So, it is recommended that all asthmatic patients should be screened out for symptoms of GERD.

Keywords: asthma, gastroesophageal reflux disease, GERD, reflux.

Introduction

Asthma is one of the commonest chronic diseases worldwide, affecting over 300 million population. The prevalence of asthma has increased steadily in the latter half of the last century and the early years of this century too. A genetic predisposition to asthma is recognized. Prevalence, hospitalizations, and fatal asthma have all increased worldwide over the past 20 years. The socio economic impact of asthma is enormous, particularly when poor control leads to absence from school or work, hospitalization and for some patients a premature death. One of the proposed risk factors for Asthma exacerbations is gastroesophageal reflux disease (GERD). Gastroesophageal reflux disease is one of the most commonly diagnosed diseases seen in outpatient clinics with the estimated prevalence of 14-20% in the adult general population.

Gastroesophageal reflux disease (GERD) is defined as a condition which occurs when the reflux of stomach contents cause troublesome symptoms.[1] It is a common disorder worldwide.[2] It usually runs a chronic course.[3] History is the quickest and simplest method to diagnose GERD. An objective evaluation to assess the severity and the response to treatment can be obtained by Frequency scale for the symptoms of GERD (FSSG) questionnaires.[4] Twenty four hour pH monitoring can also by employed but it is not widely available.[5] Prevalence of upper respiratory symptoms is high in patients with GERD,[6] and is a potential trigger of asthma, chronic obstructive pulmonary disease (COPD).[7]

GERD is one of the co-morbidities of Asthma. Asthma exacerbations are associated with frequent hospital admissions progressive deterioration of lung function and a poor quality of life. Asthma exacerbations have a very close association with the presence of GERD. It causes repeated asthma exacerbations and thus a progressive decline in lung function. By giving asthmatic patients anti reflux therapy, repeated exacerbations can be prevented. Different populations have different prevalence of GERD in asthmatics and no such data is available from our population. An estimate of this association in Pakistani population will help establish guidelines for improvement in quality of life of such asthmatic patients.

Methods

Study was conducted through medical outpatient department, Services Hospital, Lahore. The study was completed in six months from 22nd December 2012 till 22nd June 2013. It was a cross sectional study. The calculated sample size was 100 cases, with 10 % confidence level, taking expected percentage of GERD 36% in patients with asthma. Non

Probability sampling technique was used. All the patients having asthma, both genders. Age between 20 to 70 years. All patients with history of medication intake for GERD were excluded.

Subjects were selected from medical outpatient Department, Services Hospital Lahore. The FSSG questionnaire was filled by all the patients. FSSG consists of 12 questions, which were scored to indicate the frequency of symptoms as follows: never=0; occasionally=1; sometimes=2; often=3; and always=4. Patients with FSSG scores of more than 8 were considered as suffering from GERD. All ethical issues were addressed by counseling patients and taking informed consent. Information was collected through a Performa attached as annexure

Data was collected and compiled in the computer and analyzed using SPSS version 11 for Windows. Quantitative variables included age and expressed as mean + standard deviation. Gender and presence or absence of GERD were qualitative variables and expressed as frequencies and percentages. Data was used to calculate frequency of GERD in asthmatic patients.

Results

A total of 100 patients with asthma were selected according to inclusion and exclusion criteria from out-patient department, Services Hospital Lahore. **Fig-1** shows bar chart of the frequency of GERD in patients with asthma. It showed that GERD frequency was 33% in patients with asthma, while 67% asthmatics did not complain of reflux symptoms. Cross Tabulation between GERD and predefined age groups **(Table-1)** revealed maximum number of cases were 14 in patients 31-40 years old, followed by 11 cases in 41-50 years old, 5 cases in 51-60 years old, 2 cases in 20-30 years old and only 1 case of GERD in 61-70 years old patients. **Fig-2** shows histogram of age for asthma patients. Patients were distributed normally according to age. Mean Age of study population was 41.79 years ± SD of 9.872. **Fig-3** represents the gender distribution among study population. 41% of total asthmatics were male, while 59% were females. **Fig-4** shows Stratification of gender in asthmatic patients with GERD. It showed that for females, out of 59% asthmatics, GERD was present in 34%. While for males, out of 41% asthmatics, 19% suffered from GERD. **Fig-5** segregates the GERD confirmed individuals according to age groups and gender. Mostly GERD confirmed individuals had similar sex distribution among all age groups and maximum were found to be in age group 31-40 years.

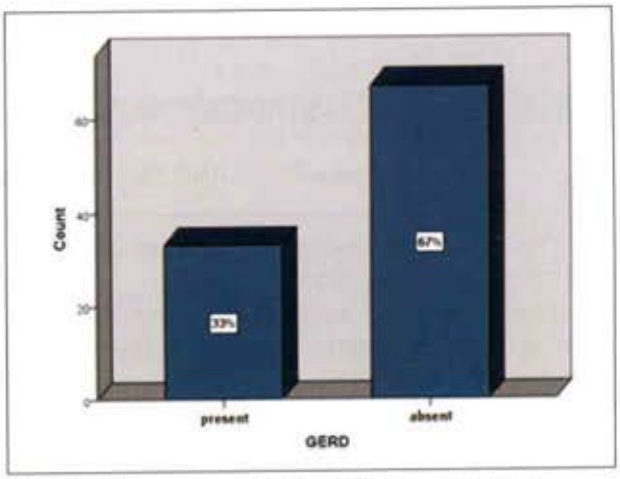

Fig-1: Frequency of GERD in asthmatics.

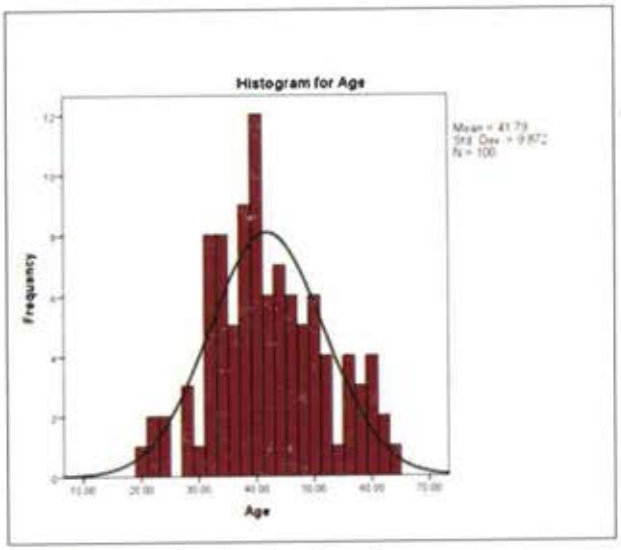

Fig-2: Age distribution in asthma patients.

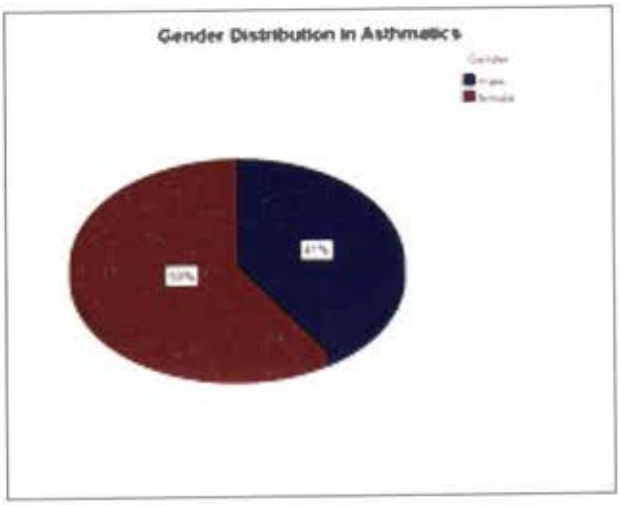

Fig-3: Gender distribution in asthma patients.

Table-1: Cross tabulation between GERD and predefined age groups.

		Age					
		20-30	31-40	41-50	51-60	61-70	Total
GERD	Present	02	14	11	05	01	33
	Absent	07	28	19	11	02	67
Total		09	42	30	16	03	100

*GERD * Age Crosstabulation*

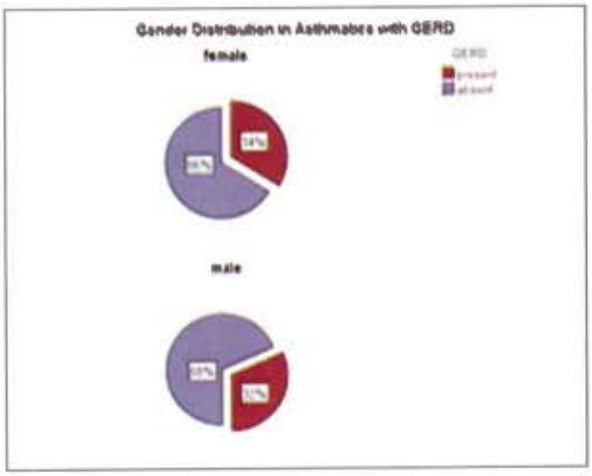

Fig-4: Gender distribution in Asthmatics with GERD.

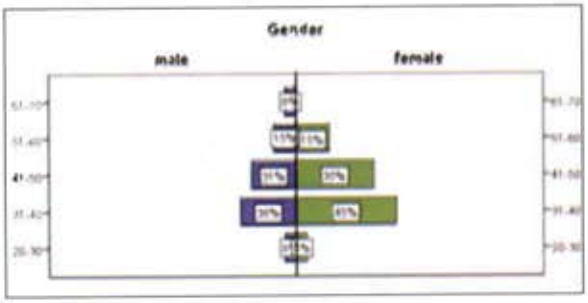

Fig- 5: Gender and age stratification in GERD confirmed Asthmatics.

Discussion

A total Asthma is recognized as a major public health problem by WHO. The prevalence and associated mortality rate is increasing worldwide. Asthmatics presenting in outdoor and emergency departments constitute a major bulk of total patients. The burden is increasing with high resource utilization due to frequent outdoor visits, acute exacerbations, repeated hospitalizations and chronic therapy. The causes of asthma are multiple environmental triggers combined with genetic predisposition. One of the important proposed risk factor is gastroesophageal reflux disease (GERD).GERD and its manifestations are extremely common in outdoor department. Although it is considered to be less common in underdeveloped countries,[8,9] but many population-based studies confirm that the prevalence of GERD is increasing in Asia. A causal relationship between asthma and GERD has been known and researched upon for some time now. GERD is considered to be the third leading cause of chronic cough and affects an estimated 20% of the patients.[10,11] Different mechanisms of esophageal acid-induced bronchoconstriction include a vagal-reflex, local axonal reflexes, bronchial hyper-reactivity, and microaspiration. Asthmatics are predisposed to GERD development because of a high prevalence of hiatal hernia, autonomic dysfunction and an increased pressure gradient between the abdominal and thoracic cavity. Asthma medications may cause GERD.Current study included 100 patients. All the patients were asthmatics (> 12% or 200ml increase in FEV_1 on pulmonary function tests after inhaled short acting bronchodilator). The study population had equal age distribution with majority of the subjects belonging to middle age groups. This is shown in **Fig-2.** Maximum number of subjects 42% (n=42) were 31-40 years old. Mean age of study population was calculated as 41.79 years±SD of 9.872. Asthma is more prevalent in middle age, with low prevalence in extremes of age.

This study population had 59% female patients and 41% male patients, as shown in **Fig-3.** These results supported the evidence that females are more affected by asthma in post-pubertal period. In pre-pubertal period, males are more affected than females and in pubertal period, both are equally affected. Since this study was conducted in post-pubertal population, the results were in accordance with the normal epidemiological data. The prevalence of GERD in asthmatics was found to be highest (14 patients) in 31-40 years old asthmatics. This was followed by 11 patients in 41-50 years old, as shown in **Table-1.**

Results were further segregated according to age groups and gender in GERD confirmed cases, as shown in **Fig-5.** There was similar gender distribution of GERD among all age groups with the maximum number of cases in 31-40 years old asthmatics. Amongst GERD confirmed cases, 34% were females and 32% were males. **(Fig-4)** The results of different studies investigating the prevalence of GERD in asthmatic patients vary greatly. It ranges from 25% to 80% in different studies. Most of this data however, comes from the western literature. In Asia, very limited data is available regarding the prevalence of GERD in asthmatics, so the purpose of this study was to

to calculate frequency and compare the results with pre-existing data. Field et al. [12] carried out a questionnaire-based, cross-sectional survey. Results showed that 70% of asthmatics admitted to some type of gastroesophegeal reflux symptoms, which was significantly higher than the control group. Among asthmatics, 77% had heartburn, 55% had regurgitation, 24% had dysphagia.

In another study, asthmatics were randomly selected from a multicenter group. Of the 90 asthmatics who participated, 51% had symptoms of GERD.[13] Perrin-Fayolle et al.[14] found evidence of GERD symptoms in 65% asthmatics. And 72% of asthmatics had heartburn in a study conducted by Sontag et al[15] The results of these four studies were very similar. If data of these four studies is taken as a group, it shows that 68% of asthmatics suffered from GERD symptoms. Another large scale study conducted in Turkey showed that the prevalence of GERD was higher in asthmatics compared to the control group. (25.4% vs. 19.4%, $p<0.05$)[16] The results of the current study showed that the frequency of GERD in asthmatics was found to be 33%. This prevalence rate is in agreement with few other studies. The prevalence rate of GERD in asthma patients was 36% in a study conducted by Kiljander.[13] Similar prevalence rates of 36% were calculated by Onyek were,[17] who also utilized the FSSG questionnaire.

Different population studies showed different prevalence rates. No such data is available from Pakistani population, and hence no local guidelines are present regarding treatment of GERD in asthma. This study was conducted with the intention to calculate frequency of GERD in our population of asthma patients and to provide data for future researches. Treatment of GERD in patients of asthma is an important step in managing asthmatics. Local guidelines should be made regarding treatment of GERD in asthma based upon local data.

Conclusion

Epidemiologic data has consistently shown, with varying frequencies, an association between GERD and asthma. There is a high frequency of GERD in patients with asthma in our population. So it is recommended that all the patients presenting with asthma should be questioned about symptoms of GERD, for better and focused management plan.

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Original Article

FREQUENCY OF HYPOMAGNESEMIA IN PATIENTS WITH DIABETIC RETINOPATHY

Satia Waheed, Awais Abid, Azhar Hussain and Sajid Nisar

Objective: To determine the frequency of hypomagnesemia in patients with diabetic retinopathy at a tertiary care hospital.

Methods: A cross sectional study was carried out.135 cases fulfilling the inclusion/exclusion criteria were enrolled from Medical and Ophthalmology OPD Services Institute of Medical Science, Lahore. An informed consent of the patients was taken from the patients to include their data in the study. Detailed history for Diabetic Retinopathy and physical examination was done by ophthalmoscope. Blood samples were collected for measurement of fasting serum magnesium. The frequency of hypomagnesemia (according to operational definition) in patients with diabetic retinopathy was noted, all this information was recorded. Hypomagnesemia was defined as serum magnesium levels less than 1.5 mg/dl.

Results: In our study, out of 135 diabetic retinopathy cases, 32.59%(n=44) were between 30-50 years of age while 67.41%(n=91) were between 51-80 years of age, mean+sd was calculated as 56.37+12.24 years, 53.33%(n=72) were male and 46.67%(n=63) were females, frequency of hypomagnesemia in patients with diabetic retinopathy was recorded as 30.37%(n=41) while 69.63%(n=94) were not recorded with this morbidity.

Conclusions: The frequency of hypomagnesemia is high among patients with diabetic retinopathy. So, it is recommended that every patient who presents with diabetic retinopathy, should be tested for hypomagnesemia. However, it is also required that every setup should have their surveillance in order to know the frequency of the problem.

Keywords: diabetic retinopathy, serum magnesium frequency.

Introduction

Diabetes mellitus (DM) is a major health concern in Pakistan. Our country is considered in top ten countries with highest frequency of DM in its population. In 2025 Pakistan may cross 10 million people with diabetes mellitus in its population.[1] Around 10% of the people suffering from type II diabetes mellitus are having >30 years of age.[2] Patients with diabetes mellitus may have serious eye disease without developing any symptoms and leads to irreversible vision loss.[3]

Diabetic Retinopathy (DR) is one of the many ocular complications of DM and it is a major risk factor of blindness. An early diagnosis and a good glycaemic control, the long-term sequelae from DM may be controlled by regular screening and proper management. As the frequency of DM is increasing in country so the frequency of diabetic retinopathy is also increasing.[4]

Magnesium is the eighth mostcommon element in the crust of Earth, fourth most abundant cation in the human body and second abundant intracellular cation. In diabetics there is a direct relationship between serum magnesium level and cellular glucose disposal that is independent of insulin secretion. Magnesium deficiency has been found to be associated with diabetic micro and macrovascular disease.[5] Low serum magnesium level correlated positively with the velocity of regaining basal vascular tone after hyperemia. Hypomagnesemia has been demonstrated in patients with diabetic retinopathy, with lower magnesium levels predicting a greater risk of severe diabetic retinopathy.[6] prevalence of hypomagnesemia has been found to vary widely, depending on the patient's clinical condition. In a general population, 6.9% of patients were shown to be hypomagnesemic.[7] In hospital inpatients on a medical-surgical floor, there was a prevalence of 11%, while in the intensive care unit it was found to be 20%. In a postoperative intensive care unit setting, the prevalence was 60%. A study of diabetic patients established a prevalence of 25%.[8] We did a 2-month period prevalence study of magnesium levels for 120 patients in an urban minority clinic and found that 24% of hypertensive patients and 25% of diabetic patients were hypomagnesemic.

A recent study[9] recorded hypomagnesemia in 55.26% of the patients of diabetic retinopathy while another recent study[10] recorded in 10% of the cases with diabetic retinopathy; both the studies were conducted in India and published in 2014.

The rationale of the study is that no local study is conducted to determine the frequency of hypomagnesemia in diabetic retinopathy while the international studies are also showing a significant variation, however the results of the current study will clarify the above variation in our targeted population and also record the exact frequency, as a large majority of patients are not diagnosed or remain undiagnosed for hypomagnesemia among these cases, the results of the study would also be helpful for timely management of the morbidity.

Methods

The study was conducted in Department of Ophthalmology and Internal Medicine, Services Institute of Medical Sciences, Lahore. It was a cross sectional study with a Non-probabilityConsecutive Sampling Technique Sample size of 135 cases was calculated with 95% confidence level 55% margin of error and taking expected %age of hypomagnesemia i.e.10%in patients with diabetic retinopathy. All diagnosed cases of diabetic retinopathy (according to operational definition) diagnosed at least 6 months ago having age between 30-80 years and either gender were included.

Already diagnosed cases and under treatment for hypomagnesemia (on history and medical record) and patients who were not willing to participate in the study were excluded. 135 cases fulfilling the inclusion/exclusion criteria were enrolled to determine the frequency of hypomagnesemia in patients with diabetic retinopathy at a tertiary care hospital. Serum magnesium level <1.5mg was confirmed through hospital laboratory on presentation of cases with diabetic retinopathy.

Result

Age distribution of the patients was done showing that 32.59%(n=44) were between 30-50 years of age while 67.41%(n=91) were between 51-80 years of age, mean+sd was calculated as 56.37+12.24 years. **(Table-1)** Patients were distributed according to gender showing that 53.33%(n=72) were male and 46.67%(n=63) were females. **(Table-2)** Mean magnesium level was calculated as 1.59+0.23 mg. **(Table-3)** Frequency of hypomagnesemia in patients with diabetic retinopathy was recorded as 30.37%(n=41) while 69.63%(n=94) were not recorded with this morbidity. **(Table-4)** Stratification for hypomagesemia in patients with diabetic retinopathy with regards to age and gender was done and presented in **(Table-5&6)** respectively.

Table-1: Age distribution (n=135).

Age (in years)	No. Of Patients	Percentage (%)
30-50	44	32.59%
51-80	91	67.41%
Total	135	100%
Mean±SD	56.37±12.24	

Table-2: Gender distribution (n=135).

Gender	No. Of Patients	Percentage (%)
Male	72	53.33%
Female	63	46.67%
Total	135	100%

Table-3: Mean magnesium level (n=135).

Magnesium Level (mg)	Mean	SD
	1.59	0.23

Table-4: Frequency of hypomagnesemia in patients with diabetic retinopathy (n=135).

Hypomagnesemia	No. Of Patients	Percentage (%)
Yes	41	30.37%
No	94	69.63%
Total	135	100%

Table-5: Stratification for frequency of hypomagnisemia with regards to age.

Age (in years)	Hypomagnisemia Yes	No	P-Value
30-50	10	37	0.17
F51-80	31	30	

Table-6: Stratification for ventilator associated hypomagnisemia in children with regards to gender.

Gender	Hypomagnisemia Yes	No	P-Value
Male	17	55	0.06
Female	24	39	

Discussion

Diabetic retinopathy is the result of microvascular retinal changes. In addition damage to non-vascular structures also contributed to the retinopathy induced intramural pericyte death and thickening of the

basement membrane lead to incompetence of the vascular walls. These damages change the formation of the blood retinal barrier and also make the retinal blood vessels become more permeable. Magnesium deficiency has been found to be associated with diabetic micro vascular disease. Low serum magnesium level correlated positively with the velocity of regaining basal vascular tone after hyperemia. Hypomagnesemia has been demonstrated in patients with diabetic retinopathy, with lower magnesium levels predicting a greater risk of severe diabetic retinopathy.

This study was planned with the view that no local study is conducted to determine the frequency of hypomagnesemia in diabetic retinopathy while the international studies are also showing a significant variation, however the results of the current study will clarify the above variation in our targeted population and also record the exact frequency, as a large majority of patients are not diagnosed or remain undiagnosed for hypomagnesemia among these cases, the results of the study would also be helpful for timely management of the morbidity.

In our study, out of 135 diabetic retinopathy cases, 32.59%(n=44) were between 30-50 years of age while 67.41%(n=91) were between 51-80 years of age, mean±sd was calculated as 56.37±12.24 years, 53.33%(n=72) were male and 46.67%(n=63) were females, frequency of hypomagnesemia in patients with diabetic retinopathy was recorded as 30.37%(n=41) while 69.63% (n=94) were not recorded with this morbidity.

The findings of our study are nearly in agreement with a recent study [9] recorded hypomagnesemia in 55.26% of the patients of diabetic retinopathy while another recent study[10] recorded in 10% of the cases with diabetic retinopathy; both the studies were conducted in India and published in 2014, which is not in agreement with our study.

Cellular magnesium deficiency can alter the activity of the membrane bound sodium-potassium ATPase which is involved in the maintenance of the gradient of sodium, potassium and glucose transport. Low levels of magnesium can reduce the secretion of insulin by the pancreas.[12] In diabetes, there is a direct relationship between the serum magnesium levels and the cellular glucose disposal, which is independent of the insulin secretion. This change in the glucose disposal has been shown to be related to the increased sensitivity of the tissues to insulin in the presence of adequate magnesium levels.[13]Magnesium activates more than 300 enzymes in the body and it is a critical co factor of many enzymes in the carbohydrate metabolism. Observations have revealed a definite lowering of the serum magnesium levels in diabetic patients with retinopathy, especially in those with poorly controlled glucose levels.

deValk HW et al[14] reported progression of diabetic retinopathy was related to plasma magnesium concentration ($p<0.05$), and association between serum magnesium concentration and progression of retinopathy remained even after confounding HbA1c levels and duration of diseases ($p^{Q}<0.03$). But in our present study we found strong correlation between duration of disease and low serum magnesium levels.

The results of our study clarify the variation in different studies in our targeted population and also recorded the exact frequency, a large majority of patients are not diagnosed or remain undiagnosed for hypomagnesemia among these cases, the results of the current study are helpful for timely management of the morbidity.

Conclusion

The frequency of hypomagnesemia is high among patients with diabetic retinopathy. So, it is recommended that every patient who present with diabetic retinopathy, should be tested for hypomagnesemia. However, it is also required that every setup should have their surveillance in order to know the frequency of the problem.

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Picture Quiz

WHAT IS THE DIAGNOSIS?

1. Epidermolysis bullosa
2. Hereditary haemorrhagic telangiectasia
3. Neurofibromatosis
4. Peutz-Jeghers syndrome
5. Scleroderma

Seen answer on page 42

Original Article

Oral Versus Rectal Diclofenac Sodium Efficacy in Pain Control After Perineal Repair in a Primipara

Uzma Altaf, Alia Zaineb Asad, Shazia Ashraf and Muhammad Tayyab

Objective: To compare oral with rectal route of diclofenac sodum pain control after repair of an episiotomy in a primiparous patient.

Methods: This study was carried out in Jinnah Hospital, Lahore. The duration of the study was six months. It was a prospective case control study. 100 patients were enrolled; 50 in each group. Group-A was given rectal suppositories, and group-B was given oral drug. The sampling technique was non-probability convenience sampling. A simple visual analogue pain (VAS) scoring was used to assess extent of pain after 24 hours of delivery in both groups. Results were tabulated by SPSS 20.

Results: Age, gestational age and BMI were comparable in both groups .Regarding parity distribution, all mothers were primigravidae. Mean pain score on VAS in group-A was 2.08±0.96 and in group-B 5.92±1.08 ($p < 0.001$).

Conclusions: Rectal route was found to be more effective than oral diclofenac.

Keywords: episiotomy pain control, diclofenac sodium.

Introduction

Episiotomy is a surgical procedure facilitating SVD. It is essentially a cut in the skin and muscles of perineum.[1] After its initial frenzy, various randomized control trials were carried out, and a restrictive use of episiotomy is now being advocated. Episiotomy or a perinealtear during delivery can cause considerable discomfort and pain. MacArthur and MacArthur reported perineal pain in 75% of women who deliver without episiotomy and 97% in women delivering with episiotomy.[2] Severity of pain is also directly proportional to the. extent of trauma2.Over one-third of women with episiotomy report it as distressing or worse on "present pain intensity" PPI scale of the McGill pain questionnaire on Day one. Albers et al reported these findings,[3] among other researchers.[4]

Subjective assessment of post episiotomy pain by Reading et al[5] showed that 63% of women reported this pain as discomforting and 10% as distressing, and 7% deemed it horrible.

Effective pain control during labor and after delivery is a basic right of all women. Control of the pain can be done by various modalities including intravenous, intra-muscular, oral and rectal drugs.[6-8] As epidural is not freely available in government hospital setups, amongst the various modalities available for episiotomy repair pain control, NSAIDS are the most easily available and cost-effective modality without causing undue side-effects. However, oral diclofenac is best avoided on an empty stomach. Labour of primiparous women can extend easily up to 12 to 14 hours, and food intake is minimal during this time. To avoid delay, therefore, rectal route will be more suitable. Various trials have shown that rectal suppositories are effective up to 24 hours.[9] It has also been shown that absorption through rectal route avoids the first pass liver effect, and a greater doze of the drug is available in a shorter time.

Some studies have shown the pain score to be zero after 24 hours of the drug.[6] In comparison, oral diclofenac showed lesser pain control.[10] Rationale of this study is to compare the route of diclofenac sodium most suitable for episiotomy repair pain control. Further studies are required to equate patient acceptability and cost effectiveness and may divert pain management from oral to rectal route.

Methods

Prospective cohort study was carried out in department of Obstetrics and Gynaecology, Jinnah Hospital, Lahore. Study was carried out over a period of six months from 14-07-2015 to 13-01-2016. Sample size of 100 cases; 50 cases in each group was calculated with 80% power of test, 95% confidence level and taking expected mean±SD. Sampling was non-probability convenience. Inclusion criteria was females of age 18-40 years were recruited, Primigravidae presenting at gestational ages ≥ 37 weeks who underwent delivery for singleton,

Cephalic fetus (on USG) and required episiotomy repair. Those excluded were females with medical diseases like PIH (BP > 140/ 90 mmHg), preeclampsia (PIH with proteinuria +1 on dipstick method), gestational diabetes (BSR > 186 mg/ dl), anemia (Hb< 10 mg/ dl), or severe asthma (on medical record and history), Gastric or duodenal ulcer (on medical record and history),major postpartum haemorrhage (blood loss > 1000 mL), or who required manual removal of placenta or emergency caesarean section. Mothers with macrosomic babies (weight >4000gm) were also excluded .Approval from hospital ethical committee was taken. Primigravidas undergoing episiotomy repair in labour room of Unit-III of Obstetrics and Gynaecology, Jinnah Hospital, Lahore, were enrolled in the study. Informed consent was obtained. Demographic data (including name, age, gestational age, and parity) were also recorded. After delivery, the women were divided in two groups by using non-probability, convenience sampling. In group-A, females were given rectal Diclofenac in 100mg dose, while females in group B were given oral Diclofenac in 100 mg dose. Dose was given immediately after delivery. Then they were followed up in ward for 24 hours. After 24 hours, they were asked for perineal pain by using visual analogue scale (VAS) and pain was assessed. All the information was collected on a specially designed proforma. All the collected data was entered and analyzed through SPSS version 20.0.Quantitative data like age, gestational age and pain score on VAS was presented as mean and standard deviation. Data like parity was presented as frequency. Independent sample, T-test was applied to compare mean pain score in both groups taking p value ≤0.05 as significant. Data was stratified for age, gestational age parity and BMI to address effect modifiers. Post stratification independent sample t-test was applied to check the significance with p value ≤ 0.05 as significant.

Table-1: Distribution of cases by age, gestational age and BMI.

Age (in years)	Frequency	Group-A Rectal Diclofenac	Percentage	Frequency	Group-B Oral Diclofenac	Percentage
Age (years)		27.40±3.74			29.32±4.44	
20-30	41		82.0	91		67.41%
51-80	09		18.0	135		100%
Gestational age (Wks)		38.66±1.28			38.74±1.13	
37-39	37		74.0	35		70.0
40-41	13		26.0	15		30.0
BMI		22.80±1.93			22.90±1.72	
= 25	47		94.0	49		98.0
>25	03		06.0	01		02.0

Table-2: Comparison of mean VAS scores.

Age (in years)		Group-A Rectal Diclofenac Mean±SD	Group-B Oral Diclofenac Mean±SD	P-value
VAS Score Total		2.08±0.96	5.92±1.08	< 0.001
Age (yrs.)	20-30	2.07±1.01	5.65±1.01	<0.001
	31-40	2.11±0.78	6.37±1.06	
Gestational age (Wks)				
	37-39 (Weeks)	0.03±0.92	5.83±1.17	<0.001
	40-41	2.23±1.09	6.13±0.83	
BMI				
	= 25	2.09±0.97	5.88±1.05	<0.001
	>25	2.00±0.00	8.00±0.00	

Results

A total of 100 females (50 in each group) were included in this study during the study period of six months from 14-07-2015 to 13-01-2016.Groups-A received rectal diclofenac while Group-B was given oral diclofenac. Mean age of the patients was 27.40±3.74 and 29.32±4.44 year in group-A and B, respectively. Mean gestational age was 38.66±1.28 weeks in group-A and 38.74±1.13 weeks in group-B.In group-A, mean BMI was 22.80±1.93 and in group-B mean BMI was 22.90±1.72 kg/m2**(Table-1).** Regarding parity distribution, all females were primigravida. Mean pain score on VAS in group-A was 2.08±0.96 and in group-B 5.92±1.08 ($p < 0.001$). Stratification with regard to age, gestational age and BMI was carried out and presented in **(Tables 2).**

Discussion

Perineal pain can cause psychological as well as physical symptoms like urinary retention, decreased mobility and inadequate care of the newborn.[11]

NSAIDs are the most easily available and commonly used drugs. Diclofenac sodium when given orally has a major first-pass effect. It can also cause gastric mucosal irritation, essentially requiring a full stomach before taking the drug. Some studies show that the rectal absorption is better and first-pass effect is avoided so a greater amount of drug is available sooner in the blood, allowing quicker pain relief and prolonged action of treatment.[11,12] Assessment after 24 hours shows significant improvement of pain control when the drug is given rectally.[13] These results were comparable to our study.

In the current study, mean age of the patients was 27.40±3.74 and 29.32±4.44 years in suppositories group and oral group respectively. Naz et al reported mean age of the patients 24.38±6.23. In a study by Corkilla et al,[14] the mean age was 28 years. Rectal use of suppositories resulted in lesser requirement of analgesia.[15]There appears to be a clear advantage in using rectal NSAIDs. According to Jane A. Searl11,the mean pain score assessed at 12, 24, 48 and 72 hours after delivery were significantly reduced in rectal diclofenac suppositories group as compared to the control group.[16]This has also been reflected in our study when scoring was done at 24 hours so requirement of oral NSAIDs were reduced in patients initially treated with rectal group. In the current study, mean pain score with oral versus rectal diclofenac after childbirth through normal vaginal delivery with episiotomy was 2.08±0.96 and 5.92±1.08 respectively. There was statistically significant difference between the two groups. A similar result was found in the study of Dodd et al[13] which showed that rectal diclofenac was more potent in reducing perineal pain. Searle et al[11] studied 45 post-episiotomy women who were given 100 mg of diclofenac rectal suppositories and found statistically significant pain relief at 24, 48 and 72 hours after giving birth.

Conclusion

Rectal use of diclofenac was found to be a simple and effective modality of reducing the post-natal pain experienced by women after normal vaginal delivery with episiotomy.

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Medical News

FIBER-FERMENTING BACTERIA IMPROVE HEALTH OF TYPE 2 DIABETES PATIENTS

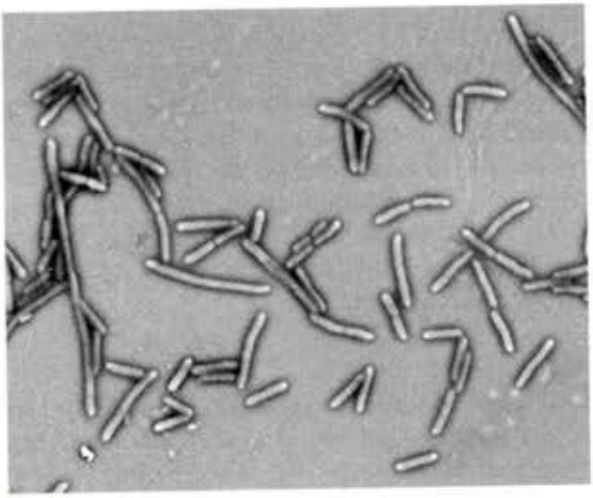

Fig-1: This is gut bacteria in culture.

Promotion of a select group of gut bacteria by a diet high in diverse fibers led to better blood glucose control, greater weight loss and better lipid levels in people with type 2 diabetes, according to research published today in Science.

The study, underway for six years, provides evidence that eating more of the right dietary fibers may rebalance the gut microbiota, or the ecosystem of bacteria in the gastrointestinal tract that help digest food and are important for overall human health.

"Our study lays the foundation and opens the possibility that fibers targeting this group of gut bacteria could eventually become a major part of your diet and your treatment," said Liping Zhao, the study's lead author and a professor in the Department of Biochemistry and Microbiology, School of Environmental and Biological Sciences at Rutgers University-New Brunswick.

Type 2 diabetes, one of the most common debilitating diseases, develops when the pancreas makes too little insulin -- a hormone that helps glucose enter cells for use as energy -- or the body doesn't use insulin well.

In the gut, many bacteria break down carbohydrates, such as dietary fibers, and produce short-chain fatty acids that nourish our gut lining cells, reduce inflammation and help control appetite. A shortage of short-chain fatty acids has been associated with type 2 diabetes and other diseases. Many clinical studies also show that increasing dietary fiber intake could alleviate type 2 diabetes, but the effectiveness can vary due to the lack of understanding of the mechanisms, according to Zhao, who works in New Jersey Institute for Food, Nutrition, and Health at Rutgers-New Brunswick.

In research based in China, Zhao and scientists from Shanghai Jiao Tong University and Yan Lam, a research assistant professor in Zhao's lab at Rutgers, randomized patients with type 2 diabetes into two groups. The control group received standard patient education and dietary recommendations. The treatment group was given a large amount of many types of dietary fibers while ingesting a similar diet for energy and major nutrients. Both groups took the drug acarbose to help control blood glucose.

The high-fiber diet included whole grains, traditional Chinese medicinal foods rich in dietary fibers and prebiotics, which promote growth of short-chain fatty acid-producing gut bacteria. After 12 weeks, patients on the high-fiber diet had greater reduction in a three-month average of blood glucose levels. Their fasting blood glucose levels also dropped faster and they lost more weight.

Surprisingly, of the 141 strains of short-chain fatty acid-producing gut bacteria identified by next-generation sequencing, only 15 are promoted by consuming more fibers and thus are likely to be the key drivers of better health. Bolstered by the high-fiber diet, they became the dominant strains in the gut after they boosted levels of the short-chain fatty acids butyrate and acetate. These acids created a mildly acidic gut environment that reduced populations of detrimental bacteria and led to increased insulin production and better blood glucose control.

The study supports establishing a healthy gut microbiota as a new nutritional approach for preventing and managing type 2 diabetes.

(ScienceDaily)

Courtesy: Materials provided by Rutgers University.

Original Article

ASSOCIATION OF ABO BLOOD GROUPS WITH DIABETES MELLITUS AND ISCHEMIC HEART DISEASE IN A PAKISTANI POPULATION

Muhammad Usman Bashir, Sara Naeem and Hamid Hassan

Objective: To find out the association of ABO blood groups with type 2 diabetes mellitus and ischemic heart disease (IHD) in a Pakistani population.

Methods: A total of 109 patients suffering from diabetes mellitus, 93 patients suffering from ischemic heart disease and 122 healthy controls were selected from both of these institutes. The patients were already diagnosed cases coming for follow up. Blood group of the subjects was either determined from clinical record data or at the Physiology laboratory of CIMS after taking blood samples. Chi-square test was applied to find out any association of ABO blood groups with IHD and DM type 2.

Results: The blood group O was significantly less common in patients suffering from diabetes mellitus than healthy controls (n=31, 28.4% vs. n=51, 41.8%, p=0.027). The blood group B was more common in diabetic patients as compared to healthy controls (n=55, 50.5% vs. n= 40, 32.8%) but this difference was not statistically significant (p=0.124). No statistically significant (p>0.05) association was found between ABO blood groups and IHD.

Conclusions: Blood group O is significantly negatively associated with DM type 2, while there is no significant association between ABO blood groups and IHD in the Pakistani population we studied.

Keywords: ABO blood groups; diabetes mellitus; ischemic heart disease.

Introduction

Association between ABO blood groups and various diseases has been a topic of interest since long. Maxwell et al, in 1955, tried to find association between ABO blood groups and essential hypertension, but failed to do so.[1] Since then, a lot of studies have been conducted to find association between these genetically determined blood groups and various diseases like hypertension, obesity, gastric ulcer, diabetes mellitus, leukemia, lymphoma, gastric carcinoma and so on.[2-15] Most of the diseases with which the investigators tried to find out association of ABO blood groups are hereditary in nature.

The ABO blood groups system is the most important human blood group system. The incidence and frequency of these blood groups varies in different races and in different parts of the world.[16] The 9q34.2 region of the human genome is the area at which different ABO blood group genes have been mapped. This area is said to be commonly affected by genetic alterations.[17]

The ABO blood groups were found to have significant association with certain diseases like peptic ulcer which is found more in O blood group individuals[9]. On the other hand, relationship of these blood groups with some other diseases has been conflicting till date.[5,9] Some scientists found significant association between ABO blood groups and various diseases, while others failed to find one.[4-6,10,11] Impact of different races, climates and life style factors plays a vital role in establishing this association.[9]

Diabetes mellitus and ischemic heart disease are major diseases which usually run in families and can have hereditary basis. The prevalence of type 2 diabetes mellitus and ischemic heart disease in urban populations of South Asia has been estimated to be 68%, and 714 % respectively.[18]

These diseases and ABO blood groups can have strong association because of their genetic basis. A positive or negative association between these diseases and ABO blood group systems may facilitate us in early identification of individuals at increased/less risk of developing these diseases because blood grouping is generally done at early ages, usually at the time of school admission. Scientific data based upon Pakistani population and representing the relation between these major diseases and ABO blood groups is scarce.

Methods

This case control study was carried out at CMH Multan Institute of Medical sciences (CIMS) and

Nishtar Medical University, Multan from January 2017 to December 2017. A total of 109 patients suffering from diabetes mellitus, and 93 suffering from ischemic heart disease were selected from outpatient departments (OPDs) of CMH Multan and Nishtar Medical University. The patients were already diagnosed cases coming for follow up. The diagnosis was confirmed from clinical history and clinical record data. It was made certain that each patient was suffering from only one of these diseases. Diabetics with IHD and IHD Patients with history of diabetes mellitus were excluded. Patients with co-morbid conditions were also excluded to prevent bias. The ABO blood groups of most of the patients were noted from the clinical records present with them. In case of any suspicion, blood sample was taken from patients after their consent and blood group determined at the Physiology laboratory of CIMS.

Age and sex matched healthy controls (n=122) were selected mostly from the staff of CIMS and Nishtar Medical University. Some of the controls were selected from out patients department of CIMS and NMU who were visiting OPD for minor diseases like cough, flu etc.

Data was analyzed using SPSS software version 17. Frequencies and percentage were used to express data. Chi-square test was employed to determine statistically significant differences between various parameters. A P value < 0.05 was considered statistically significant.

Results

Our study included 122 healthy controls, 93 patients suffering from ischemic heart disease and 109 patients suffering from diabetes mellitus. Table 1 shows the age and sex distribution among the patients and healthy controls. Most of the subjects, whether patients or controls, belonged to age group 51-60 years, while least number of subjects were less than 30 years of age.

Table-1: Age and sex distribution of patients and controls.

Characteristics		Diabetic Patients (n=109)	IHD Patients (n=93)	Ontrols (n=122)
Gender	Male	57 (52.3%)	52 (55.9%)	62 (50.8%)
	Female	52 (47.7%)	41 (44.1%)	50 (49.2%)
Age (in Yrs.)	>30	05 (4.6%)	04 (4.3%)	05 (4.1%)
	30-40	09 (8.3%)	07 (7.5%)	17 (13.9%)
	41-50	38 (34.9%)2	19 (31.2%)	40 (32.8%)
	51-60	35 (32.1%)	34 (36.6%)	44 (35.1%)
	>60	22 (20.2%)	19 (20.4%)	16 (13,1%)

Table-2: Percentage distribution of ABO blood groups among DM patients & healthy .

Blood Groups	Control (n=122)	DM pt. (N=109)	p-value
Male	17 (13.9%)	13 (11.9%)	0.465
Female	40 (32.8%)	55 (50.5%)	0.124
>30	51 (41.8%)	31 (28.4%)	0.027*
30-40	14 (11.5%)	10 (9.2%)	0.414

Table-3: Percentage distribution of ABO blood groups among IHD patients & healthy controls.

Blood Groups	Control (n=122)	DM pt. (N=109)	p-value
A	17 (13.9%)	10 (10.75%)	0.257
B	40 (32.8%)	37(39.8%)	0.732
O	51 (41.8%)	34 (36.5%)	0.061
AB	14 (11.5%)	12 (12.9%)	0.154

Table 2 shows the distribution of ABO blood groups among diabetic patients and healthy controls. The blood group O was significantly less common in patients suffering from diabetes mellitus than healthy controls (n=31, 28.4% vs. n= 51, 41.8%, p= 0.027). The blood group B was more common in diabetic patients as compared to healthy controls (n=55, 50.5% vs. n= 40, 32.8%) but this difference was not statistically significant (p=0.124). No statistically significant difference was found in the distribution of blood groups A and AB among healthy controls and DM patients.

Table 3 depicts the distribution of ABO blood groups among patients of ischemic heart disease and healthy controls. Majority of the patients suffering from IHD were having blood group B (n=37, 39.8%) but again this difference was not statistically significant

(p=0.732) when compared with blood group B in healthy controls (n=40, 32.8%). On the other hand, blood group A was found in least number of IHD patients (n=10, 10.75%) but this was also not statistically significant (p=0.257) from blood group A individuals belonging to the control group (n=17, 13.9%).

Discussion

In this study, we tried to find out the relationship between ABO blood groups and two major diseases affecting Pakistani population, diabetes mellitus and ischemic heart disease. Our study included 122 healthy controls, 93 patients suffering from ischemic heart disease and 109 patients suffering from diabetes mellitus. We found that the blood group O was significantly (p= 0.027). less common in patients suffering from diabetes mellitus than healthy controls (n=31, 28.4% vs. n= 51, 41.8%). The blood group B was more common in diabetic patients as compared to healthy controls (n=55, 50.5% vs. n= 40, 32.8%) but this difference was not statistically significant (p=0.124, **table 2).**

Several studies done in different parts of the world found significant association between ABO blood groups and diabetes mellitus.[7,19-21] However many investigators did not find any significant association between ABO blood groups and diabetes mellitus[4-6] Bener et al conducted a study in 2014, in Qatar, and found that the blood group B was significantly more common in diabetic patients as compared to healthy controls.[19] Similar results were also obtained by some other researchers.[20,21] In 2003, Quershi et al conducted a study in a Pakistani population to find out association of the ABO blood groups with DM. They also found higher frequency of blood group B in Pakistani people[7]. On the other hand, Waseem et al, in 2012, found the frequency of blood group O to be highest among Pakistani type 2 diabetics.[22] However, a study conducted by Okon et al in 2008, reported a significantly negative association of blood group O with DM just like our study.[23] These differences can be due to geographical and racial variations which can play role in the genetic expression of the disease. We did not find any statistically significant difference between distribution of blood groups A and AB among healthy controls and DM patients. However Dali et al conducted a study in Algeria in 2011 and found that the frequencies of blood groups A and B were significantly lower among diabetic patients when compared to healthy controls.[24]

We did not find any significant association between ischemic heart disease (IHD) and ABO blood groups in the Pakistani population we studied (table 3). The frequency of blood group B was highest among IHD patients (n=37, 39.8%) but this was not statistically significantly (p=0.732) different when compared with blood group B in healthy controls (n=40, 32.8%). On the other hand, blood group A was found in the least number of IHD patients (n=10, 10.75%) but this was also not statistically significant (p=0.257) different from blood group A in healthy controls (n=17, 13.9%). Amirzadegan et al conducted a study in Iran, in 2006, and found that there was no correlation between ABO blood groups and of ischemic heart disease. They also found that the prevalence of major risk factors was equal in individuals of different blood groups so they concluded that blood groups have no relation with development of IHD.[25]

On the other hand, a study conducted by Whincup et al, in 1990, to find out association of ABO blood groups with IHD revealed higher incidence of IHD in individuals having blood group A. They also found slightly higher concentrations of total serum cholesterol in those IHD patients having blood group A.[26] Similarly, meta-analysis by He et al showed that non-O blood group individuals had more risk of developing IHD when compared with individuals having blood group O (relative risk =1.11; 95% CI, 1.051.18; p=0.001).[27]

We conclude that individuals with blood group O have significantly less chance of developing type 2 diabetes mellitus, while there was no significant association between ABO blood groups and ischemic heart disease in the Pakistani population we studied.

Conclusions

Blood group O is significantly negatively associated with DM type-II, while there is no significant association between ABO blood groups and IHD in the Pakistani population we studied.

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Original Article

DECREASE IN NUMBER OF MENSTRUAL DAYS AFTER PROGESTERONE THERAPY FOR MANAGEMENT OF DYSFUNCTIONAL UTERINE BLEEDING

Hina Ilyas and Asifa Noreen

Objective: To determine the mean decrease in number of menstrual days from baseline after progesterone therapy for management of dysfunctional uterine bleeding.

Methods: This Quasi-experimental study was conducted in Department of Obstetrics and Gynaecology, Unit-II, Services Hospital, Lahore for duration of Six months. Total 125 cases were included in the study through Non-probability, purposive sampling from OPD of Services Hospital, Lahore. Informed consent and demographic information was obtained. Number of menstrual days were asked and noted. Patients were advised to take oral dydrogesterone 10mg two times a day (BD) from 5th menstrual day to 26th day cyclically. Patient was followed in OPD for up to 2nd cycle of every female. After 2 cycles from baseline visit, number of menstrual days was noted on proforma (attached).

Results: The mean age of females was 29.98±7.14 years. The baseline mean duration of menstrual days was 8.56±1.32 days. The mean duration of menstrual days after first cycle was 6.03±1.24 days and the mean duration of menstrual days after second cycle was 5.58±1.14 days. The reduction was significant (p-value=0.000). Thus the mean reduction of menstrual days after second cycle was 3.00±1.10 days.

Conclusions: Thus it was concluded from results of this study that progesterone therapy is effective in controlling dysfunctional uterine bleeding among females of reproductive age group.

Keywords: dysfunctional uterine bleeding, abnormal uterine bleeding, progesterone therapy, menstrual days.

Introduction

Dysfunctional uterine bleeding (DUB) occurs frequently in women during the reproductive age and is unrelated to structural uterine abnormalities.[1] DUB accounts for 20% of gynecology outpatient visits. The exact mechanism is uncertain but is thought to be caused by dysfunction of hypothalamic-pituitary-ovarian axis.[2] Medical therapy, with the avoidance of possibly unnecessary surgery, is an attractive treatment option.[1] Dysfunctional uterine bleeding is one of the most common reasons for which patients seek the opinion of a gynecologist. Medical therapy is the principal tenet of treatment.[3] In approximately 50% of women, there is no organic pathology and DUB is diagnosed.[4] Now progestogens are being widely used in the management of excessive bleeding due to DUB but the regimen, dose and type of progestogen used varies widely, with little consensus about the optimum treatment approach.[5,6]

Currently there is not enough evidence comparing the effect of either progesterone alone or in combination with estrogens for the treatment of dysfunctional uterine bleeding. No randomized trials were identified which compared progestogens with estrogens and progestogens or with placebo in the management of irregular bleeding associated with anovulation. With progesterone alone the duration of bleeding was also reduced following treatment, from a mean of 8.5±2.4 days before treatment to 5.5±1.1 days in the second cycle (mean reduction of 3±1.4 days, p-value=0.027).[6] Rationale of my study was to determine mean decrease in number of menstrual days after progesterone therapy for management of dysfunctional uterine bleeding. Literature has reported that Progesterone is effective in terms of reducing number of menstrual days but literature is present in foreign countries. Local data was missing as there is no recent study conducted in Pakistan. That is why we wanted to conduct this study to see the effect of progesterone for management of DUB in local population and to update local guidelines for management of DUB. So that we can establish a new way of DUB management to achieve more patients' satisfaction and reduce the burden of hospital and gynaecologists.

Results

The mean age of females was 29.98±7.14 years. The minimum age was observed as 20 years while maximum age was 45 years (age range = 25years). **Table -1.** There were 119 (95.2%) females who were married while 6 (4.8%) were unmarried. **Table-2**

The baseline mean duration of menstrual days was 8.56±1.32 days. The minimum days were noted as 6 days while maximum days were 12 days (range = 6 days).The mean duration of menstrual days after first cycle was 6.03±1.24 days. The minimum days were noted as 4 days while maximum days were 9 days (range = 5 days).The mean duration of Menstrual days after second cycle was 5.58±1.14 days. The minimum days were noted as 4 days while maximum days were 9 days (range = 5 days). There was significant reduction in menstrual days after 2 cycles by using progesterone therapy (p-value = 0.000). **Table-3** The mean reduction of menstrual days after second cycle was 3.00±1.10 days. The minimum days were noted as 0 days while maximum days were 5 days (range = 5 days).**Table-4**

Table-1: Descriptive statistics of age (years) of the patients.

Age (in Years)	n	125
	Mean	29.98
	SD	7.14
	Minimum	20
	Maximum	45
	Range	25

Table-2: Distribution of females according to marital status.

Marital Status	Frquency	Percentage
Married	119	95.2%
Unmarried	06	4.8%
Total	125	100%

Table-3: Descriptive statistics of baseline menstrual days.

		Baseline	After 1st cycle	After 2nd cycle
Number of Menstrual days	n	125	125	125
	Mean	8.56	6.03	7.14
	SD	1.32	1.24	20
	Minimum	6	4	4
	Maximum	6	9	9
	Range	6	5	5

Table-4: Descriptive statistics of reduction in menstrual days after two cycles.

Reduction in number of days)	n	125
	Mean	3.00
	SD	1.10
	Minimum	0
	Maximum	5
	Range	5

Discussion

Dysfunctional uterine bleeding is a common gynecologic disorder that can affect any woman during her reproductive years.[7] DUB in women with ovulatory cycles occurs as regular, cyclic bleeding. Menorrhagia may signify a bleeding disorder or a structural lesion, such as uterine leiomyomas, adenomyosis or endometrial polyps. Up to 20% of adolescents who present with menorrhagia have a bleeding disorder such as von Willebrand's disease.[8]

The cause of DUB is usually related to one of three hormonal-imbalance conditions: estrogen breakthrough bleeding, estrogen withdrawal bleeding and progesterone breakthrough bleeding. Estrogen breakthrough bleeding occurs when excess estrogen stimulates the endometrium to proliferate in an undifferentiated manner. With insufficient progesterone to provide structural support, portions of the endometrial lining slough at irregular intervals. The usual progesterone-guided vasoconstriction and platelet plugging do not take place, often resulting in profuse bleeding.[9]

Medical management and avoidance of surgery is always recommended, as the short period of drug therapy bridges the temporary phase of menstrual alterations successfully, wherein young subjects settle down with normal cycles and elderly subjects attain menopause.[10,11]

Preference should be for nonsteroidal agents, as steroidal agents will only aggravate the existing endocrine dysfunction. Ormeloxifene, a nonsteroidal drug, is easier to administer, cost effective, and has lesser side effects.[12,13]

Thus we included 125 females with mean reproductive age of 29.98±7.14 years. Mostly females were married [119 (95.2%)] while only 6 (4.8%) were unmarried.

In our study, we observed the baseline mean duration of menstrual days was 8.56±1.32 days, which was reduced to 6.03±1.24 days after first cycle and to 5.58±1.14 days after second cycle. Another study reported that females presented with baseline menstrual days 41±8 days which was reduced to 3±1

Days after progesterone therapy.[2] The results of another study showed that the presence of statistically significant difference for the effectiveness of micronized progesterone at DUB according to the duration of the bleeding ($p = 0.000$). On the basis of conducted clinical study the authors confirm the preventive effect of the micronized progesterone, as an effective and safe alternative in treating of premenopausal women with DUB.[14] Thus we observed a significant reduction in menstrual days after progesterone therapy. So the mean reduction of menstrual days after second cycle was 3.00 ± 1.10 days.A study reportedthat with progesterone alone the duration of bleeding was also reduced following treatment, from a mean of 8.5 ± 2.4 days before treatment to 5.5 ± 1.1 days in the second cycle (mean reduction of 3 ± 1.4 days, p-value=0.027).[6] Another study reported that women with DUB were treated with cyclical oral progestogens. Measured menstrual blood loss was effectively reduced from control to treatment cycles in both anovulatory (control cycle 131ml; treatment 80 and 64ml) and ovulatory women (control cycles 110 and 113ml; treatment 76 and 71ml). Three women with ovulatory DUB did not show a useful response. Duration of bleeding was reduced in both groups and the pattern of loss changed. These regimens are effective forms of management for most women with ovulatory or anovulatory DUB.[15] A study reported that an overall reduction in mean blood loss by 54.76%. There was a significant reduction in menstrual blood loss in patients receiving progesterone.[16]

Conclusion

It was concluded from results of this study that progesterone therapy is effective in controlling dysfunctional uterine bleeding among females of reproductive age group. Thus it was proved that Progesterone is effective in terms of reducing number of menstrual days and we have also get local data. Now we are able to establish a new way of DUB management to achieve more patients' satisfaction and reduce the burden of hospital and gynecologists.

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Original Article

ETILOGICAL AGENTS AND THEIR ANTIBIOTIC RESISTANCE PATTERN ISOLATED FROM CEREBROSPINAL FLUID (CSF) SAMPLES OBTAINED FROM ADMITTED PATIENTS IN LAHORE GENERAL HOSPITAL (LGH), LAHORE.

Zill-e-Huma, Iffat Javed, Sohaila Mushtaq and Muhammad Saeed Anwar

Objective: To determine the most common etiological agent and their antibiotic resistance pattern in CSF samples obtained from admitted patients in neurosurgical wards in LGH, Lahore

Methods: It was a descriptive cross sectional study performed in Microbiology section of Pathology Department of Post Graduate Medical Institute (PGMI), Lahore during October 2015 to April 2017. The CSF specimens were inoculated on Blood agar and Mac Conkey agar plates and were incubated at 35 37°C aerobically. After 24 hours of incubation, the plates were examined for the presence of bacterial colonies. Organisms were identified by standard microbiological methods. Antibiotic sensitivity test was conducted employing the modified Kirby-Bauer disc diffusion method according to CLSI 2016.

Results: Out of 511 CSF culture samples, 137 (26.81%) were culture positive and 374 (73.18%) were culture negative. Among culture positive samples, the meningitis due to Acinetobacter spp and Pseudomonas spp account for 39 (28%) and 32 (23.02%) of the cases. Non fermentor gram negative rods are most resistant to Doxycycline and most sensitive to Pipercillin Tazobactam. The meningitis caused by E.coli and Klebsiella spp are responsible for 12 (8.7%) and 16 (11.6%) cases of meningitis. The lactose fermentors are most resistant to Ampicillin and most sensitive to Imipenem. Staphylococci were 30(21.8%), most of the Staphylococci were Methicillin resistant Staphylococci (MRSA) and most were sensitive to Vancomycin and Linezolid. There are two cases of Streptococcus pneumonia and Ralstonia picketti and one case each of Ochrobactrum anthropi, Pasteurella spp, Vibrio metschnikovii, Aeromonas hydrophila and Chromobacterium violaceum.

Conclusions: Bacterial meningitis caused by gram negative bacilli is most common in our setup. Gram positive bacteria are most resistant to Penicillins and most sensitive to Vancomycin and Linezolid. The lactose fermenter gram negative rods are most resistant to Ampicillin and most sensitive to Imipenem. Non fermenter gram negative rods are most resistant to Doxycycline and most sensitive to Pipercillin Tazobactam.

Keywords: etiology, CSF, antibiotic resistance pattern, LGH.

Introduction

Bacterial meningitis is a serious disease that causes inflammation of meninges of the brain, particularly the arachnoid and piamater. It is also notorious for producing detrimental long-term clinical manifestations and life threatening consequences.[1] Meningitis may be due to medical causes or injury. Head injury is the surgical emergency that may be open or closed. In addition contusions to the brain, hematoma, brain abscesses can causes meningitis, encephalitis, hydrocephalus and several other drastic complications and outcome. Bacterial meningitis may appear even after years and decades after the initial injury. Besides urgent surgery, abrupt antimicrobial therapy against most common causative microorganism is also initiated.[2,3]

There are two stages of brain injury. The primary brain injury is due to mechanical impacts applied to cranium and brain at the instance of smash, leads to either focal or disperse damage, whereas the secondary brain injury is a outcome of complicating processes initiated by the primary injury. These induce neuroinflammation by activation of the inborn immune reaction, such as complement activation, release of pro-inflammatory cytokines and oxidative burst of polymorphonuclear cells coupled with the discharge of proteolytic and neurotoxic enzymes.[3,4]

Punjab Institute of Neurosciences is the first and foremost institute in public sector where the patients with head injury from all over the Punjab, are brought for neurosurgery.[4]

It is need of the hour to carry out more researches on

The etiology and most common isolated bacterial agent from the meningitis cases so that timely initiation of the appropriate antimicrobial therapy reduces the mortality and morbidity of the patients. Moreover it decreases the burden on the socioeconomic situation of the patients and health resources of the country. Therefore this study was planned to obtain data on commonly isolated etiological agent and their antimicrobial resistance pattern from the admitted patients in the neurosurgical wards.

Methods

The present study was a descriptive cross sectional study. A total of 511 specimen of cerebrospinal fluid were collected from the patients admitted in Lahore General Hospital (LGH) during October 2015 to April 2017. The samples were transported to Microbiology laboratory in Pathology Department of Post Graduate Medical Institute, Lahore for culture and sensitivity. The CSF samples from Neurosurgical wards, Neuro ICU were also included in the study.[5,6] The gross appearance of CSF (clear, slightly turbid, cloudy, presence of blood or clots) was noted. The specimens were inoculated on Blood agar, Mac Conkey agar plate, and Chocolate agar (prepared as instructions given by the manufacturer) and were incubated at 35 37°C aerobically. After 24 hours of incubation, the plates were examined for the presence of bacterial colonies. Organisms were identified by standard microbiological methods, which include colony morphology, Gram's staining, and biochemical tests (catalase test, coagulase test oxidase test, citrate test, Triple suger Iron test, Urease test, Indole Test and Motility test). Some of the non lactose fermenting gram negative rods have very unusual morphology and were identified by API NE strips.

Antibiotic sensitivity test was conducted on pure culture isolates employing the modified Kirby-Bauer disc diffusion method for determining the susceptibility of microorganism to different antimicrobials. The appropriate sensitivity discs were selected according to CLSI 2016 guidelines. The diameters of growth inhibition around the discs was measured and interpreted as sensitive, intermediate or resistant as per the guidelines set by CLSI.

Results

Out of 511 CSF culture samples, 137 (26.81%) were culture positive and 374 (73.18%) were culture negative. Among culture positive sample, the meningitis due to Acinetobacter spp and Pseudomonas spp accounts for 39 (28%) and 32 (23.02%) of the cases. Non fermentor gram negative rods are most resistant to Doxycycline and most sensitive to Pipercillin Tazobactam. The meningitis caused by E.coli and Klebsiella spp are responsible for 12 (8.7%) and 16 (11.6%) cases of meningitis. The lactose fermentors are most resistant to Ampicillin and most sensitive to Imipenem. Staphylococci were 30(21.8%), most of the Staphylococci were Methicillin resistant Staphylococci (MRSA) and most were sensitive to Vancomycin and Linezolid. There are two cases of Streptococcus pneumonia and Ralstonia picketti and one case each of Ochrobactrum anthropi, Pasteurella spp, Vibrio metschnikovii, Aeromonas hydrophila and Chromobacterium violaceum.

Discussion

Any type of brain insult is the pre-requisite for bacterial meningitis that require urgent diagnosis and aggressive therapy.[9] The choice of initial antimicrobial therapy is based on the most common isolated pathogen, widespread in a specific ecological area and its antibiotic sensitivity pattern in that particular area.[8,9] **Fig-1** Demonstrates that out of total 511 CSF samples, 137 (26.81%) were culture positive and 373 (73.19%) were culture negative.

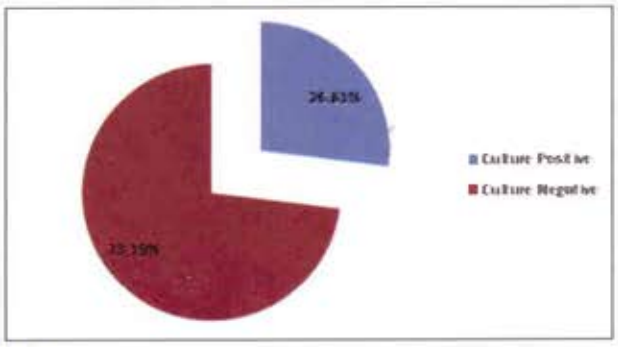

Fig-1: Number of cultures positive for bacterial growth (n= 511).

Various microorganisms isolated and their percentage is shown in **Table-1**. In our study, the meningitis due to Acinetobacter species and Pseudomonas species account for 28% and 23.02% cases. In a study conducted by Sonavane and Baradkar, the isolation rate of Acinetobacter and Pseudomonas is of the order of 20.93% and 23.25% respectively.[13] In our study, the meningitis caused by fermenting gram negative rods such as *E.coli* and Klebsiella are responsible for 8.63% and 11.51% cases of meningitis. In a study conducted by Rajesh Soni, *E.coli*[14,15,16]

and Klebsiella[17,18] account for 4 (16.6%) and 3 (12.5%) cases respectively.[19] In our study, Staphylococci caused 21.58% of the bacterial meningitis cases. In a study conducted by Gitali Bhagawati and her colleagues in Guwahati Medical College and Hospital, Guwahati, Assam, India, staphylococci are responsible for 15 (29.41%) cases.[10] There is 1.43 % case of meningitis caused by *Streptococcus pneumoniae* in our study. In literature, *Streptococcus pneumonia* is recognized as an proven cause of meningitis.[11,12]

Table-1: Various bacterial pathogens isolated from CSF samples (n= 137).

Pathogen Isolated	Frequency	Percentage
Acinetobactor baumanii	39	28.05%
Pseudomonas aeroginosa	32	23.02%
Staphylococcus species	30	21.58%
Klebsiella spp	16	11.51
E.coli spp	12	8.63%
Ralstonia picketti	2	1.43%
Streptococcus Pneumoniae	2	1.43%
Ochrobactrum anthropi	1	0.7%
Aeromonas salmonicida	1	0.7%
Vibrio metschnikovii	1	0.7%
Chromobacterium	1	0.7%
Violaceum	1	0.7%
Pasteurella spp	1	0.7%

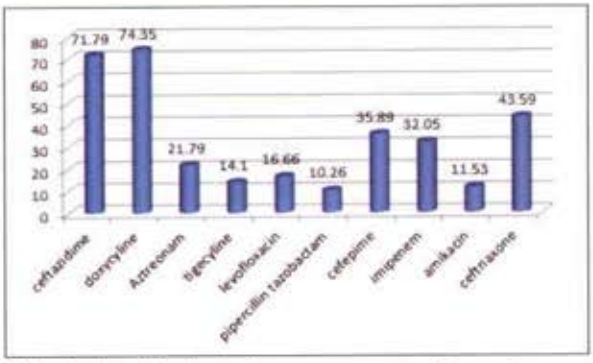

Fig-2: Antibiotic resistance pattern of non lactose fermentors (n=78)

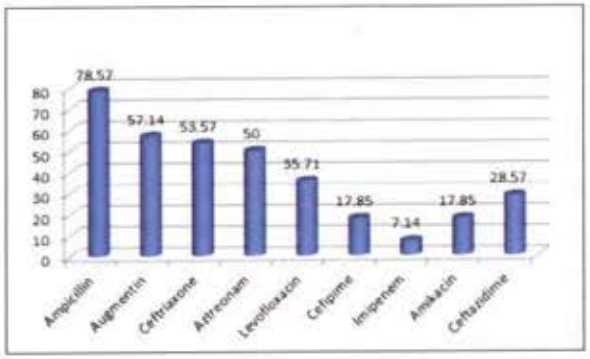

Fig-3: Antibiotic resistance pattern of lactose fermentors (n= 28)

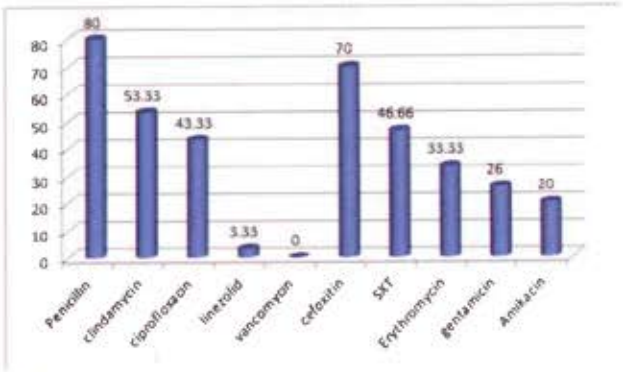

Fig-4: Antibiotic resistance pattern of Staphylococci (n= 30)

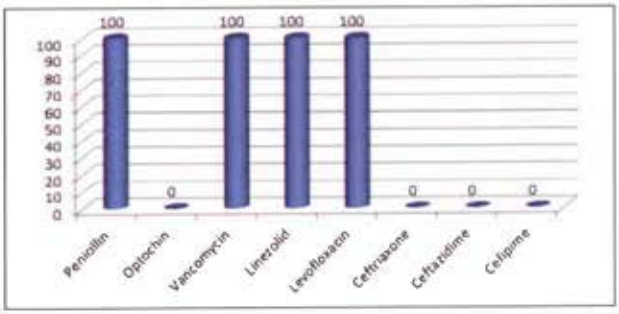

Fig-5: Antibiotic resistance pattern of Streptococci (n=2).

In our study, there is 0.7% case of meningitis caused by *Ochrobactrum anthropi*. In literature, Chang and his colleagues mentioned about three cases of meningitis caused by *Ochrobactrum anthropi*.[20] Meningitis caused by pasteurella account for 0.7% cases in our study. Pasteurella species is the cause of meningitis in literature as in a case report written by Minton published in post graduate medical journal in which a 38 year old man had developed meningitis by Pasteurella following dog bite.[21] Another brief report was written by Christelle Guillet in 2007 in clinical infectious diseases about Pasteurella sepsis and meningitis.[22] In our study, 0.7% case was caused by *Chromobacterium violaceum*. There were several cases reported in India in a study conducted by Karthik and his friends.[23] In our study,1.43% cases of meningitis were caused by *Ralstonia picketti*. In literature, *Bonatti wrote in his case report about Ralstonia meningitis, isolated in United States in 2009.*[24] *There is 0.7% case of meningitis caused by Vibrio metschnikovii* in our study. Kim and Kim

performed a study in Korea, demonstrating *Vibrio vulnificus*, a cause of meningoencephlitis [25]. There is 0.7% case of *Aeromonas salmonicida* meningitis in our study. In literature, recently a case of *Aeromonas hydrophila* meningitis has been reported in India [26].

Antibiotic resistance pattern of non lactose fermenters is shown in **Fig-2.** Non fermenter gram negative rods are most resistant to doxycycline and most sensitive to pipercillin tazobactam. Antibiotic resistance pattern of lactose fermenters is shown in **Fig-3**. The lactose fermenters are most resistant to ampicillin and most sensitive to imipenem. Antibiotic resistance pattern of Staphylococci is shown in **Fig-4**. Most of the Staphylococci isolates were methicillin resistant Staphylococci (MRSA) and most were sensitive to vancomycin and linezolid.

Conclusion

Bacterial meningitis caused by gram negative bacilli is most common in our setup. Gram positive bacteria are most resistant to Penicillins and most sensitive to Vancomycin and Linezolid. The lactose fermenter gram negative rods are most resistant to Ampicillin and most sensitive to Imipenem. Non fermenter gram negative rods are most resistant to Doxycycline and most sensitive to Pipercillin Tazobactam.

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Original Article

ACCURACY OF TEAR BREAKUP TIME IN CLINICALLY SUSPECTED DRY EYE DISEASE PATIENTS

Muhammad Numan Sarfraz, Khawaja Mohsin Ihsan and Maryam Zulfiqar

Objective: To determine the diagnostic accuracy of tear breakup time in comparison to clinical findings for the diagnosis of dry eye disease.

Methods: This cross sectional study was carried out at department of Ophthalmology, Services Institute of Medical Sciences, Services Hospital, Lahore for 6 months, from March 1st, 2016 to 31st of August 2016. The Non probability consecutive sampling technique was used. Informed consent was taken from all the patients. Complete ophthalmic examination performed prior to TBUT (Tear breakup time) evaluation. This included detailed anterior and posterior segment examination on slit lamp. TBUT measurement was done. All the collected data was entered and analyzed on SPSS for Windows, version 21.0.

Results: The mean age of patients was 44.17±15.11 years. The male to female ratio was 1:1.2.In this study the sensitivity, specificity and diagnostic accuracy of TBUT was 93.33%, 93.55% and 93.5% respectively taking clinical findings as gold standard.

Conclusions: It has been proved in our study that the tear breakup time is a useful tool with high diagnostic accuracy in diagnosis of clinical suspected cases of DED (Dry eye disease).

Keywords: dry eye disease (DED), tear breakup time (TBUT), diagnosis accuracy.

Introduction

Dry eye is a major tear deficiency disorder that affects millions of people worldwide. It causes chronic ocular irritation and is extremely distressing both for patients and ophthalmologists.[1] The accurate diagnosis and classification of DED is challenging owing to wide variations in symptoms and lack of a single reliable clinical assessment. In addition, changes and severity of clinical signs often do not correspond to patient-reported symptoms.[2]

According to the current perspective, dry eye disease (DED) is a condition that affects the health of the ocular surface, both the cornea and conjunctiva.Various epidemiological studies have used slightly different criteria to define dry eye disease.[3] A study[4] shows that the prevalence of dye eye symptoms increases with the age and has been reported in approximately 5% to 30% of the study population. In addition to age, the risk factors for the development of dry eye include race and ethnicity(greater incidence seen in Chinese, Hispanics, Asians and Pacific islands descents) female sex especially those receiving estrogen replacement therapy, presence of ocular conditions such as blephritis, meibomian gland dysfunction and conjunctival disease. Additionally a study[5] shows that DED is more prevalent among Japanese visual display terminal users. Other risk factors for DED, includes immune-mediated diseases such as rheumatoid arthritis, thyroid diseases, and atopic disorders e.g. Asthma.

The measurement of tear film stability is fundamental to the diagnosis of dry eye.[6] A variety of methods are available to assess different aspects of the tear film and provide insights into its "stability". TBUT, introduced by Norn,[7] remains the most frequently used diagnostic test to determine tear film instability.[8] Generally, assessing the TBUT involves the observation of an illuminated grid pattern reflected from the anterior tear surface. A regular image of the reflected target indicates a stable tear film. The time (in seconds) from the last blink to the appearance of the first discontinuity or break in the reflected image is recorded and graded accordingly. TBUT can also be measured by functional visual acuity assessment, corneal topography, interferometry, aberrometry, and confocal microscopy.

Methods

This cross sectional study was carried out at department of Ophthalmology, Services Institute of Medical Sciences, Services Hospital, Lahore for 6 months, from March 1st, 2016 to 31st of August 2016. The Non probability consecutive sampling technique was used. After approval from Ethical Research Board, Services Institute of Medical Sciences/Services Hospital Lahore. A Sample size of 200 cases was planned with 95% confidence level, 9% margin of

Error for25.97% specificity of tear break up time. Informed consent was taken from all the patients. Complete ophthalmic examination was performed prior to TBUT evaluation. This included detailed anterior and posterior segment examination with slit lamp biomicroscopy.

Clinically diagnosed dry eye patients were included in this study and was confirmed if patient had at least 3 out of 4 of the following. i) Symptoms of dry eye i.e. any one (burning sensation, watering and occasional blurring of vision), ii) Mucous strands on slit lamp examination, iii) Corneal erosions on slit lamp examination, iv) Relief of symptoms by instillation of artificial tears. Patients having ocular inflammation, infection or neoplasia, were excluded from this study.

TBUT was measured with a strip of 2% fluorescein which was applied to the inferior conjunctival fornix. The subject was asked to blink three or four time in order to distribute fluorescein efficiently and evenly on the cornea. After that the subject was examined on slit lamp using cobalt blue light. Time between the last blink and the first appearance of dry spot was measured by stop watch. This was repeated at two different visits (2 times in succession during a single visit with at least 1hr interval in between) with at least 24hr intervals in between two visits to calculate reproducibility by taking the clinical findings as gold standard9.All the collected data was entered and analyzed on SPSS software package(SPSS for Windows, version 21.0; SPSS). Mean and standard deviation was calculated for quantitative variable like age and TBUT. Frequency and percentage was calculated for qualitative variables like diagnostic accuracy, gender, dry eye on TBUT and clinical finding. Effect modifiers like gender and age were calculated through stratification. Post stratification chi-square test was applied by taking p-value$\leq$0.05 as significant. A 2×2 table was generated to calculate the sensitivity, specificity, PPV (Positive Predictive Value), NPV (Negative Predictive Value) and diagnostic accuracy of dry eye disease by taking clinical finding as gold standard.

Results

In this study we included, 200 patients with the mean age of 44.17±15.11 years. The minimum age of patients was 18 years while maximum age of patients was 70 years. **(Table-1)**. In our study 93(46.50%) patients were male and 107(53.50%) patients were females. The male to female ratio was 1:1.2 **(Fig-1)**. The mean average TBUT of the patients was 11.09±2.80. The minimum TBUT was observed as 5 while maximum TBUT was 15. **(Table-2)**. On TBUT, positive dry eye was diagnosed in 52(26%) patients while 148(74%) patients were negative for dry eye or having normal eye **(Fig-2)**. On clinical examination, symptoms of dry eye were noted in 109(54.5%) patients and the symptoms were absent in 91(45.5%) patients out of 200 patients **(Table-3)**. Mucous strands were noted in 91(45.5%) patients and were absent in 109(54.5%) patients **(Table-4)**. In this study the corneal erosion was found in 92(46%) patients and was absent in 108(54%) patients **(Table-5)**. The relief of symptoms was observed in 96(48%) patients while remaining patients did not show relief of symptoms **(Table-6)**. The clinical examination diagnosed 45(22.50%) patients as having positive dry eye and was negative in 155(77.50%) **(Fig-3)**. The sensitivity, specificity, PPV, NPV and diagnostic accuracy of TBUT was 93.33%, 93.55%, 80.77%, 97.97% and 93.5% respectively taking clinical findings as gold standard. **(Table-7)**. In $\leq$ 50 years patients, the sensitivity, specificity, PPV, NPV and diagnostic accuracy was 93.55%, 91.67%, 78.38%, 97.78% and 92.13% respectively. In the patients of more than50 years of age the sensitivity, specificity, PPV, NPV and diagnostic accuracy was 92.86%, 96.61%, 86.67%, 98.28% and 95.89% respectively **(Table-8)**.

Table-1: Descriptive statistics of age (years).

	N	200
	Mean	44.17
Age (Years)	SD	15.11
	Minimum	18
	Maximum	70

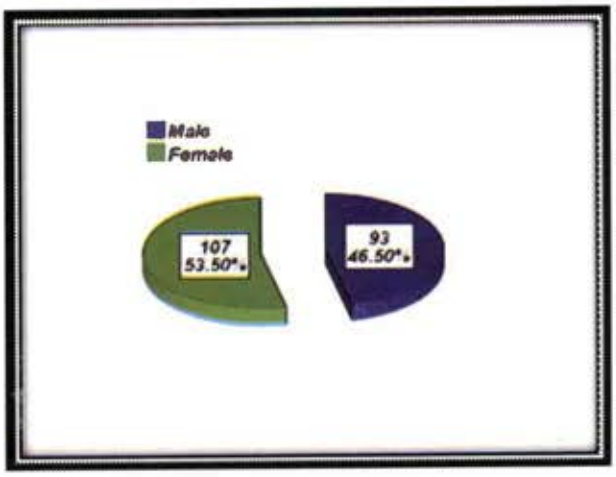

Fig-1: Frequency distribution of gender.

Table-2: Descriptive statistics of average TBUT.

	N	200
	Mean	11.09
Average TBUTT	SD	2.80
	Minimum	05
	Maximum	15

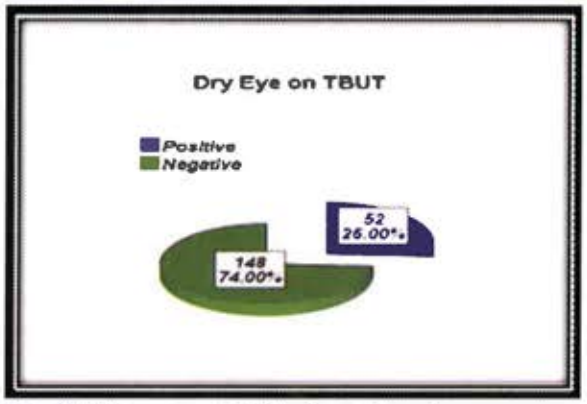

Fig-2: Frequency distribution of gender.

Table-3: Frequency distribution of symptoms.

		Frequency	Percent
	Yes	109	54.5
Symptoms	No	91	45.50
	Total	200	100.0

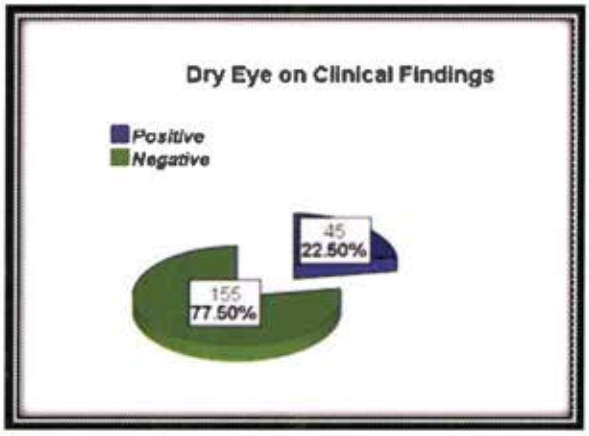

Fig-3: Frequency distribution of dry eye on clinical findings.

Table-4: Frequency distribution of mucous strands.

		Frequency	Percent
	Yes	91	45.5
Mucous Strands	No	109	54.5
	Total	200	100.0

Table-5: Frequency distribution of corneal erosion.

		Frequency	Percent
	Yes	92	46.0
Comeal Erosion	No	18	54.0
	Total	200	100.0

Table-6: Frequency distribution of relief of symptoms.

		Frequency	Percent
	Yes	96	48.0
Relif of Symptoms	No	104	52.0
	Total	200	100.0

Table-7: Comparison of dry eye on TBUT with on clinical findings.

Frequency		On clinical findings Positive	Negative	Total
	Positive	42	10	52
On TBUT	Negative	03	145	148
	Total	45	155	200

Table-7: Comparison of dry eye on TBUT with on clinical findings.

Frequency		On clinical findings Positive	Negative	Total
	Positive	42	10	52
On TBUT	Negative	03	145	148
	Total	45	155	200

Sensitivity	93.33%
Specificity	93.55%
PPV	80.77%
NPV	97.97%
Diagnostic Accuracy	93.5%

Table-8: Comparison of dry eye on TBUT with on clinical findings stratified by age.

Age (Years)		On clinical findings On TBUT	Negative	Negative	Total
	=50	Positive	29	08	37
Dry Eye		Negative	02	88	90
	>50	Positive	14	02	15
		Negative	01	57	58

TBUTT	Age (Years) =50	>50
Sensitivity	91.67%	92.86%
Specificity	91.67%	96.61%
PPV	78.38%	86.67%
NPV	97.78%	98.28%%
Diagnostic accuracy	92.13%%	95.89%%

Table-9: Comparison of dry eye on TBUT with on clinical findings stratified by gender.

Age (Years)	On TBUT	On clinical findings Negative	Negative	Total
Male	Positive	22	04	27
Dry Eye	Negative	02	64	66
Female	Positive	20	05	25
	Negative	01	81	88

TBUTT	Gender Male	Female
Sensitivity	91.67%	95.24%
Specificity	92.75%	94.19%
PPV	81.48%	80%
NPV	96.97%	98.78%%
Diagnostic accuracy	92.47%%	94.39%%

In male patients the sensitivity, specificity, PPV,NPV and diagnostic accuracy was 91.67%, 92.75%, 81.48%, 96.97% and 92.47% respectively, similarly in female patients the sensitivity, specificity, PPV, NPV and diagnostic accuracy was 95.24%, 94.19%, 80%, 98.78% and 94.39% respectively **(Table-9).**

Discussion

TBUT is can be regarded as one of the simplest and the most efficient test for the diagnosis of the dry eye syndrome. It has however, received a certain amount of criticism. Lemp[10] has reported that TBUT has high reproducibility in dry eye disease patients while Norn[11] has questioned its clinical significance.

Our results are in agreement with the study by Rehman A et al.[12] demonstrated sensitivity of the TBUT test was found to be 88.88%.

Another study by Lee JH et al [9] presented the high reproducibility of TBUT in DED patients i.e. 95%.

In an epidemiological study of dry eye in elderly Chinese in Taiwan, Lin et al[13] found that of the 1361 participating in the study, 33.7% had symptoms of the condition (reporting one or more dry eye symptoms often or all time). Among those with symptoms, 78.9% had a low TBUT (<10s). This finding is comparable to our results.

Study by Bhatnagar KR et al[14] concluded that there is strong correlation between MS (Mc Monnies Index scores) and TBUTin normal as well as marginal and pathological dry eye.

Lin P et al. has shown that the most frequently used diagnostic test to determine tear film abnormality was the tear breakup time test which was done on 93% of the participants.[8] Similar results have been reported by Kilic A et al.[15]

In our study the clinically diagnosed positive dry eyes were 45(22.50%) patients and the TBUT diagnosed dry eye patients were 52 (26%) patients. The sensitivity, specificity, PPV, NPV and diagnostic accuracy of TBUT was 93.33%, 93.55%, 80.77%, 97.97% and 93.5% respectively taking clinical findings as gold standard.

We stratified our data for age of patients. In ≤ 50 years patients, the sensitivity, specificity, PPV, NPV and diagnostic accuracy was 93.55%, 91.67%, 78.38%, 97.78% and 92.13% respectively. In >50 years patients the sensitivity, specificity, PPV, NPV and diagnostic accuracy was 92.86%, 96.61%, 86.67%, 98.28% and 95.89% respectively. Thus showing that age has no impact on findings of TBUT and in all age groups, TBUT has high accuracy rate.

We stratified our da a for the gender stratification of patients showed that In male patients the sensitivity, specificity, PPV, NPV and diagnostic accuracy was 91.67%, 92.75%, 81.48%, 96.97% and 92.47% respectively, similarly in female patients the sensitivity, specificity, PPV, NPV and diagnostic accuracy was 95.24%, 94.19%, 80%, 98.78% and 94.39% respectively. Thus showing that gender has no impact on findings of TBUT and for both genders, TBUT has high accuracy rate.

Conclusion

It has been proved in our study that the tear breakup time is a useful tool with high diagnostic accuracy in diagnosis of clinical suspected cases of DED.

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Original Article

TOTAL EXTRA-PERITONEAL REPAIR OF INGUINAL HERNIA IN ADULTS: OUR EXPERIENCE FROM PAKISTAN

Farooq Butt, Ayesha Farooq Butt and Salman Imran Butt

Objective: To determine the outcome of TEP technique among our patients being operated in our setup for IH.

Methods: After approval from ethical review board of our hospital, this retrospective study was started. This study was conducted at Allama Iqbal Memorial Trust hospital, Gujranwala, Medcare International Hospital, Gujranwala and Services Institute of Medical Sciences, Lahore over a period of 2 months from January, 2017 to March, 2017. All the patients of both genders, who had been operated by TEP technique, were included in the study. All the demographic details of these patients were obtained. Also preoperative and post-operative outcome was noted including post-operative complications. All the data were entered on a pre-designed proforma and was analysed using SPSS version 20.0.

Results: A total of 124 patients were operated for TEP in this duration. The mean age of patients was found to be 43.44±14.73 years. Most of the patients in this study were male. The most common side for IH was right side (61.2%). Most of the patients were undergoing for primary surgery for IH and only 7.2% were operated for recurrence. Regarding the per-operative course, the mean operative time for surgery was found to be 57.7±18.58 minutes. None of our patients had received any intra-operative complication. Most common post-operative complication was found to be spinal headache in 8.8%, followed by urinary retention and seroma formation. Also 4 patients developed wound infection. Of 80 patients, whose long-term follow up was available, only 2 patients reported recurrence.

Conclusions: On the basis of this study, we conclude that TEP is a safe technique for IHR having many advantages of lesser scar formation and low complication rate, particularly in experienced hands. Therefore it may be used routinely and al patients with IH can be operated safely with this technique.

Keywords: Laparoscopy; Inguinal Hernia; TEP; TAPP; Minimally Invasive Surgery

Introduction

Inguinal hernia (IH) is one of the most commonly encountered surgical disease in surgery outdoor and inguinal hernia repair (IHR) is also one the most commonly performed surgical procedures. According to an estimate, globally >20 million IHR are performed annually.[1,2] Regarding IHR, many surgical techniques are available. The most commonly used technique worldwide is opentechnique which is a conventional method of IHR. Laparoscopically IHR can be performed either as transabdominal preperitoneal (TAPP) repair or as total extraperitoneal (TEP) repair. Both of these techniques are considered having their own advantages and disadvantage. European Hernia Society (EHS) has recommended TEP approach for laparoscopic IHR than TAPP as in TEP technique, peritoneum is not breeched and all the dissection is done extra-peritoneally, hence the complications including trauma to intra-peritoneal organs, post-operative ileus and port-site hernia are minimal in this technique.[3] But at the same time, TEP is a relatively difficult procedure to learn as intra-peritoneal entrance and the plane is a known passage to any laparoscopic surgeon but extra-peritoneal planes are not a routine subway for anyone, therefore the learning curve for this technique is longer.[4] In a meta-analysis, TEP was found no better than TAPP in terms of post-operative outcome, however, authors admitted that TEP a relatively difficult but safe procedure, particularly in expert hands, but not for novice laparoscopic surgeons.[5] There are some studies available comparing laparoscopic IHR with each other and with the open techniques.[6] However, from our country, minimal data is available over the topic. So we planned this study with the objective to determine the outcome of TEP techniqueamong our patients being operated in our setup for IH.

Methods

After approval from ethical review board of our hospital, we planned this retrospective study. This study was conducted at Allama Iqbal Memorial Trust Hospital, Gujranwala, Medcare International Hospital, Gujranwala and Services Institute of Medical sciences, Lahore over a period of 2 months from January, 2017 to March, 2017. All the patients of both genders, who had undergone IHR by TEP technique, with the age of 18-60 years were included in the study. We excluded those patients whose files were incomplete and complete data was not available. A total of 124 patients were included in the study. Of these, 38 patients were from Allama Iqbal Memorial Trust Hospital, Gujranwala, 29 patients were operated at Medcare International Hospital, Gujranwala and remaining 57 patients were operated at Services Institute of Medical sciences, Lahore. All the procedures were done by authors of this study. All surgeons were fully trained consultant surgeons with more than 10 years experience in laparoscopy. All the demographic details of these patients were obtained. Also preoperative and post-operative outcome was noted including post-operative complications.. Our routine protocol of these centres is to follow patients at 1 week and 3 week. And of recovery is uneventful, no further follow up is recommended. So all patients were contacted via phone also to know about the current status and condition. All the data were entered on a pre-designed proforma and was analysed using SPSS version 20.0.

Results

A total of 124 patients were operated for TEP in this duration. All the file charts of these patients were included and analyzed. The mean age of patients was found to be 43.44 ± 14.73 years. Most of the patients in this study were male. The most common side for IH was right side (61.2%). Most of the patients were undergoing for primary surgery for IH and only 7.2% were operated for recurrence. Also most of IH were of direct type (52.4%). The basic demographic details of the patients are given in **table 1.** All of these patients underwent IHR by TEP technique and no patient needed to be converted to TAPP or open surgery. Among 124 patients operated, 87 patients came for follow up visit in 7-10 days and 17 patients came for visit within 3 weeks of the surgery. It is summarized in figure 1. Regarding the per-operative course, the mean operative time for surgery was found to be 57.7 ± 18.58 minutes. None of our patients had received any intra-operative complication. Regarding post-operative complications, most common was found to be spinal headache in 8.8%, followed by urinary retention and seroma formation. Also 4 patients developed wound infection; however it was only limited to subcutaneous plane in 3 of these cases. One patient had developed deeper infection, which also involved mesh and ultimately caused its infection. This patient was operated at 24th post-operative day for removal of mesh and posterior wall reconstruction by open method. He responded to this management and had uneventful recovery. All data are given in **table 2.** The follow up of our patients ranged from 2 months to 5 years.

Table-1: Demographic and general details of patients.

Age	**43.44±14.73 years**
Gender	
Male	107 (86.2%)
Female	17 (13.7%)
Side	
Right	76 (61.2%
Left	36 (29%)
Bilateral	12 (9.6%)
Indication of Surgery	
Primary	115 (92.7%)
Recurrent	9 (7.2%)
Type of IH	
Direct	65 (52.4%)
Indirect	36 (29%)
Both (Pataloon Hernia	23 (18.5%)

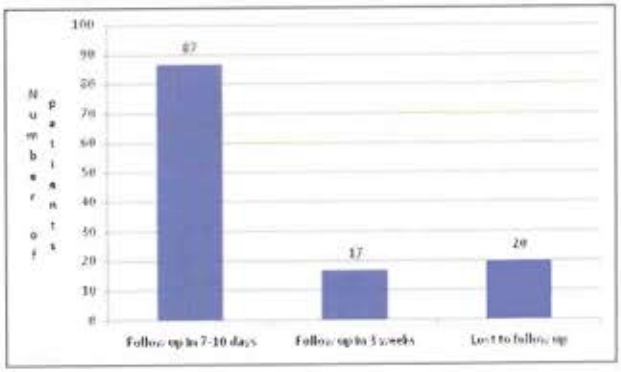

Fig-1: Follow up pattern of patients in this study.

The long term follow up of 80 patients was available and remaining patients were not approachable of these 80 patients only 2 patients reported recurrence.

Table-2: Frequency of complications observed.

Complications	n (%)
Intra-operative complications	0
Post-opraive complications	
Seroma formation	5 (4.0%)
Spinal headache	11 (8.8%)
Urinary retention	6 (4.4%)
Wound infectin	4 (3.2%)
Mesh Infection	1 (0.9%)
Testicular swelling	4 (3.2%)
Recurrence	2 (1.6%)

Discussion

The objective of this study was to determine the outcome of patients undergoing TEP for IH in our setup. We have been performing laparoscopic surgery for IHR from more than a decade at our setup in Pakistan and all the surgeons who performed procedures in this study were well trained laparoscopic surgeons. We had operated 124 patients with TEP for IHR in 5 years duration. In our study, no patient had to be converted to TAPP or open surgery. Also the recurrence occurred in only 2 patients in this series. Our recurrence rate is lower than the other studies reported in the literature.[7] In a large study with long follow-up of 5 years by Eklund et al, the recurrence rate of IH after TEP was found to be 3.5%. In our study, recurrence rate was 1.6% and follow up in our study also ranged upto 5 years.

Understanding the anatomy and structures during TEP surgery, are somewhat new and difficult for new and young surgeons. Therefore many authors have emphasized the need for proper training and initial procedures to be done under supervision by trainees. Also some have emphasized over the specific curriculum for TEP surgery as well as the usage of simulation techniques for its learning.[8,9] Another advantage of laparoscopic IHR and TEP is that both direct and indirect components can be dealt at the same time. Also pantaloon hernia may be dealt with minimal scar formation as compared to open procedure for such cases. In this study, we had operated 12 bilateral (9.6%) and 23 patients (18.5%) with pantaloon hernia.

In our study, most common post-operative complication observed was spinal headache (8.8%), followed by seroma formation (4.0%) and wound infection (3.2%). In another study by Toma H, seroma formation occurred in 1.3% of patients.[10] In the same study, authors found that the co-morbidity of the patient had no significant impact over the post-operative complications. However,the open technique is definitely inferior to TEP in terms of post-operative complications as has been observed in many studies.[11,12] Although in this study, we have not observed pain among patients undergoing TEP, but TEP has been proved to be superior than open surgery in terms of post-operative pain because of lesser size of the wound and lesser damage to the tissue around hernia sac.[13] In a large study comprising 4565 patients with TEP surgery, most common intra-operative complications observed was bladder injury (0.04%) and intestinal perforation (0.09%).[14] However, we had found no such complication in our serious, probably because all of the surgeries done in this series were by consultant laparoscopic surgeons. Also we always use three trocars, which are placed under vision and after proper insufflation, probably this is the reason for no such complication in our study. On the basis of this study, we conclude that TEP is a safe technique for IHR having many advantages of lesser scar formation and low complication rate, particularly in experienced hands. Therefore it may be used routinely and al patients with IH can be operated safely with this technique.

Conclusion

On the basis of this study, we conclude that TEP is a safe technique for IHR having many advantages of lesser scar formation and low complication rate, particularly in experienced hands. Therefore it may be used routinely and al patients with IH can be operated safely with this technique.

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Picture Quiz

Hereditary haemorrhagic telangiectasia

Telangiectasias of the tongue are most consistent with hereditary hemorrhagic telangiectasia. Peutz-Jeghers syndrome does not typically involve the tongue. HHT is characterised by telangiectasia (small vascular malformations) on the skin and mucosal linings, epistaxis (nosebleeds), and arteriovenous malformations (AVMs) in various internal organs. Skin and mucosa telangiectasias are most remarkable on the tongue, hands/fingers, nose, lips, mouth/throat and conjunctiva.

The internal organs that can harbor AVMs often include the lungs, GI tract, brain, liver, and spine. In the brain and lungs, bleeding can seriously endanger life. Anemia may occur due to bleeding from digestive tract AVMs. High-output heart failure may develop in the presence of marked shunting arterial blood to the venous circulation, e.g. when AVMs are present in the liver. Cerebral vascular accidents can occur from embolization from vascular malformations of the pulmonary circulation.

Original Article

RELATIONSHIP BETWEEN HIGH PLACENTAL WEIGHT TO BIRTH WEIGHT (PW/BW) RATIO AND POOR NEONATAL

Shahana Mazhar, Ijaz Ahmed Kharal and Robina Farrukh

Objective: To determine the frequency of high placental weight to birth weight ratio and compare the frequency of poor neonatal outcome in terms of NICU admissions in new borns with normal vs. high placental weight to birth weigth ratio.

Methods: In our study 120 placenta and newborns of mothers with singleton pregnancy at term delivered via spontaneous vaginal delivery or C-section were included. Outcome variables were frequency of placental weight to birth weight ratio and NICU admission.

Results: High PW/BW ratio was recorded in 12 new borns(10.0%),11 new borns required admission in NICU. When compared the frequency of NICU admissions, admission rate significantly higher among new born with high PW/BW ratio as compared to those with normal PW/BW ratio.

Conclusions: High PW/BW ratio was found to be associated with significantly increased frequency of NICU admission as compared to those with normal PW/BW ratio.

Keywords: placental weight, birth weight, PW/BW ratio, NICU admission, APGAR score

Introduction

Neonatal period consists of first 28days of life and is the most vulnerable period. According to an estimate, 130 million neonates are born each year and out of these 4 million die in first 28 days of their life. Neonatal mortality rate in Pakistan is 49/1000 live births which is alarmingly high and necessitates measures to timely identify and manage high risk neonates in future practice.[1]

The placenta is an organ for maintaining pregnancy. The weight of the placenta is "functionally significant" because it is related to villous surface area and fetal metabolism.[2].Appropriate development of placenta is essential for fetal growth and wellbeing.[3] Term placenta is about 23cm in diameter and 2-2.6cm thick.[4] It weighs approximately 350-600g with a mean weight of 590g (15% of neonatal weight)[5,6] The ratio between placental weight and newborn has been reported as 1:6 which vary in different regions[7,8] Certain maternal and fetal conditions influence the fetal and placental weight i.e severe anaemia ,diabetes ,hypertension[9] Abnormally large or small placenta has been found in association with poor perinatal outcome.[10] Studies have been done on different aspects of placenta and fetus but few on P/W /BW ratio which if high and is an indicator of non-reassuring fetal status i-e increased NICU admission, apgar score <7, RDS.[11,12] The purpose of the current study is to determine the association between high PW/BW ratio and increase need of NICU admission which will help in identification of high risk neonates so timely intervention can be done to reduce morbidity and mortality.

Methods

It was a cross sectional study conducted in Department of Obstetrics & Gynaecology Unit- 1V ,Sir Ganga Ram Hospital Lahore, for a duration of six months i-e 7-5-2016 to 6-11-2016. Mothers of 18- 40 yrs of reproductive age, either primigravidas or multigravidas , having singleton pregnancy at term(≥37 weeks of gestation as per dating scan) delivered through vaginal delivery/c-section were enrolled in the study. Detailed history and written informed consent was taken from each parent. Sampling was done by non probability consecutive technique.120 newborns calculated with 95% confidence level and &7% margin of error while taking expected frequency of high placental weight to birth weight ratio to be 19%.Women who were multiparas>5, known diabetic (Fasting Blood Sugar>110mg/dl), hypertensive (Blood pressure>140/90mm of Hg on at least two occasions 4 hours apart) and obese (BMI>30kg/m2), having babies with congenital defects or with low placental weight to birth weight (<10th Percentile)were excluded from study.

120 new-borns who delivered and met the inclusion criteria were enrolled in this study. Need for NICU admission was noted and recorded into the attached

Proforma along with demographic details of the mother. All the weight measurements were done by a staff nurse on a same machine and all the new-borns were examined by a consultant pediatrician. Confounding variables were controlled by exclusion. Data collected from Sir Ganga Ram Hospital through SPSS version 21 after extracting required variables. Numerical variables; age and gestational age presented by mean±SD Categorical variables; mode of delivery, normal and high PW/BW ratio and neonatal admission in normal and high PW/BW groups have been presented by frequency and percentage.

Post stratification chi-square test has been applied taking $p \leq 0.05$ as significant to see the difference between the groups age, parity and mode of delivery to address effect modifiers. Placenta is vital for maintaining pregnancy and promoting normal development of the fetus. High placental weight to birth weight (PW/BW) ratio is an indicator of placental nutrient transport efficiency and has been studied in relation to poor neonatal outcome.[13,14] However, this association was not well established and there were studies which claimed no such association.[15,16] A possible explanation for this controversy among researchers could be the population difference in placental weight for gestational age and placental weight to birth weight ratios.[17] Owing to this controversy in the existing literature.[13-16] population differences and lack of local such published material, need for the present study was felt.

Results

The age of the patients ranged from 18 years to 34 years with a mean of 24.73±4.66 years. Majority (n=90, 75%) mothers were aged above 20 years with only 30 (25.0%) mothers under 20 years of age. There were 42 (42.5%) primiparas with 68 (57.5%)

Table-1: Comparison of frequency of NICU admission across PW/BW Ratio n=120.

Hight PW/BW Ration	NICU Admission		Total	P-Value
	Yes (n=11)	No (n=109)		
Yes (n=12)	4 (33.3%)	8 (66.7%)	12 (100.0%)	0.002*
No (N=108)	7 (6.5%)	101 (93.5%)	108 (100.0%)	
Total	11	109	120	

Table-2: Comparison of Frequency of NICU Admission across PW/BW Ratio and Age Groups n=120.

Age Groups	High PW/BW ratio	NICU Admission		Total	P-Value
		Yes (n=11)	No (n=109)		
<20 Years (m=30)	Yes (n=3)	1 (33.3%)	2 (66.7%)	3 (100.0%)	0.00*
	No (n=27)	1 (3.7%)	26 (96.3%)	27 (100.0%)	
	Total	2 (6/7%)	28 (93.3%)	30 (100.0%)	
21-34 years (n=90)	Yes (n=9)	3 (33.3%)	6 (66.7%)	9 (100.0%)	0.014*
	No (n=81)	6 (7.4%)	75 (92.6%)	81 (100.0%)	
	Total	9 (10.0%)	81 (90.0%)	90 (100.0%)	

Table-3: Comparison of Frequency of NICU Admission across PW/BW Ratio and Parity Groups n=120.

Parity	High PW/BW ratio	NICU Admission		Total	P-Value
		Yes (n=11)	No (n=109)		
Primiparas (n=51)	Yes (n=6)	2 (33.3%)	4 (66.7%)	6 (100.0%)	0.13*
	No (n=45)	2 (4.4%)	43 (95.6%)	45 (100.0%)	
	Total	4 (7.8%)	47 (92.2%)	51 (100.0%)	
Multiparas (n=69)	Yes (n=6)	2 (33.3%)	4(66.7%)	6 (100.0%)	0.049*
	No (n=63)	5 (7.9%)	58 (92.1%)	63 (100.0%)	
	Total	7 (10.1%)	62 (89.9%)	69 (100.0%)	

Table-4: Comparison of Frequency of NICU Admission across PW/BW Ratio and Gestational Age Groups (n=120.

Gastational Age	High PW/BW ratio	NICU Admission		Total	P-Value
		Yes (n=11)	No (n=109)		
37-39 Weeks (n=57)	Yes (n=9)	3 (33.3%)	6 (66.7%)	9 (100.0%)	0.036*
	No (n=45)	8 (8.3%)	44 (6.7%)	48 (100.0%)	
	Total	7 (12.3%)	50 (87.7%)	57 (100.0%)	
40-42 (n=63)	Yes (n=3)	1 (33.3%)	2 (66.7%)	3 (100.0%)	0.050*
	No (n=60)	3 (5.0%)	57 (95.0%)	60 (100.0%)	
	Total	4 (6.3%)	59 (93.7%)	63 (100.0%)	

Table-5: Comparison of Frequency of NICU Admission across PW/BW Ratio and Mode of Delivery (n=120.

Mode of Delivery	High PW/BW ratio	NICU Admission		Total	P-Value
		Yes (n=11)	No (n=109)		
Simple Vaginal Delivery(n=87)	Yes (n=7)	2 (28.6%)	5 (71.4%)	9 (100.0%)	0.037*
	No (n=80)	5 (6.3%)	75 (93.8%)	48 (100.0%)	
	Total	7 (8.0%)	80 (92.0%)	57 (100.0%)	
Elective Caesarean Section (n=33	Yes (n=5)	2 (40.0%)	3 (60.0%)	5 (100.0%)	0.038*
	No (n=28)	2 (7.1%)	26 (92.9%)	28 (100.0%)	
	Total	4 (12.1%)	29 (87.9%)	33 (100.0%)	

multiparas. Gestational age of the newborns ranged from 37 weeks to 42 weeks with a mean of 39.40±1.45 weeks. It was vaginal delivery in 87 (72.5%) patients with elective caesarean section in 33 (27.5%) patients. High PW/BW ratio was recorded in 12 (10.0%) newborns. 11 (9.2%) newborns required admission to neonatal intensive care unit . When compared the frequency of NICU admission was significantly higher among newborns with high PW/BW ratio (33.3% vs. 6.5%; p=0.02) as compared to those with normal PW/BW ratio as shown in Table 1. Similar significant difference was observed across all age, parity, gestational age and mode of delivery groups as shown in **Tables 1- 5.**

Discussion

In the present study, the age of the patients ranged from 18 years to 34 years with a mean of 24.73±4.66 years. Majority (n=90, 75%) mothers were aged above 20 years with only 30 (25.0%) mothers under 20 years of age. A similar age group distribution has been reported previously by Nayak et al. who observed 82.1% of such mothers in the age group 21-34 years in India.[9] Janthanaphan et al. in a similar study reported much higher frequency of this age group (89.9%) in Thai population.[16]

There were 42 (42.5%) primiparas with 69 (57.5%) multiparas. Our observation matches with that of Nayak et al. who also observed that 55.4% of the mothers were multiparas.[15] It was simple vaginal delivery in 87 (72.5%) patients with elective caesarean section in 33 (27.5%) patients. Previously, Janthanaphan et al. also observed SVD among 74.8% of cases with caesarean delivery in only 25.2% cases.

High PW/BW ratio was recorded in 12 (10.0%) newborns. A similar frequency of high PW/BW ratio has been reported previously by Janthanaphan et al. (10.0%), Nayak et al. (9.84%) and Shehata et al. (9.93%).[14,15,16] 11 (9.2%) newborns required admission to neonatal intensive care unit. A similar frequency of NICU admission has been reported previously by Madkar et al. (8.5%).[13] However, much lower frequency of NICU admission was observed by Janthanaphan et al. (5.0%).[16] While Nayak et al. reported much higher frequency of 16.1%. When compared the frequency of NICU admission was significantly higher among newborns with high PW/BW ratio (33.3% vs. 6.5%; p=0.02) as compared to those with normal PW/BW ratio. Similar significant difference was observed across all age, parity,

Gestational age and mode of delivery groups. Our results are in line with those of Madkar et al. who also observed significantly increased frequency of NICU admission among neonates with high PW/BW ratio (30.0% vs. 7.5%; p=0.01).

The present study is first of its kind in local population and has found high placental weight/ birth weight ratio among 10.0% deliveries. This high PW/BW ratio was found to be associated with significantly increased frequency of neonatal ICU admission (33.3% vs. 6.5%; p=0.02). Thus a high PW/BW ratio can be used to identify a high risk neonate and anticipated measures should be taken to decrease the morbidity and mortality in future practice.

Conclusion

Poor neonatal outcome measured as significantly increased frequency of neonatal ICU admission (33.3% vs. 6.5%;p=0.02), had a significant relationship with High placental weight/birth weight ratio , found in 12(10.0%) deliveries as compared to those with normal PW/BW ratio regardless of mother's age ,gestational age, parity and mode of delivery.

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Original Article

ASSOCIATION OF SOCIAL SUPPORT FROM FAMILY ON MOTHERS DECISION TO BREASTFEED THEIR BABIES

Fatima Haroon, Anjum Iqbal, Wali Muhammad and Hamid Javed Qureshi

Objective: To describe the relationship of social support from family on mothers behavior to breastfeed her baby.

Methods: A total of 200 mothers having children less than six months of age coming to vaccination center of DHQ Hospital II, Okara were interviewed. Questions about demographics, feeding practices and social support from family were asked. Chi square analysis was conducted to compare feeding practices with hypothesized correlates.

Results: 43% women of total 200 were below 25 years of age and 57% above 25 years of age. 93.5% were Punjabi speaking and 6.5% were other languages speaking. Majority (99.4%) were Muslims.69% families had income below Rs 10,000 per month. 44.6% mothers initiated breastfeeding in the first hour after birth. Early initiation of breastfeeding was associated with social support from family/in laws (2 =13.978, p=0.001, DF=1). Social support from family was also significantly associated with exclusive breastfeeding (2 =17.454, p=0.001, DF=1).

Conclusions: Early initiation and exclusive breastfeeding is associated with social support from family.

Keywords: exclusivebreastfeeding, early initiation of breastfeeding, social support from family.

Introduction

Newborns are future of any nation, their proper physical, mental and social grooming is of utmost necessity and it should be the focal point of our future planning. The process of newborn care revolves around many disciplines, like good nutrition, safe environment, good education etc. Out of this, nutritional care is of prime importance and the process of nutritional care starts right at the time of conception. Healthy mothers living in safe and healthy environment delivers a healthy baby. After the safe conduction of delivery, feeding of the baby starts. It is an established fact that at that moment, breast milk is an ideal food for the infant. Human milk provides 1.1gm proteins,[1] 3.4gm fat, 7.4gm lactose, 28mg calcium, 88gm water per 100ml and 70kcals of energy per 100ml.It is always fresh and bacteriologically safe for a child. It is more easily absorbable than formula milk.[2] The scientific literature which is reviewed before conducting this research suggested that early initiation of breastfeeding is associated with illiteracy, delivery by a midwife and home births. Exclusive breastfeeding is associated with lower social class, illiteracy, older maternal age, place of delivery (home versus at a hospital), breastfeeding support at the place of birth and in the community, and traditional birth attendents.[3-6] Social support has been shown to increase breastfeeding rates. In a study where researcher took a sample of 746 women, significant difference were found in perceived benefits by various systems of support for breastfeeding initiation ($p< 0.05$).[13] In another study,over 40% of participants' partners preferred breastfeeding and half had no infant feeding preference. Only about 20% of participants' mothers or mothers-in-law preferred breastfeeding, and less than 10% reported that all of the 3 significant family members (partner, mother, and mother-in-law) preferred breastfeeding. The partner's preference for infant formula or mixed feeding (odds ratio [OR], 2.60; 95% confidence interval [CI], 1.43-4.71) or having no preference (OR, 1.64; 95% CI, 1.16-2.30) was strongly associated with higher odds of stopping breastfeeding before 1 month.[14]

Methods

It was a cross sectional study. Mothers having children less than six months of age were interviewed once. These interviews were conducted from May 2011 to June 2011.This study was conducted at District Head Quarter Hospital (South City) Okara. The study was conducted at the EPI center of this hospital. The unions in the catchment area were CHAK 50/2L, CHAK 52/2L, CHAK 53/2L, CHAK 55/2L, CHAK 34/2L, CHAK 33/2L, CHAK 56/2L, CHAK 33/2R, CHAK 45/2L, CHAK 5/4L, CHAK 35/2L. A

representative sample was calculated by epi-info. Sample size was 200. The mothers who agreed to participate in the study were selected. It was an anonymous survey. No personal information about the study participants was obtained. Informed written consent was taken from participating mothers.

Data was collected using structured and pretested questionnaire. It contained closed and open ended questions. Questions were about infant feeding practices using 24 hours and 7 day recall. The survey also included questions about potential determinants of breastfeeding practices including socio demographic characteristics, information about health system (and in particular where women delivered their babies), mother's work and childcare, and social support for breastfeeding.

For the purpose of this study, an exclusively breastfed child was one who received only breast milk in the previous 24 hours, with no other liquid or solids, with the exception of drops or syrups consisting of vitamins, mineral supplements, or medicines. Predominant breastfeeding was defined as breast milk in the previous 24 hours, along with water, water based drinks (sweetened and flavored water teas), fruit juice and oral rehydration salts (ORS), but no other liquids or solids. Data were also collected on feeding patterns in 7 days prior to interview. The survey was pretested among 10 individual mothers having children less than 6 months of age who were also living in the study site. After pretesting the questionnaire was modified to make it more culturally appropriate and understandable. Two female interviewers, who were employees of DHQ Hospital (south city) Okara, carried out all the interviews. Two day training for the survey was given to them

Data was entered using SPSS software version 19 and analyzed. The distribution data was presented in percentages, frequencies, means, and standard deviation. Test of significance; Chi-square test or fisher Exact test where appropriate were used.

Results

Two hundred mothers were interviewed who came to EPI center of District Head Quarter hospital (south city) Okara. Dependent variables were early initiation and exclusive breastfeeding while independent variables were mother age, mother education, husband education, income and social support from family and husband. It was found that 43% women were below 25 years of age and 57% were above 25 years of age. Regarding the language 93.5% were Punjabi speaking and 6.5% were other languages speaking. As far as marital status of women was concerned, 98.7% were married and 1.3% wasdivorced/widowed. In the study sample, 84.6% women's age at marriage was below 25 and 15.4% were above 25 years. Majorities (99.4%) were Muslims and only (0.6%) were non-Muslims **(Table-1).** The results of education level of mothers showed that 47.5% mothers were illiterate, 30% were under matric, 15% got education up to matric and only 7.5% were post matric. **(Table -2)**

The range of age of husband was between 20-50 years. The mean of age was 31 ± 5.413 years. Socio economically 69% families have income below Rs 10,000 per month and 31% families have income

Table-1: Demographic characteristics of study population.

Characteristic	No	Percentage
Study population	200	100
Mother's age (years)		
= 25 years	86	43
> 25 years	114	57
Mother's Language		
Punjabi	187	93.5
Other Language Speaking	13	6.5
Marital Status		
Currently Married	196	98
Divorced / wldow	04	02
Age at first marriage		
=25 years	187	93.5
>25 years	13	6.5
Religion		
Muslim	199	99.5
Non-Muslim	01	0.5

Table-2: Frequency distribution by mothers education.

Categories	No	Percentage
Illiterate	95	47.5
Under Matric	60	30.0
Matric	30	15.0
Post Matric	15	7.5

above Rs 10,000 per month. Based on monthly household income most of women belonged to poor class.[7] 89.5% (179) women felt social support from their husband for breastfeeding while only 21 mothers (10.5%) were not supported socially by their husbands. Frequent breastfeeding is significantly associated with social support from husband (χ^2 =5.963, p =0.015, df =1). Frequent breast feeding was found more in women supported by the husband (93.6 %). 113 (56.6%) mothers told that someone had spoken about breast feeding and 87 (43.5%) mothers had no such experience. When they were asked about any advice given from the neighboring mothers about breast feeding, 103 (51.5%) replied yes and 97 (48.5%) mothers replied No. A statistically significant association (χ^2 = 4.341, p =0.03, df =1) was found between exclusive breast feeding and advice from neighboring mothers.102 (51%) mothers were also supported by their in laws and 98 (49%) were not supported by their in-laws. Social support from in-laws is significantly associated with exclusive breast feeding (χ^2 = 17.454, p = 0.000, df=1).

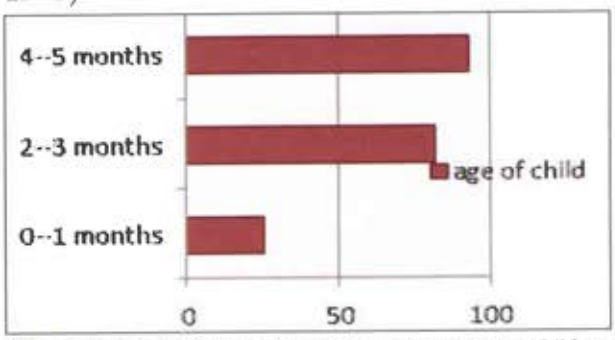

Fig-1: Frequency distribution of age of participating children.

Table-3: Association of variables with exclusive breastfeeding.

Variables	Yes	No	Df	P-Value
Social support from husband	89.5%	10.5%	5.963	0.015
Someone spoken about breastfeeding	56.5%	43.5%	1.048	0.306
Advice from neighboring mothers	***51.5%***	48.5%	4.341	0.03
Socioal support from in-laws	51%	49%	17.454	0.001
Ever attended breastfeeding class	14%	86%	5.118	0.024

Discussion

Breast feeding practices are relatively extensively studied in urban and peri-urban areas of big cities like Lahore and Karachi in Pakistan. Rural and far flung areas are virtually ignored and little is known about the prevalence and practices of breastfeeding in these areas as about 68% of population in our country live in these areas.

Peri-urban Okara city provides a culture that supports breast feeding. Majority of mothers have breastfed their babies at some point. However, breastfeeding practices were far from optimal. 56% of mothers in this sample did not initiate breastfeeding in the first hour after birth, 37% did not exclusively breastfed in the previous 24 hours, and 47% had given a bottle in the previous day, compared to findings of a study in Lahore in which54% mothers exclusively breastfed their child.[8] This community- based study identified social support and the educational status of mother i.e. illiteracy as the significant predictors of exclusive breastfeeding, same findings were noted by other researchers.[9-10] Younger age of child increases the likelihood of exclusive breastfeeding.[11-12]

A study in Mexico by Perez Escamilla and colleagues points to social support as a major determinant of exclusive breastfeeding. This peri-urban Okara study also provides evidence that social support from husband and in-laws are associated with optimal breast feeding practices. Social support as measured by given advice from neighboring mothers about breast feeding is associated with optimal breastfeeding practices. However the measures of social support used in this study were limited.With respect to study limitations, as the data were collected by the mother's recall post-delivery, it was not possible to obtain certain information such as whether and how expectant mothers intended to breastfeed.

Conclusion

Early initiation and exclusive breastfeeding is associated with social support from family.

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Original Article

ROLE OF PROPER FASCIAL CLOSURE IN REDUCING PORT SITE HERNIA AFTER LAPAROSCOPIC SURGERY

Usman Ali Rahman, Usman Ismat Butt, Sami Ullah Bhatti1, Adil Ifthikar, Maliha Adil1 and Muhammad Umar

Objective: To determine the frequency of port site hernia in patients undergoing laparoscopic surgery in our setup.

Methods: It was a descriptive Case series carried out at Department of surgery, Services Hospital Lahore from August 2012 to May 2013. 100 patients fulfilling the inclusion criteria recruited through outdoor patient department were evaluated by history and thorough clinical examination. All cases included in the study underwent laparoscopic surgery under general anesthesia. Proper fascial closure was done at the end of each case. Post operatively patients were evaluated for port site hernia for 6 months.

Results: The mean age of patients was 42.13 + 9.24. Out of 100 patients 13 were male while 87 were female. Postoperative follow up for port site hernia was done for 6 months where no port site hernia was diagnosed. The frequency of port site hernia is 0% in this study.

Conclusions: Proper fascial closure of the port site helps to minimize post operative port site hernia.

Keywords: port site hernia, laparoscopic surgery, complications.

Introduction

Laparoscopic surgery is a modern surgical technique which has become a gold standard in cases like cholecystectomy [1], splenectomy [2] and hernia repair.[3] The benefits of laparoscopic surgery include small incisions, less pain and early recovery.[4] Along with these benefits laparoscope can be used as a diagnostic tool.[5] There are a few complications of laparoscopic surgery which include venous gas embolism[6] and port site hernias which can present with entrapment of appendix[7] or strangulation of small bowel. Other complications from surgeons point of view are decreased range of movement, lack of tactile stimulation, poor depth perception and increased learning curve.[8] Port site hernia is a complication of laparoscopic surgery which usually presents within 6 months of surgery.[9] As the amount of laparoscopic procedures are increasing and size of trocar is also increasing the incidence and risk of port site hernia is also increasing.[10] The reported incidence of port site hernia is 1% to 22%.[11-14]

Maio and Ruchman reported first obstructed small bowel port site hernia after laparoscopic cholecystectomy. But since then many reports have been published.[15] If there is a clinical suspicion of port site hernia ultrasound abdomen, contrast study of bowel and even CT scan abdomen can be used for confirmation.[16] Tonouchi et al classified port site hernia into early, late and special types.[17] In early type port site hernia develops immediately within two weeks of operation. It occurs due to dehiscence of the anterior fascial plane, posterior fascial plane, and peritoneum. Late type develops several months after the procedure is performed. It occurs due to dehiscence of the anterior fascial plane and posterior fascial plane. Special type presents any time as a result of dehiscence of whole abdominal wall.

There are various factors which determine the development of port site hernia which includes large trocar size, location of trocar, wound infections, wound extension, stretching of wound for organ retrieval, pre- existing umbilical defects, obesity , pre-existing diseases like diabetes mellitus, improper or no fascial closure and open laparoscopy.

The purpose of this study is to determine the frequency of port site hernia in patients undergoing laparoscopic surgery in our setup.

Methods

It was an observational study carried out at Department of Surgery, Services Hospital, Lahore over a six month period from August 2012 to May 2013.100 cases undergoing laparoscopic surgery were selected using Non probability purposive sampling technique. All types of laparoscopic surgeries were included in the study. An approval was taken for study from the ethical committee of the hospital. 100 patients full filing the inclusion criteria and undergoing laparoscopic procedure were recruited from

outpatient department. All cases in the study were operated under general anesthesia by consultants and complete follow up was done for 6 months. All port site wounds of 10mm and above were closed with poly-glactin. A figure of 8 suture was used to close all port site wounds of 10mm and above. This was also done in case where wound had to be extended in case of difficulty with extraction. Demographic information of patients (name, age, sex) was obtained. The data was entered into SPSS version 10 and analyzed through its statistical program. Frequency and percentage of port site hernia was calculated for qualitative data and mean + S.D was calculated for quantitative data like age. Data was stratified for age, gender and diabetes mellitus to address the effect of modifiers.

Port site incisional hernia was assessed by clinical examination and ultrasound abdomen which were performed by consultant surgeon and radiologist respectively. Hernia has been defined as "bulging of the part of the contents of abdominal cavity through a weakness in the abdominal wall"18. Hernia was considered present with positive cough impulse and by ultrasound abdomen in which defect in anterior abdominal wall is found at 6 months follow up.

Results

Total of 100 patients were studied for the development of port site hernia in patients undergoing laparoscopic surgery.

Mean age of patient was 42.13+ 9.247 (S.D) with maximum age of 65yrs and minimum age of 30 yrs. Out of 100 patients 13 were male while 87 were female. Out of 100 patients 54 were diabetic while 46 were non diabetic. Frequency of port site hernia in these patients was 0%. There was no difference in hernia formation when gender or co-morbidity was considered. Results are summarized in **Table-1 & Fig-1.**

PSH = Port site hernia
NPSH = No port site hernia

Table-1: Relation of gender and diabetes with incisional hernia formation.

Factor	Total	Incisional Hernia	
		Present	Absent
Male	13	0	13
Female	87	0	87
Diabetic	54	0	54
Non-Diabetic	46	0	46

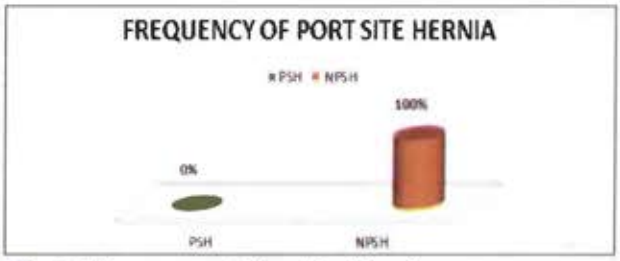

Fig-1: Frequency of Port Site Hernia.

Discussion

Incisional hernia is one of the major complications of laparotomy. The incidence of Incisional hernia after laparotomy is 10%-20%.[19-22] Laparoscopic surgery has significant growth since its introduction and is rapidly becoming the gold standard for many procedures.

The incidence of incisional hernia is low in laparoscopic surgery (port site hernia) as to open procedures.[23] The incidence of port site hernia in literature is 0.5%- 22%.[14,24-26] In our study the incidence of port site hernia is 0% which is less as compared both national and international literature.

The incidence of port site hernia is more common in10mm and larger ports[27-30] however, there are reported cases of port site hernia through 5mm port site wound.[31,32] In our study ports from 5mm to 12mm size were used in laparoscopic procedures but no port site hernia developed. Port site hernia is more common in midline ports as compared to lateral ports.[27-30,33] Para umbilical region is the weakest part of the abdomen and most frequent site of port site hernia. But still there are reported cases of port site hernia through lateral port site defect.[30-32] It has been stated that fascial closure of port site wound decreases the incidence of port site hernia but there are reported cases of port site hernia even after fascial closure of port site wound.[33] In this study port site wounds of 10mm and above were closed with polyglactin. Fascial closure was performed only in paraumblical port site wounds.

Presence of co morbidities like diabetes mellitus increases the risk of development of port site hernia.[34] In this study diabetic patients are also included but no port site hernia is reported in diabetic patients.

Mayol et al [35] stated that incidence of port site hernia in closed laparoscopy is higher than in open laparoscopy but there is study which has shown no significant difference between incidence of port site hernia in both conditions.[33] In this study both open and closed laparoscopy were performed but no port site hernia developed. Port site hernia can be prevented by proper fascial closure of port site wound. Facial closure of wound can be done with the help of facial closure devices which include, spinal cord needle, [36] a suture

carrier,[37] a 2-mm trocar,[38] or a Deschamps needle.[39] These devices are mainly used to close small defect which are otherwise difficult to close or require wound extension for closure. The other method in preventing port site hernia is careful withdrawl of laparoscopic instruments and gas release. A partial vacuum is created when the port is withdrawn, thus, drawing omentum and intestines into the fascial defect.[40] All instruments should be removed carefully under vision. Accessory ports are also removed and the gas is removed by releasing the valve of 10 mm cannulas. The primary port is taken out at last, with telescope introduced. The cannula is pulled over telescope to prevent suction of omentum or bowel.

Conclusion

Frequency of port site hernia is far less in our setup as compared to national and international literature. Proper fascial closure of port site hernia wound can help to decrease the frequency of port site hernia.

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Original Article

THE ASSOCIATION BETWEEN VITAMIN D DEFICIENCY AND STROKE

Tazeen Nazar, Bilal Aziz, Ambreen Butt

Objective: To determine the association between vitamin D deficiency and stroke in patients admitted in Mayo Hospital, Lahore.

Methods: Two hundred (200) subjects taken as one hundred (100) stroke patients (cases) and one hundred (100) controls comprised the sample using Non-probability, Consecutive Sampling Technique. Serum 25 (OH) Vitamin D levels were checked in all the subjects.

Results: Out of a total of 200 subjects, 2(2%) in both the groups were between the age group of 18-40 years, 37(37%) of the cases and 41(41%) of the controls fell in the 41-50 years age group while 61(61%) of the cases and 57(57%) of the controls were between 51-60 years of age. Mean±SD for the age distribution was calculated to be 50.87±6.19 for cases and 50.90±6.07 for controls. Gender distribution of the subjects was recorded as 39(39%) for male cases and 45(45%) for male controls while 61(61%) were female cases and 55(55%) were female controls. Frequency of type of stroke was recorded as ischemic stroke in 72(72%) cases while 28(28%) of the cases were suffering from hemorrhagic stroke. No stroke in control subjects was reported. Comparison of vitamin D deficiency in both groups revealed 61(61%) in cases and 29(29%) in controls while 39(39%) in cases and 71(71%) in controls had no vitamin D deficiency. Odds ratio was calculated as 3.8294, p value was 0.0001 which showed a significant difference between the two groups. Stratification for vitamin D deficiency according to age showed that out of 61 subjects in cases group, 27(44.26%) were under 50 years of age and 34(55.74%) were over 50 years of age and p value was 0.20 which was statistically insignificant. In 29 control subjects, 12(41.38%) were under 50 years and 17(58.62%) were over 50 years of age, p value was 0.18. Stratification for vitamin D deficiency according to type of stroke was done and it showed that out of 61 subjects in cases group, 43(70.49%) had ischemic stroke and 18(29.51%) had hemorrhagic stroke, p value was 0.0001, showing statistically significant difference. All the 29 control subjects were healthy without any type of stroke.

Conclusions: Vitamin D deficiency is significantly higher in stroke patients as compared to healthy controls. It is a potential risk marker for stroke, and the role of vitamin D repletion in enhancing musculoskeletal health after stroke needs to be explored and emphasized.

Keywords: association, vitamin D deficiency & stroke.

Introduction

Vitamin D is the major steroid hormone that regulates mineral ion hemostasis. Two forms of vitamin D exist namely ergocalciferol (D2) and cholecalciferol (D3). D2 is derived from plant sources whereas D3 is obtained from animal sources. The liver produces 25-(OH) vitamin D or calcidiol which is the intermediate precursor to the metabolically active 1,25(OH) vitamin D, also called calcitriol.[1,2]

Vitamin D, in addition to maintaining calcium hemostasis and bone health, also has several important functions e.g., insulin secretion, immune modulation, cell proliferation and cell differentiation via inhibition of matrix metalloproteinases.[3,4] Vitamin D also optimizes neuromuscular and skeletal function, has an impact on intestinal absorption of calcium and phosphorus, renal excretion of phosphate, and bone resorption.[5]

Common dietary sources of vitamin D include milk and dairy products. Oily fish is one of the richest dietary sources of vitamin D. Several foods are fortified with vitamin D, including many cereal products, which contain 50 IU of vitamin D per serving. Most multivitamins include 400 IU of vitamin D per tablet.

Vitamin D deficiency has become significantly prevalent worldwide. It tends to occur in almost every age group but is more common among children and adolescents. Normal Vitamin D levels are in the range of 30-100ng/ml. Levels <20ng/ml are considered deficient whereas levels between 21-29ng/ml are

Labelled as insufficient.

Vitamin D deficiency has implications in the pathophysiology of many chronic diseases. Apart from rickets, cancer, stroke, cardiovascular disease, obesity and autoimmune conditions like multiple sclerosis, asthma, type 1 diabetes, all have been linked with vitamin D deficiency.[6]

Vitamin D insufficiency is significantly high in the elderly, institutionalized and hospitalized individuals but several studies have found a high prevalence of vitamin D deficiency among healthy, young adults as well. Also vitamin D levels show varied degree of fluctuation throughout the year, with the highest levels occurring after the summer and the lowest concentrations after winter. These seasonal variations may also affect males, people living at high latitudes and those who do greater physical activity. The major factors predisposing to vitamin D deficiency are inadequate dietary intake and sun exposure. Other factors that may contribute to vitamin D deficiency include severe malnutrition, liver failure, nephrotic syndrome, gastrointestinal diseases that lead to malabsorption, acquired immunodeficiency syndrome with hypocalcemia. Patients who have mild vitamin D deficiency may have only muscle weakness or pain or decreased bone density apart from modest decreases in serum calcium or phosphate levels, or both. Levels of alkaline phosphatase and parathyroid hormone (PTH) may be elevated in these patients but in some patients, PTH levels may be entirely normal.

Stroke is the leading cause of disability worldwide and is the second most common cause of death after ischemic heart disease.[7,8] The incidence of stroke is decreasing in the developed countries owing to the advancement in healthcare, but in the developing countries, the incidence is still increasing. More than 5.5 million deaths are attributed to stroke annually with two thirds of these occurring in the developing world. There are no sizeable community based epidemiological studies in Pakistan to substantiate this assertion, but stroke is considered to be the first leading cause of disability and the third most common cause of death in the developing countries.[9]

Stroke is defined as an "acute neurologic deficit of vascular origin with sudden (within seconds) or at least rapid (within hours) occurrence of symptoms and signs corresponding to the involvement of focal areas in the brain".[10] There are two main types of stroke, ischemic accounting for 85% and hemorrhagic, accounting for approximately 15% of all cases of stroke.[11]

Multiple etiologies contribute to the development of ischemic stroke and may have variable clinical manifestations. Out of the different causative factors, small or large artery thrombus account for approximately 45% whereas 20% of ischemic strokes are embolic in origin. The remainder have an unknown cause.[11] Long bone surgeries and cardiac surgery may dislodge emboli in the form of blood, fat, or air resulting in embolic strokes.[12]

Risk factors for stroke include smoking, hypertension, heart disease, diabetes, dyslipidemias. Less common causes of ischemic stroke include carotid artery dissection or the presence of coagulopathies e.g., the one resulting from antiphospholipid antibodies. Other causes include infections, periodontal disease and tooth loss, arteritis, and drug abuse, such as the use of amphetamines and cocaine.[11]

Strokes may occur at any age but are much more common in the older population. The death rate doubles every ten years between the ages of 55 to 85 years. Because of this fact as well the distribution of the population according to their age, about 3/4th of all stroke related deaths occur in individuals over the age of 65 years.[13] Over the last decade, a 100% increase has been observed in the risk of stroke in low and middle income countries and 85.5% of mortality due to all stroke related deaths occur in the developing world. The prevalence of stroke in Pakistan is reported to be 4.8%.[14,15]

Methods

This Case-Control Study was conducted by the Departments of Medicine and Neurology of Mayo Hospital, Lahore from 12th June, 2013 to 11th December, 2013. A sample size of 200 subjects (100 cases and 100 controls) was calculated with 80% power of test and 5% level of significance keeping the expected percentages of vitamin D deficiency as 52.94% in cases and 39% in the control group. Non-Probability Consecutive Sampling technique was applied. Subjects (both cases and controls) of either sex, between the age group of 18-60 years were included in the study. Cases were labelled as all patients presenting with stroke having confirmatory evidence through CT/MRI (Brain) whereas Controls were all the healthy attendants of the patients admitted either with stroke or any other condition, falling in the same age group and gender as that of the cases. Cases excluded from the study were patients with the history of Vitamin D malabsorption problems e.g., people who had undergone resection of the small intestine,

Patients with celiac sprue, short bowel syndrome, cholestatic liver disease, cystic fibrosis etc. Also patients with history of taking medication, associated with vitamin D deficiency, such as Phenytoin, Phenobarbital, and Rifampin which could induce hepatic P450 enzymes to accelerate the catabolism of vitamin D as well as patients having stroke due to space occupying lesions confirmed through CT/MRI Brain, infections or bleeding diathesis having confirmatory evidence through specific blood tests were also excluded from the study. The controls who were excluded from the study were all the persons on calcium and vitamin D supplementation, persons with a history of ischemic heart disease, hypertension, diabetes mellitus, hypercholesterolemia, stroke, chronic kidney disease and chronic liver disease.

One hundred (100) patients admitted with stroke in the Medical & Neurology Departments of Mayo Hospital and one hundred (100) healthy controls conforming to the inclusion criteria were included in the study. All the subjects were informed about the purpose of the study and the willingness of the subjects was considered as consent for enrollment in the study. The risks and benefits were explained to the subjects prior to their enrollment. After obtaining informed consent from the subjects, detailed history was taken followed by clinical examination, necessary laboratory investigations and CT/MRI (Brain), serum sample was drawn for measurement of 25-(OH) vitamin D levels. The sample was analyzed using Siemens Advia Centaur Immunoassay System IRL 46350440 by the Advanced Diagnostic Centre, King Edward Medical University, Lahore. All the collected information was entered in a predesigned proforma. For the purpose of ethical consideration and exercising secrecy requirements, the subject identifiers were removed after the initial completion of proforma, prior to data analysis to take care of confidentiality and anonymity. No monetary benefit was provided to the studied subjects, only the dissemination of medical knowledge that could benefit society as a whole was reckoned to be the possible indirect benefit to the patients.

The collected data was analyzed using SPSS version 17.0. The variables included age and sex of the patient and vitamin D levels. Mean and Standard deviation was calculated for quantitative variables like age etc. Frequency and percentages were calculated for qualitative variables like sex and vitamin D levels. Odds ratio (OR) was calculated to measure the strength of association between vitamin D deficiency and stroke. Odds ratio greater than 1 was considered statistically significant. Effect modifiers like age (<50 years, >50 years) and type of stroke (hemorrhagic, ischemic) were addressed through stratification.

Results

Out of a total of 200 subjects, 2(2%) in both the groups were between the age group of 18-40 years, 37(37%) of the cases and 41(41%) of the controls fell in the 41-50 years age group while 61(61%) of the cases and 57(57%) of the controls were between 51-60 years of age. Mean+SD for the age distribution was calculated to be 50.87±6.19 for cases and 50.90±6.07 for controls. Gender distribution of the subjects was recorded as 39(39%) for male cases and 45(45%) for male controls while 61(61%) were female cases and 55(55%) were female controls. Frequency of type of stroke was recorded as Ischemic stroke in 72(72%) cases while 28(28%) of the cases were suffering from hemorrhagic stroke. No stroke in control subjects was reported. Comparison of vitamin D deficiency in both groups revealed 61(61%) in cases and 29(29%) in

Table-1: Comparison of vitamin d deficiency in cases and controls based on age, gender and the type of stroke

Age Distribution (Years)	Cases (n=100)	Controls (n=100)
18-40	2 (2%)	2 (2%)
41-50	37 (37%)	41 (41%)
51-60	61 (61%)	57 (57%)
Mean± SD	50.87± 6.19	50.90± 6.07
Gender Distribution		
Males	61 (61%)	55 (55%)
Females	39 (39%)	45 (45%)
Type of stoke		
Ischemic	72 (72%)	0 (0%)
Hemorrhagic	28(28%)	0 (0%)
No stoke	0 (0%)	100 (100%)
Vitamin D Deficiency		
Yes	61(61%)	29 (29%)
No	39(39%)	71 (71%)
ODDS Ratio:3.8294	P-value: 0.0001	

Table-2: Stratification of vitamin d deficiency according to age and type of stroke.

Age Distribution (Years)	Cases (n=61)	Controls (n=29)
<50	27 (44.26%)	12 (41.38%)
>50	34 (55.74%)	17 (58.62)
Total	61 (100%)	29 (100%)
	p-value: 0.2	
Type of stoke		
Ischemic	43 (70.49%)	0 (0%)
Hemorrhagic	18 (29.51%)	0 (0%)
Total	61 (100%)	0 (0%)
	p-value:0.0001	

Controls while 39(39%) in cases and 71(71%) in controls had no vitamin D deficiency. Odds ratio was calculated as 3.8294, p value was 0.0001 which showed a significant difference between the two groups. Stratification for vitamin D deficiency according to age showed that out of 61 subjects in cases group, 27(44.26%) were under 50 years of age and 34(55.74%) were over 50 years of age and p value was 0.20 which was statistically insignificant. In 29 control subjects, 12(41.38%) were under 50 years and 17(58.62%) were over 50 years of age, p value was 0.18. Stratification for vitamin D deficiency according to type of stroke was done and it showed that out of 61 subjects in cases group, 43(70.49%) had ischemic stroke and 18(29.51%) had hemorrhagic stroke, p value was 0.0001, showing statistically significant difference. All the 29 control subjects were healthy without any type of stroke.

Discussion

The role of vitamin D in calcium metabolism is of pivotal significance[16] and many serious diseases may be attributed to vitamin D deficiency e.g., cardiovascular disease and cancer.[17] The risk of fractures and bone loss may further be augmented by reduced vitamin D levels. Significant associations between low levels of vitamin D and bone mineral density and post-stroke hip fractures have been found in the long-term survivors of stroke.[18] Insufficient levels of vitamin D may not only impair bone mineralization but may also affect muscular function, increase bone loss via secondary hyperparathyroidism, may make the patient prone to frequent falls and recurrent hip fractures.[19]

To date, insignificant data is available in the Pakistani population that specifically highlights the association between vitamin D deficiency and stroke and this study was undertaken with the aim to generate a baseline data for a local population.

Rufin SD and colleagues found out that 52.94% of his stroke patients had a concomitant vitamin D deficiency[20] whereas Kuno H demonstrated low vitamin D levels in about 43% of the patients with stroke.[21] The results of both these studies are comparable and consistent with the findings of this study.

In a meta-analysis of a prospective study in a female population, Sun Q demonstrated a modest association between low vitamin D levels and the risk of stroke. It was also concluded that women who maintained adequate levels of vitamin D had a lower risk of stroke.[22]

Reports suggest that due to increased bone resorption in patients with stroke, there is resultant increased ionized calcium that suppresses PTH secretion, so the association between log 25(OH)D and log PTH was not observed in this group of stroke patients.[18]

Labelling vitamin D as a potential risk marker for stroke may warrant certain investigations because low vitamin D levels as in these studies may have preceded stroke. Secondly, hypertension occurring as a result of compensatory secondary hyperparathyroidism has been suggested as an attributable risk factor for stroke in patients with concomitant vitamin D insufficiency.[23]

Haroon Khan alongwith his colleagues conducted a study in a local population of Islamabad and its suburbs with the aim to determine the prevalence of existing vitamin D deficiency. It was recorded that vitamin D levels were significantly lower in females (56.2%) compared to males (15.3%).[16]

The high prevalence of vitamin D deficiency in females, especially those who stay indoors e.g., housewives involved in domestic work, may be due to inadequate exposure to sunlight. Also the religious, cultural and social norms of our society in which women wear clothes that almost completely cover their body may also prevent adequate sunlight exposure. Certain other factors that may also contribute to the prevailing vitamin D deficiency include overcooking of food and unawareness regarding the use of a healthy balanced diet. The Government needs to ensure complete support and commitment to launch public awareness campaigns that not only emphasize the role of vitamin D, but also provide knowledge to the general population regarding the effects of vitamin D deficiency and the importance of its supplementation in the diet.

Conclusion

Vitamin D deficiency is significantly higher in stroke patients as compared to healthy controls. It is a potential risk marker for stroke, and the role of vitamin D repletion in enhancing musculoskeletal health after stroke needs to be explored and emphasized.

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