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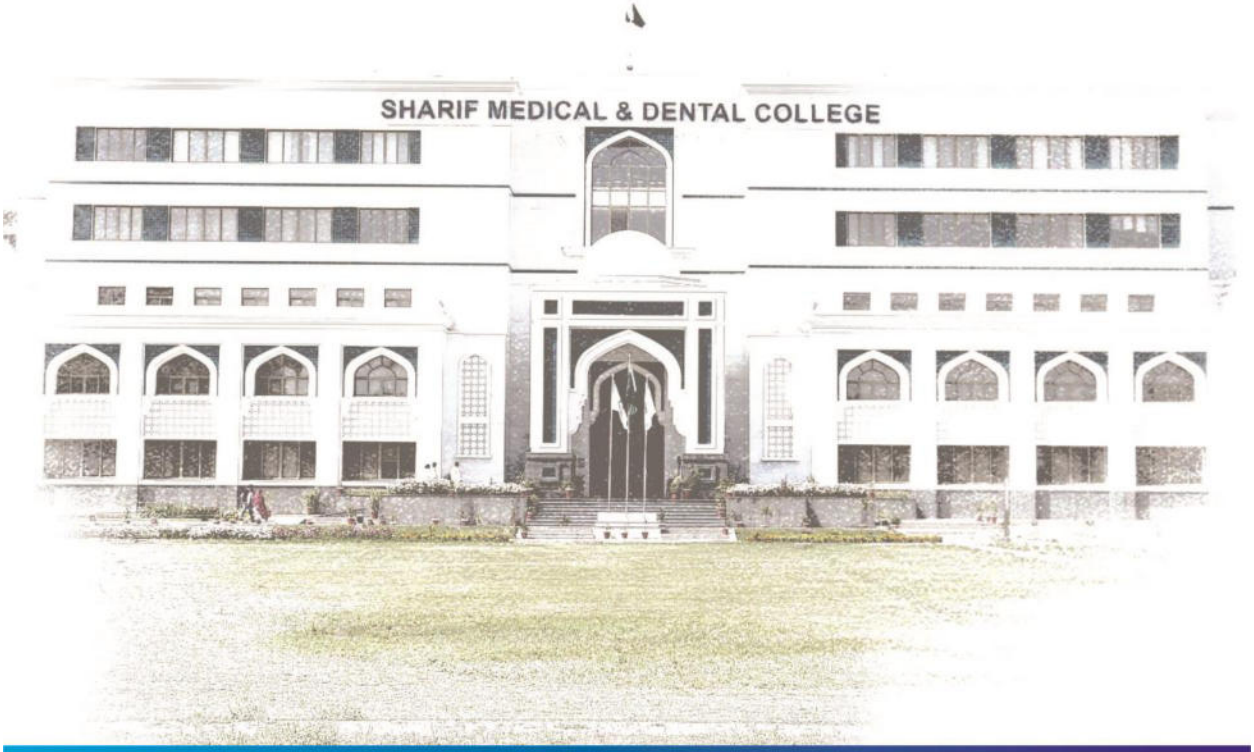

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Editorial Correspondence should be addressed to
Editor JSMDC
Sharif Medical & Dental College
Sharif Medical City Road,
Off Raiwind Road, Jati Umra,
Lahore 54000, Pakistan.

Tel
(+92-42) 111-123-786

Fax
(+92-42)37860122

E-mail
editor@jsmdc.pk

Website
www.jsmdc.pk

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Editorial

Ovarian Carcinoma: A Deadly Disease

Maimoona Hafeez

Ovarian carcinoma is one of the deadly diseases which can affect the females in their lifetime. Worldwide, ovarian cancer is diagnosed in a quarter million females annually. This deadly cancer is responsible for 140,000 deaths per year. Ovarian cancer is the most lethal of the gynaecological malignancies and 4th most common cause of death in females.

It is associated with high mortality when diagnosed at advanced stage. It is because of lack of reliable screening tests. Cancer antigen 125 (CA 125) and transvaginal ultrasound are only available screening modalities available at present. These are not well authenticated in screening as their sensitivity and specificity is questionable. Diagnostic potential of CA 125 is poor as it is raised in other conditions like endometriosis, pelvic inflammatory disease and menstruation. Poor sensitivity and specificity of screening tests lead to late diagnosis of the disease. Now, new tumour markers such as human epididymis protein 4 (HE4), mesothelin, macrophage colony-stimulating factor (M-CSF), osteopontin, kallikrein, soluble epidermal growth factor (EGF) are available but not yet worldwide applicable.[1]

The incidence of ovarian cancer varies around the world, with the lowest rate recorded in Japan (3/100,000 women) and some of the highest rates recorded in the Nordic countries (20/100,000 women). In UK, approximately 7000 cases are reported each year, with upto 4500 mortalities.

Risk factors which are responsible for ovarian cancer include age, history of infertility, use of ovulation induction agents (clomiphene citrate), endometriosis and family history of ovarian cancer. Hereditary factors play an important role in ovarian cancer pathophysiology in 10% of population. Two mutations of breast cancer (BRCA) 1 and BRCA 2 are responsible.[2] These mutations will affect the efficiency of P53 gene and lead to the progression of the malignant disease. BRCA1 mutation is associated with a lifetime risk of 40% of ovarian cancer and 80% risk of breast cancer, while with BRCA2 mutation, the risk of developing ovarian cancer is 20-25%. Prophylactic oophorectomy before forty years of age can be considered in the patients with these mutations or with positive family history of ovarian cancer.

Lynch type 2 syndrome is a combination of ovarian, colorectal and endometrial carcinoma. This syndrome has a mutation at chromosome 5 and risk of developing ovarian cancer is 12% with this syndrome as compared to the risk of developing ovarian cancer up to 2% in general population.[3] These patients need regular colonoscopic examination and prophylactic hysterectomy.

Presentation of patients is with abdominal pain, bloating, postmenopausal bleeding, weight loss and loss of appetite.

World Health Organisation classifies ovarian cancer on the basis of origin.[4] Tumour can be classified into epithelial, sex cord, stromal and germ cell tumours. Epithelial tumours are further classified into serous, mucinous, endometroid, clear, transitional and squamous carcinoma.[5] They account for 50-55% of ovarian tumours. In the western world, these epithelial tumours are responsible for 90% of malignant form of the tumour.

Borderline ovarian tumours are the type of epithelial tumour which has varying degree of nuclear atypia and increase in the mitotic activity, but no stromal invasion. They account for 10% of all ovarian tumours and carry a better prognosis.[6]

Five year survival is 70% in cases of early stages of the disease but it decreases to 30% if the disease is advanced and metastatic.[7]

In symptomatic patients, initial investigation includes abdomino-pelvic ultrasound with Doppler, computed tomography (CT) scan of abdomen and pelvis and in certain cases magnetic resonance imaging (MRI) may be needed. Risk of malignancy index is calculated that is based on the menopausal status, sonographic findings and CA 125 levels.[7] CA 125 is a tumour marker for epithelial ovarian tumour which has more prognostic value in the follow-up of the patients after surgery or chemotherapy. Tumour marker for germ cell tumours are beta human chorionic gonadotropin (B-HCG) and alpha feto protein. Carcinoembryonic antigen is used

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Prof. Dr. Maimoona Hafeez
Head of Obstetrics & Gynaecology Department
Sharif Medical & Dental College
E-mail: maimoona.hafeez@sharifmedicalcity.org

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when there is doubt about the primary origin of the disease. Chest X-ray is helpful if the disease is metastatic.

Most of the patients present at an advanced stage of the disease, so surgery is mainly aimed on debulking the tumour, to stage the disease, to get a histopathological diagnosis and for symptomatic relief. Staging laparotomy is performed which includes total abdominal hysterectomy, bilateral salpingo oophroctomy, omentectomy, retropeitoneal lymph node sampling, sampling of peritoneal fluid and other biopsies if needed.[8] Fertility sparing surgery is performed in cases of germ cell tumours which are confined to the ovaries. Optimum debulking is considered when the residual tumour is < 2cm. Interventional debulking surgery can be performed in selected patients; it is done in those cases when optimum debulking is not achieved at the time of primary operation.

Chemotherapy is given before or after surgery. The main aim of giving chemotherapy is to regress the residual tumour. Combination chemotherapy in the form of cisplatin and paclitaxil are used effectively as first line agents.[9-11]

Neoadjuvant chemotherapy is a novel approach used for ovarian cancer.[12] More exciting approaches relate to using a greater number of molecular targets and developing studies which are more tumour specific. The main molecular targets of therapy are polymerase inhibitors, used in BRCA mutational tumours such as breast and ovarian cancer.[13] The results of large trials targeting vascular and endothelial growth factors are awaited with interest and should hopefully add another approach to therapy.

In conclusion, the diagnosis of ovarian cancer is usually made at advanced stage, this is because of lack of adequate screening tests and non specific nature of symptoms. Ovarian cancer management is mainly surgical followed by adjuvant chemotherapy in most cases. Combination chemotherapy in the form of cisplatin and paclitaxil is done. Each patient should be individualised according to the clinical condition of the patient.

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Original Article

Lipid Abnormalities in Hospitalised Patients with Chronic Kidney Disease not on Hemodialysis

Salman Tahir Shafi, Mohammad Saleem, Roshina Anjum, Wajid Abdullah, Tahir Shafi

ABSTRACT

Objective: To assess the frequency of lipid abnormalities in chronic kidney disease (CKD) patients in local population.

Methodology: All patients with CKD who were admitted to nephrology ward of Sharif Medical City Hospital over a 3 month period and who gave informed consent for the study were included. Fasting lipid profile was obtained.

Results: A total of 124 patients were included in the study. Mean age of patients was 49.9±14 years. Of all patients, 72 (58.1%) were males and 52 (41.9%) were females. Hypertension, diabetes mellitus and cardiovascular disease were present by history in 84.8%, 67.2% and 28% respectively. Mean serum creatinine was 7.25±3.4 mg/dl and mean estimated glomerular filtration rate (eGFR) was 11.3±11.9 ml/min/1.73m2. Mean serum cholesterol was 170.9 ±51.7 mg/dl, mean serum high density lipids (HDL) was 49.1±29.8 mg/dl, mean serum low density lipids (LDL) was 89.1±27.5 mg/dl and mean serum triglycerides were 115.4±36.4 mg/dl. High cholesterol, high LDL, low HDL and high triglycerides were present in 15.2%, 27.9%, 81.1% and 1.8% of all patients respectively.

Conclusion: Lipid abnormalities are common in CKD patients not on hemodialysis. Low HDL is the most common abnormality in our patient population.

Keywords: *Chronic kidney disease. Diabetes mellitus. Estimated glomerular filtration rate.*

INTRODUCTION

Chronic kidney disease (CKD) is associated with dyslipidemia. Evidence regarding association of lipid abnormalities and cardiovascular disease and mortality is conflicting in patients with CKD.[1-4] Several factors influence lipid abnormalities in patients with CKD including presence of diabetes mellitus, glomerular filtration rate (GFR), nutritional status, proteinuria and immunosuppressive drugs.[5] Hypertriglyceridemia is the most common lipid abnormality in patients with CKD. Total cholesterol may be high or low especially if a patient is malnourished. Patients with nephrotic syndrome usually have hypertriglyceridemia and hypercholesterolemia. High density lipids (HDL) levels usually decline in patients with CKD.[4-6]

Prevalence of lipid abnormalities is variable in international literature. Reported prevalence of hypertriglyceridemia is 40-50%, hypercholesterolemia is 20-30% and elevated Low density lipids (LDL) is 10-40%.[7-9] In Pakistan, few studies have reported prevalence of lipid abnormalities in patients on hemodialysis but there is limited local literature on lipid abnormalities in CKD pre dialysis patients .[10-12]

It is possible that prevalence of lipid abnormalities in CKD patients not on hemodialysis in Pakistan may be different from international reported studies due to lack or delay in access to care, malnutrition and socioeconomic variables.[13]

The objective of this study was to determine the frequency of lipid abnormalities in patients with CKD not requiring dialysis, who presented to a tertiary care facility in Pakistan.

METHODOLOGY

All patients with CKD who were admitted to nephrology ward of Sharif Medical City Hospital over a 3 month period and who gave informed consent for the study were included. The study was approved by Hospital Ethics Committee. CKD was defined as either estimated glomerular filtration rate (eGFR) less than 60 ml/min/1.73m^2 for 3 or more months estimated by CKD EPI equation or persistent presence of proteinuria for 3 or more months, defined as urine protein to creatinine ratio >0.2 or positive dipstick for protein.[14] Patients on hemodialysis or peritoneal dialysis were excluded.

History and old medical records were reviewed to obtain patient data including age, sex, history of CKD, diabetes Mellitus, hypertension, cardiovascular disease and smoking. Patients were considered to have cardiovascular disease if patients had history of coronary artery disease or congestive heart failure.

Fasting lipid profile was obtained after overnight fast. Total cholesterol was measured using end point CHOD-PAP method by AMP kit. HDL was measured by using CHOD-PAP method after precipitation. Triglycerides were measured by end point GPO-PAP method using AMP kit. LDL was calculated as follows:

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Dr. Salman Tahir Shafi
Associate Professor of Nephrology
Sharif Medical & Dental College
E-mail: salmanshafi@email.com

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Total cholesterol – HDL – very low density lipids (VLDL), where VLDL=Triglycerides divided by 5.

Total cholesterol, LDL and triglycerides were considered high for values above 200 mg/dl, 100 mg/dl and 200 mg/dl respectively. HDL was considered low if less than 50 mg/dl in males and less than 40 mg/dl in females. Study was approved by institutional review board.

Continuous parametric variables were reported as means ± standard deviation and categorical variables were expressed as percentages. *T*-test was used to compare continuous variables and *chi-square* test was used to compare categorical variables. All statistical analyses were performed using SPSS 20.0 (Chicago, IL USA). For all tests, *p*-values of <0.05 were considered statistically significant.

RESULTS

A total of 124 patients were included in the study. Mean age of patients was 49.9±14 years. Of all patients, 72 (58.1%) were males and 52 (41.9%) were females. Hypertension, diabetes mellitus and cardiovascular disease were present by history in 84.8%, 67.2% and 28% respectively. Mean serum creatinine was 7.25±3.4 mg/dl, mean eGFR was 11.3±11.9 ml/min/1.73m^2 and mean urine protein to creatinine ratio was 3.8±3.9 g/g. Of all patients, 85.7% have Stage V CKD, 7.6% have Stage IV CKD and 5.9% have Stage III CKD. Cause of CKD was attributed to hypertension in 62.1%, diabetes mellitus in 25% and glomerular disease in 6.5%.

Mean serum cholesterol was 170.9 ±51.7 mg/dl, mean serum HDL was 49.1±29.8 mg/dl, mean serum LDL was 89.1±27.5 mg/dl and mean serum triglycerides were 115.4±36.4 mg/dl. High cholesterol, high LDL, low HDL and high triglycerides were present in 15.2%, 27.9%, 81.1% and 1.8% of all patients respectively.

Table 1 shows comparison of characteristics of patients with serum LDL above and less than 100 mg/dl. Patients with high LDL were older and had higher serum cholesterol and triglycerides levels.

Comparison of lipid profile is shown among various sub-groups of patients with CKD. Females have high mean HDL compared to males, otherwise there was no significant difference between various sub-groups of patients.

Table 1: Comparison of characteristics of patients with LDL above and less than 100 mg/dl

Patient characteristics	Patients with LDL > 100 mg/dl N = 34	Patients with LDL < 100 mg/dl N= 80	P-value
Mean age (years)	51.9±13.3	44.8±13.6	0.01
Males (%)	54.8	58.8	0.71
Hypertension (%)	93.1	86.2	0.74
Diabetes Mellitus (%)	62.1	74.7	0.20
Smokers (%)	20.7	29.5	0.36
Cardiovascular Disease (%)	32	31.6	0.97
Mean eGFR (ml/min/1.73m2)	11.4±10	12.5±17.4	0.66
Mean urine protein to creatinine (g/g)	4.3±3.9	3.0±3.7	0.21
Mean serum cholesterol (mg/dl)	196.4±41.5	160.9±52	0.001
Mean serum LDL (mg/dl)	122.5±15.7	76.2±18.7	0.0001
Mean serum HDL (mg/dl)	52.9±34.7	47.6±27.7	0.40
Mean serum triglycerides (mg/dl)	132.5±36.1	108.8±35.1	0.002

Table 2: Comparison of Lipid profile among sub-groups of patients with CKD

	Mean serum Cholesterol (mg/dl)	Mean serum LDL (mg/dl)	Mean serum HDL (mg/dl)	Mean serum triglycerides (mg/dl)
Age				
Age⩽ 50 y	168±46.7	92.7±29.5	45.9±21	117.8±33.3
Age >50 y	174.1±57.1	85.1±24.6	52.6±37.2	113±40.5
P-value	0.53	0.15	0.24	0.48
Sex				
Males	163.4±40.3	90.1±23.4	42.1±17.6	115.2±36.4
Females	180.5±63.2	87.8±32.4	58.6±39.2	115.8±37.7
P-value	0.09	0.65	0.003	0.93

Hypertension				
Present	170.9±52	89.5±26.2	48.7±30.7	114.5±37.5
Absent	164.1±48.7	83.6±34.8	49±16.7	122.6±32.7
P-value	0.68	0.50	0.98	0.50
Diabetes Mellitus				
Present	172.1±53.6	87±28.2	50.2±32.8	114.8±39.6
Absent	165.1±45.9	91.9±24.9	47.2±22.7	115.3±30.9
P-value	0.53	0.39	0.64	0.95
Smoking				
Present	160.4±33.4	92.1±22.7	51.6±43	118±41.2
Absent	171.5±52	87.6±28.6	47.6±22.1	114.9±35.4
P-value	0.30	0.45	0.53	0.70
Cardiovascular Disease				
Present	171±53.3	90.3±25.6	52.9±40.1	119.6±47.6
Absent	167.8±50.8	85.6±26.4	48±25.3	112.8±32.3
P-value	0.77	0.42	0.45	0.40

DISCUSSION

In our study, we found that lipid abnormalities are common in CKD patients who were admitted to a tertiary care facility with low HDL being the most common abnormality.

Most common lipid abnormality in our patient population was low HDL level which was found in 81.1% of all patients. Our results are similar to that of Altaf who found a frequency of low HDL as 81% in patients on maintenance hemodialysis.[11] However, in another local study of CKD patients with limited sample size, a much lower frequency of 16% was found.[12] Prevalence of low HDL was found to be 33% and 51% respectively in hemodialysis patients in other studies.[15,16] Difference in results may be due to difference in threshold value to define low HDL in various studies and difference in patient population. The level of HDL is inversely proportional to risk of developing or having cardiovascular disease.[17] Cardiovascular benefits of HDL are attributed to its antioxidant, anti-thrombotic, anti-inflammatory properties and reverse cholesterol transport.[18] Low HDL level in CKD patients accelerates progression to end stage renal disease (ESRD).[19]

We found that LDL > 100 mg/dl was present in 27.3% of our patient population. Patients with elevated LDL were older and had significantly higher cholesterol and triglycerides levels. Our results are somewhat similar to other studies predominantly done in hemodialysis patients.[7-9,11,15,16] However, in a small local study of CKD patients, frequency of elevated LDL was found to be only 4%.[12] The difference in results may be due to difference in threshold value to define elevated LDL.

Elevated cholesterol was found in 15.2% of our patient population consistent with results of another local study.[12] High triglycerides levels were found in only 1.8% of our study population. This results significantly differs from other reported studies.[7-9,11,12,15,16] In local studies done in hemodialysis patients, frequency of hypertriglyceridemia was found to be 19% and 46% respectively.[11,12] Difference in results can be explained by difference in threshold value to define hypertriglyceridemia. A cutoff of > 200 mg/dl was used in our study compared to some other studies which used a cut off of 150 mg/dl. In addition, our patient population entirely comprised of pre-end stage renal disease patients compared to most other studies where patients were already on hemodialysis. Our patients may be more malnourished compared to other studies where patients were already on hemodialysis and might have improved their nutritional status.

Our study has several limitations including single centre, cross-sectional design and limited sample size. In addition, large number of hospitalised patients with advanced CKD were included. However, our study population's characteristics are reflective of patient's profiles in tertiary care facilities in Pakistan. We didn't have a formal assessment of nutritional status in our patients and that could have a confounding effect on lipid profile.

CONCLUSION

In summary, our results showed that lipid abnormalities are common in patients with CKD in our local population. Low HDL cholesterol is the most common abnormality. Further studies are needed to see association between lipid abnormalities and cardiovascular mortality in our CKD patient population.

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Original Article

Effect of Hydroxypropylmethylcellulose as Compared to the Technique of Hydro-implantation of Intraocular Lens During Phacoemulsification on Post Operative Intraocular Pressure.

Sana Jahangir, Samina Jahangir

ABSTRACT

Objective: To compare the effect of hydroxypropylmethylcellulose as compared to the technique of hydro-implantation of intraocular lens during phacoemulsification on post operative intraocular pressure.

Methodology: This prospective interventional study included 90 patients who were divided into two groups A & B. All patients underwent routine phacoemulsification with intraocular lens implant. In group A, lens was implanted after inflating the capsular bag with hydroxypropylmethylcellulose where as in group B, the technique of hydro-implantation was used. Pre operative and post operative intraocular pressure was measured and compared. Results were considered significant when p-value was < 0.05.

Results: In Group A, the difference in pre and 24 hours post operative intraocular pressure was statistically significant (p-value 0.028) whereas in Group B, the difference was not statistically significant (p-value 0.67). Also there was statistically significant difference in the 24 hours post operative intraocular pressure between Group A and B (p-value 0.036). At one week post intervention, there was no statistically significant difference between post operative intraocular pressure of Group A and B (p-value 0.39).

Conclusion: Hydro-implantation does not result in the spike of intraocular pressure as observed in the first 24 hours post phacoemulsification as compared to implantation of intraocular lens using hydroxypropylmethylcellulose.

Keywords: *Intraocular pressure. Hydroxypropylmethylcellulose. Phacoemulsification. Intraocular lens.*

INTRODUCTION

Ophthalmic Viscosurgical Devices (OVDs) have become an essential tool for successful cataract surgeries and have been used in routine for a long time now with good results.[1,2] The concept of OVDs sprouted in 1934 when Karl Meyer and John Palmer of Columbia University, NY separated a substance from cow's vitreous. It was called "Hyaloronic acid" as it was composed of uronic acid and was sourced through hyaloid. After decades of efforts of Endre Balazs, hyaloronic acid reached a point of purity that it was considered safe for human use and suggested the possibility of safe ophthalmic surgical use.

OVDs have been classified into dispersive and cohesive varieties based on their different physical properties.[3] Dispersive OVDs have the tendency to disperse when used intraocularly; thus making them less likely to maintain intraocular space but it makes them good candidates for coating surfaces. On the other hand, cohesive OVDs are good at maintaining spaces. Also, dispersive OVDs are difficult to remove from anterior chamber and cohesive OVDs are easier to remove.[4] An ideal OVD should protect the delicate internal structures of eye during surgery and also should be removed easily at the end of surgery by irrigation and aspiration. It has been shown that residual OVDs have the tendency to clog trabecular meshwork and give rise to transient intraocular pressure (IOP) spike during post operative period.[5] This IOP spike can some times be severe enough to warrant the use of topical or systemic pressure lowering drugs.[6]

The surgeon may choose to use an OVD which is easier to remove after surgery combining with the properties dispersive OVDs. There are OVDs with dual properties like DisCoVisc (Alcon) which harbour the combined properties and advantages of both dispersive and cohesive OVDs.[7] Also, the surgeon may use different cataract surgery techniques like "soft shall technique" where advantages of both types of OVDs can be benefited from.[8,9]

As an alternative to above mentioned strategies to avoid post operative spike in IOP, a technique called "hydro-implantation' can be employed to avoid the use of OVD at the time of intraocular lens (IOL) implantation. In this technique, the IOL is implanted under continuous irrigation by Simcoe cannula which is inserted in the eye through one of the surgical ports.

The aim of this study was to evaluate the effect of conventional OVD and hydro-implantation on post operative rise in IOP.

METHODOLOGY

This comparative, prospective interventional study was

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Dr. Sana Jahangir
Assistant Prof. Department of Ophthalmology
Sharif Medical and Dental College
E-mail: sanajahangir@gmail.com

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conducted at Sharif Medical City Hospital and Al-Ehsan Welfare Eye Hospital from October 2015 to December 2015. All patients involved in this study signed an informed consent document. Approval of this study was taken from Hospital Ethics committee. All surgeries were performed by a single experienced consultant.

Inclusion Criteria:
Age 50 years onwards, male or female, senile cataract, open angles.

Exclusion Criteria:
History of trauma, glaucoma, steroid use, complicated ocular surgery.

Ninety patients were selected after meeting inclusion and exclusion criteria and were randomised in 2 groups A & B (45 patients in each group) using random number table. Pre operative IOP was measured 1 day before surgery using applanation tonometer. All surgeries were performed under local peribulbar anaesthesia. All patients were implanted acrylic hydrophilic intraocular lens through an incision of 2.75 mm after performing standard phacoemulsification. Surgeries with any untoward events like posterior capsular breach, vitreous loss, iris trauma or prolonged post operative inflammation were excluded from the final analysis and new patients were recruited in the study.
In all the surgeries, all the surgical steps were similar except in Group A, IOL was implanted in capsular bad after inflating the anterior chamber (AC) with 2% Hydroxypropyl methylcellulose (HPMC). After implantation of IOL, complete removal of HPMC was attempted with Simcoe cannula taking special care to remove HMPC from capsular bad and from anterior chamber angle. In case of Group B, IOL was implanted in the capsular bad while maintaining AC with irrigation through Simcoe cannula inserted through one of the surgical ports (Figure 1). There was no need of washing the AC afterwards.

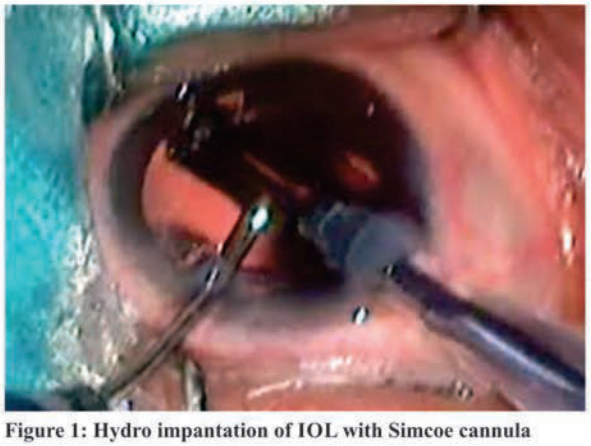

Figure 1: Hydro impantation of IOL with Simcoe cannula

In both groups, surgeries were completed in standard manner and were prescribed standard post operative topical and systemic medications. IOP was measured 24 hours and 7 days after surgery via standard applanation tonometry.
Statistical analysis of data was performed using SPSS software version 20.0. Student t-test was used for comparison between groups and comparison of IOP before and after surgeries. A p-value <0.05 was taken as statistically significant.

RESULTS

In Group A (45 patients), 24 (53.3%) patients were male and 21 (46.6%) were females. In Group B, 27 (60%) were male and 18 (40%) were female patients. Group A had patients ranging in age from 54 to 77 years (Mean/SD 63.23+/-6.5) years and Group B had age range of 51 to 82 years (Mean/SD 66.86+/- 5.66).
There was no statistically significant difference in pre operative IOP of Group A and B. In Group A, the difference in pre and 24 hours post operative IOP was statistically significant (p-value 0.028) where as in Group B, the difference was not statistically significant (p-value 0.67). Also there was statistically significant difference in the 24 hours post operative IOP between Group A and B (p-value 0.036). At one week post intervention, there was no statistically significant difference between pre operative and post operative IOP of both groups and between post operative IOP between Group A and B (p-value 0.39). Two patients in Group A needed topical pressure lowering medications for reducing IOP to base line. At the end of one week followup, nearly all the patients in both groups had their respective IOP returned to preoperative values.

DISCUSSION

Surgeons have described many techniques for adequate removal of OVD from eye during the concluding steps of phacoemulsification.[10] But, sometimes it becomes difficult to remove the OVD completely from the eye especially from the AC angle and behind the IOL. Studies have also shown that incomplete removal of any type of OVD results in post operative spike of IOP.[11,12]
In our study, we used the novel technique of hydro implantation of IOL instead of using OVDs to inflate the AC. The technique turned out to be very effective in controlling post operative IOP spike and also helped in saving surgical time. We encountered no untoward complications during or after surgery. Our technique was similar to Tak where he used Simcoe cannula with continuous irrigation to stabilise the AC and implantation of IOL. He also reported excellent results and minimal complications during and after the use of this technique.[13]

The strength of our study was good sample size and single surgeon operating all the cases. Also we had a control group where conventional OVD assisted IOL implantation was carried out. The weakness of this study was lack of specular microscopy to evaluate corneal endothelial health after hydro-implanntaion of IOL.

CONCLUSION

We can safely advocate the technique of hydro-implantation of IOL during routine phacoemulsification procedure. This technique avoids any post operative spike in IOP and also reduces surgical time and cost of surgery. This technique has a minimal learning curve and can be easily adapted by most of the experienced cataract surgeons.

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Original Article

Effect of BMI on soluble Intercellular adhesion molecules in Type 2 Diabetics with Microvascular Complications

Rehma Dar, Salma Haq, Maria Aslam

ABSTRACT

Objective: To compare the levels of soluble Intercellular adhesion molecules (sICAM-1) in obese and nonobese Type2 diabetics with microvascular complications.

Methodology: The study included 40 patients with type 2 diabetes mellitus with microvascular complications. They were further divided into two groups. Group A included 20 patients with body mass index (BMI) >25 Kg/m2 and group B had 20 patients with BMI < 25 Kg/m2. Levels of sICAM-1 were measured by Enzyme linked immunosorbent assay in both groups.

Results: Mean value of the sICAM-1 levels were 1408.05 ± 525.29ng/ml in group A and 767.35 ± 113.93ng/ml in group B. A significant difference was seen when levels of sICAM-1 were compared between two groups ($p < 0.05$).

Conclusion: sICAM-1 levels were high in obese type 2 diabetic patients with microvascular complications than in non obese type 2 diabetic patients with microvascular complications.

Keywords: *Type 2 diabetes mellitus. sICAM-1. Body mass index.*

INTRODUCTION

Diabetes mellitus is an important public health problem. Pakistan bears a substantial burden of this disease and 7.6-11% of our adult population is suffering from it.[1,2]

The diabetic patients are at increased risk of developing both microvascular and macrovascular complications. Vascular endothelium dysfunction is involved in the development of microvascular complications of diabetes mellitus.[3-8] Oxidative stress and release of superoxide radicals due to hyperglycemia cause vascular endothelial dysfunction.[9,10]

The activated endothelial cells express adhesion molecules on their surface.[11] They are involved in binding of the endothelial cell with extracellular matrix or with other cells.[12-14] vascular cell adhesion molecule-1 (VCAM-1) and Intercellular adhesion molecule-1 (ICAM-1) are the complementary protein molecules which are expressed for integrins present on the surface of leucocytes. Inflammatory cytokines like TNF-α and IL-1 induce expression of the adhesion molecules on endothelial cells.

Vascular cell adhesion molecule-1 is involved in adhesion of endothelium to lymphocytes, monocytes, basophils and eosinophils. It is involved in the development of atherosclerosis. ICAM-1 is present on the surface of the leucocytes and facilitates the transmigration of leucocytes through endothelium. Its level increases after stimulation by cytokines and inflammatory process starts, This results in transmigration of leukocytes from the lumen of the blood vessel to the interstitial tissue.[13] The proteolytic cleavage of ICAM-1 from activated endothelium results in the formation of circulating form of ICAM-1, which is known as soluble ICAM-1(sICAM-1).[15]

BMI affects both hyperglycemia and adhesion molecules levels in plasma.[16-18] An excess of adipose tissue starts a low grade inflammation in the body and releases pro-inflammatory cytokines like TNF-α and IL-6. These cytokines cause activation of endothelial cells which in turn increases levels of adhesion molecules.[19] Obesity and BMI are strongly related to the plasma level of ICAM-1 and weight loss in obese subject results in a marked decrease in levels of plasma adhesion molecules.[4]

METHODOLOGY

It was a cross-sectional comparative study. The patients were recruited from diabetes management center, SIMS, Lahore. The study was conducted at pathology department of Services Institute of Medical Sciences, Lahore after approval from the ethical committee of the hospital. The study included 40 diagnosed patients of type 2 diabetes mellitus with one or more microvascular complications which were further divided into two groups on the basis of BMI. Group A comprised of 20 patients with BMI > 25 Kg/m^2 and group B included 20 patients with BMI < 25 Kg/m^2. Patients with acute or chronic systemic illness, macrovascular complications, neoplastic,

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Prof. Dr. Salma Haq
Professor Department of Patholoy
Sharif Medical and Dental College
E-mail: dr.salmahq@gmail.com

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hematological, thyroid, hepatic and autoimmune diseases were excluded from the study. Similarly, patients with the history of smoking, alcohol, anti-inflammatory drugs intake were not included in the study. After explaining the purpose of the study written consent was taken from all the study subjects.

BMI of the study subjects was calculated by the formula: Weight (kg)/Height(m2). The level of soluble intercellular adhesion molecule (sICAM-1) was measured by Enzyme linked immunosorbent assay for quantitative estimation. The kit is manufactured by IBL Germany. HbA1c was determined by turbidimetric inhibition immunoassay (TINIA) by Roche. All collected data was entered and analyzed into SPSS 20.0. In descriptive analysis mean + SD was calculated for quantitative variables like age, BMI, HbA1C and sICAM-1. Frequency and percentage were determined for gender. Student's t-test was applied to determine the difference of quantitative variables between two groups. A P-value < 0.05 was considered statistically significant.

RESULTS

The mean age of diabetic patients in group A was 49.1± 8.7 years and 50.5 ± 9.0 years in group B. Group A comprised of 15 (75%) females and 5(25%) males while group B had 11 (55%) females and 9 (45%) males. Group A included obese diabetic patients with BMI 31.1 ± 6.2 Kg/m^2 and Group B comprised of nonobese patients with BMI 24.6 ± 0.4 Kg/m^2. There was a statistically significant difference in BMI of both groups ($p < 0.05$).

The mean value of glycosylated hemoglobin was 8.3 ± 1.7% in group A and 8.0 ± 1.4 % in group B which is not significantly different.

The level of soluble intercellular adhesion molecules (sICAM-1) was 1745.6 ± 562.8ng/ml in group A and 1070.6 ± 99.0ng/ml in group B. There is a statistically significant difference in sICAM-1 levels of both groups ($p < 0.05$) (Table 1).

DISCUSSION

In this study, we observed that the diabetic patients with increased BMI have higher levels of sICAM-1 as compared to diabetic patients with low BMI. Glycemic control was similar in both groups. The mean value of glycosylated hemoglobin in group A & B was 8.3 ± 1.7% and 8.0 ± 1.4 % respectively.

Hyperglycemia alone is not responsible for activation of endothelium but obesity also contributes to endothelial activation causing increased expression of adhesion molecules. Numerous studies have shown increased circulating levels of soluble adhesion molecules in obesity.[4,16-18] The reason most likely is that adipose tissue not only releases adipokines and free fatty acid but also causes low grade inflammation. Excess free fatty acid within the macrophages release IL-1b which in turn, mediates the secretion of proinflammatory cytokines TNF-α and IL-6. These cytokines cause activation of endothelial cells and increased expression of adhesion molecules.[19]

A study by Pontiroli et al. has suggested that marked weight loss results in significant decrease in s ICAM-1 levels as compared to HbA1c in Type 2 diabetics.[18]

Adhesion molecules are responsible for microvascular complications in Type 2 diabetics.[20] Therefore understanding of different factors that cause endothelial activation is very important. So that, in addition to glycemic control, these causative factors of endothelial activation like BMI can be targeted to prevent development and progress of diabetic

Table 1: Demographic and metabolic variables of study population

Sr. No.	Study Variables	Group A	Group B	p-value
1.	Age (yrs) mean ± SD	49.1± 8.7	50.5 ± 9.0	0.607
2.	Gender	15 (75%) F, 5 (25%) M	11 (55%) F, 9 (45%) M	-
3.	BMI (Kg/m2) mean ± SD	31.1 ± 6.2	24.6 ± 0.4	0.002
4.	HbA1c (%) mean ± SD	8.3 ± 1.7	8.0 ± 1.4	0.607
5.	sICAM-1 (ng/ml) mean ± SD	1745.6 ± 562.8	1070.6 ± 99.0	0.001

microvascular complications. It is the need of time to develop strategies to prevent these complications and thereby preventing the morbidity and mortality associated with the disease.

CONCLUSION

sICAM-1 levels were high in obese type 2 diabetic patients with microvascular complications than in nonobese type 2 diabetic patients with microvascular complications.

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Original Article

Cosmetic Outcome of Nasal Tip Augmentation with Alar Cartilage Graft in Primary Rhinoplasty

Abrar ul Hassan Pirzada, Naveed A Khan, Muhammad Saad Faisal, Sidra Dil Muhammad

ABSTRACT

Objective: To evaluate the cosmetic outcome of nasal tip augmentation with alar cartilage graft in primary rhinoplasty.

Methodology: This prospective international study was conducted among 70 patients in Sharif Medical and Dental Hospital Lahore from June 2011 to June 2013 over a period of 24 months. Patient of age > 18 years and both genders who requested nose reshaping and tip-plasty for cosmetic reasons were selected in the study after written informed consent. The patients with visible scar marks due to previous surgery or trauma were excluded. All the patients were operated for nasal tip augmentation with alar cartilage graft. Postoperatively, the patients were evaluated for cosmetic outcome based on 'Rhinoplasty Outcome Evaluation (ROE) questionare' at 6 months.

Results: The mean age of the patients was 28±10 years. There were 60 female and 10 male patients in our study. According to ROE questionare, excellent results were achieved in 56 (80%) patients, very good in 20 (28.57%) patients and fair in 4 (5.71%) patients. None of the patients had poor outcome.

Conclusion: Use of alar cartilage tip graft in primary rhinoplasty provides a safe and aesthetically pleasing method for nasal tip elevation and definition.

Keywords: *Nasal tip augmentation. Rhinoplasty. Alar cartilage.*

INTRODUCTION

Nose is the centre point of face and a balanced nose on the face not only augments beauty but also brings proportion. Various techniques used for nasal tip augmentation in nose reshaping includes rib cartilage graft, alar cartilage and septum cartilage graft etc. Artists have long made studies of beauty and aesthetic proportion of the nose. Plastic surgeons also have described the ideal nose and anatomy of the normal tip.[1-3]The ideal nose is the one that is harmonious with the patients favourable facial features. The projection to the nasal tip makes all the difference, especially in our Asian population with thick nasal skin. The bifidity of tip cartilages and vertical convexity of the lateral crura also play a role. In thin nasal skin, surgeons have to be less aggressive to avoid creation of sharp edges.[4]

Tip grafts were almost always used in secondary rhinoplasty, where there was over resection of alar cartilage.[4] Nasal tip surgery remains the most difficult part of rhinoplasty in Asian patients with thick nasal skin.[5] Gunter and Frideman described a lateral crural strut graft which was left in a pocket between lateral crus, following a cephalic tip.[6] Rhinoplasty techniques have improved drastically over the years with open technique for tip surgery.[2] In literature, authors have used cartilage mobilisation in addition to suture technique to provide more acute angle between the crura.[7] Others have also reported routine use of dome division in nasal tip rhinoplasty in thousands of cases with no greater incidence of complication while the domal 5.0 nylon mattress suture avoids disruption of the cartilage.[8-11]

There is also paucity of data among Pakistani population and previously, the technique has not been reported in literature in our population. So, this study will be helpful in making future strategies after the cosmetic outcomes are known.

METHODOLOGY

This prospective interventional study was carried out at Sharif Medical and Dental hospital Lahore, for a period of 24 months from June 2011 to June 2013. This study included 70 cases out of which all patients underwent a pre-operative psychological counselling, and all signed an informed consent form. Photographs were taken, both pre-operatively and post-operatively, front view, 45 degrees angle, left lateral and right lateral for record purposes. Open technique was used with nasal tip augmentation using multilayered graft from the alar cartilage. All surgeries were done as day care procedures under general anaesthesia for which routine investigation were carried out. The patients were followed up periodically at 6 months based on Rhinoplasty Outcome Evaluation (ROE) questionnaire.[12] This subjective questionnaire is based on 6 questions (Table 1). Each question was answered by patients who graded the response from 0 – 4. The score taken from each scenario was taken and divided

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Dr. Abrar ul Hassan Pirzada
Assistant Prof. Department of Plastic Surgery
Sharif Medical and Dental College
E-mail: apirzadamd@hotmail.com

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by 24 then multiplied by 100 in order to make it convenient. For the patients who could not understand the questions, the questionnaire was translated in local language and answers were ticked accordingly. Based on score, the outcome was categorized as: 0 - <25 (poor), 25 – <50 (fair), 50 – <75 (good) and > 75 (excellent). A formal permission from hospital's ethics committee was sought before proceeding with this interventional study.

RESULTS

The mean age of the patients was 28±10 years (range 18-40 years). Sixty (85.71%) were females and 10 (14.28%) were males. The cosmetic outcome based on ROE questionnaire is shown in the Table 2.

There was one case of suture opening along the alar margin which was sutured back under local anaesthesia and the patient had unremarkable recovery. The complications are given in Table 3. Some of the cosmetic outcomes are shown in Figure 1-7.

Table 1: ROE Questionnaire

Questions	Answers
Do you like how your nose looks?	Absolutely no (0), A little (1), More or less (2), Very much (3), Absolutely yes (4)
Do you breath well through your nose?	Absolutely no (0), A little (1), More or less (2), Very much (3), Absolutely yes (4)
Do you believe your friends and people who are dear to you like your nose?	Absolutely no (0), A little (1), More or less (2), Very much (3), Absolutely yes (4)
Do you think that current appearance of nose hampers you social or professional activities?	Absolutely no (0), A little (1), More or less (2), Very much (3), Absolutely yes (4)
Do you think that your nose looks as good as it could be?	Absolutely no (0), A little (1), More or less (2), Very much (3), Absolutely yes (4)
Would you undergo surgery to change the appearance of your nose or to improve your breathing?	Absolutely no (0), A little (1), More or less (2), Very much (3), Absolutely yes (4)

Table 2: Outcome of primary rhinoplasty with alar cartilage graft (n=70)

Outcome	No. of patients	Percentage
Excellent	56	80
Good	20	28.57
Fair	4	5.71
Poor	0	0

Table 3: Complication of the procedure (n=70)

Outcome	No. of patients	Percentage
Wound dehiscence	1	1.4

Figure 1(A): Before

Figure 1(B): After

Figure 2(A): Before

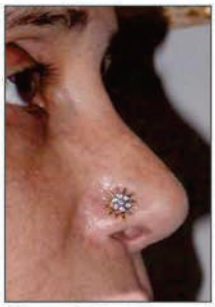

Figure 2(B): After

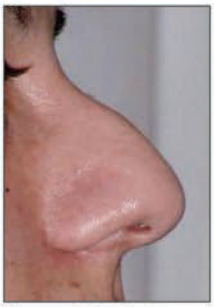

Figure 3(A): Before

Figure 3(B): After

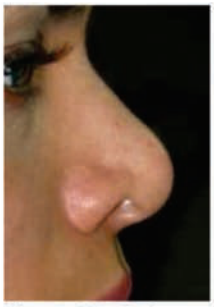
Figure 4(A): Before

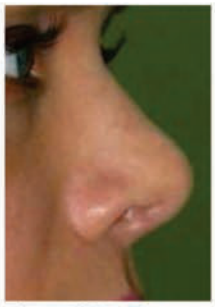
Figure 4(B): After


Figure 5(A): Before

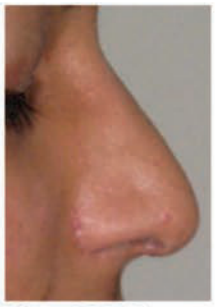
Figure 5(B): After


Figure 6(A): Before


Figure 6(B): After


Figure 7(A): Before


Figure 7(B): After

DISCUSSION

Initially, to attain nasal tip elevation and definition, cartilage grafts were placed blindly in pockets in front of the tip. As the surgeons gained more experience with the open rhinoplasty technique, tip cartilage grafts were securely placed at the tip without any reports of dislodging etc.[1,2] We have used alar cartilage tip graft (multilayered) from the alae during primary rhinoplasty, as tip grafts give a better tip definition in Asian population with thick nasal skin.[12]

We advocate the use of multilayered tip grafting technique for all our patients. We used alar cartilage (lateral crural and dome) as a routine and though it may be thin, we made it multilayered using 6/0 prolene stitch and always attached it in front of the lateral cartilage with slight projection from the tip by 5/0 stitch which has already been narrowed by 5/0 nylon stitches.[9-11] This provided a stable base to receive the multilayered tip graft.

The use of multilayered tip graft in primary rhinoplasty in our practice has been without any problem, keeping in mind the thick nasal skin of our Asian patients' population. There were no incidents of dislodging or shifting of tip graft in any of our patients as the graft had been fixed with 5/0 prolene sutures via open technique.

For cosmetic outcome, we used ROE questionnaire, which is simple, cost effective and is easily applied to the patients in our population.

Our study had some limitations. It was a single centre study and all the cases were performed by a single surgeon.

CONCLUSION

Use of alar cartilage tip graft in primary rhinoplasty in Asian population with low nasal elevation and thick nasal skin provides a safe and aesthetically pleasing method for nasal tip elevation and definition.

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Original Article

Role of Health Literacy through Schools in Achievement of Health Education and Public Health Promotion in Pakistan

Muhammad Anwar Sulehri, Rabia Anwar, Madiha Anwar Sulehri

ABSTRACT

Objective: The objective of this study was to assess the role of health literacy through schools in health education and public health promotion .

Methodology: It was a descriptive analytical study. It was conducted in eight secondary schools, four from each district Lahore and Faisalabad from January to February 2016. A total of 160 respondents, 80 from each district were selected. A semi-structured questionnaire was delivered to the respondents for data collection. Data analysis was performed by using SPSS 21, Chi-square test was applied for calculating the results.

Results: The majority of the respondents had good information regarding nutrition/ balanced diet, hygiene and hand-washing, safety, injury prevention during traveling at home and school, use of drugs, oral and dental hygiene, attitude and behavior in schools, community and family, relationships with teachers and classmates and sports and physical health. The response was poor regarding avoidance of worm infestation, availability of health facilities, parenthood and sexually transmitted diseases. Secondary school teachers had good 70(87.5%) information about health education and health promotion regarding important public health issues in comparison with secondary school students.

Conclusion: The majority of the respondents had good information about nutrition/ balanced diet, hygiene and hand washing, safety, injury prevention during traveling at home and school, use of drugs, oral and dental hygiene and sports and physical health. The teachers had better knowledge about public health problems than the students.

Keywords: *Health literacy. Health promotion. Health education. Public health. Health promoting schools. Physical health.*

INTRODUCTION

The schools have attained the concept of health literacy throughout the world and are trying to achieve the public health goals with their educational strategies for health promotion. The interface between a school's core business of education and public health goals is identified in the area of malnutrition, hygiene, avoidance of worm infestation, safety, injury prevention, drugs, relationships, risk behavior and parenthood. School plays an important role in health promotion of the students and the community through health literacy. The school is primarily a basic unit in upbringing the wealth and health of the countries and education plays an important role in bridging the gap between rich and poor. There is a very strong association between poverty and poor health.[1] The schools can equip young people with knowledge to enable them to be an active participant in shaping the policies and practices that have good effects on their own health, the health of their relatives and other population of their country. Research in the education field has given us better knowledge of how schools can contribute to achieve health goals.[2,3]

Research also indicates that schools can play a role in health literacy by achieving Nutbeam's levels; the functions of health literacy regarding communication of information, health literacy through interaction for the development of personal skills and critical health literacy for personal and community empowerment. It also denotes the successful practices and working of school health teams that are responsible for gaining the health literacy outcomes of public health promotion and health education.[4]

About 23% population of South East Asian countries is of age group 10 to 18 years. This period of adolescence is a crucial formative period of life because major physical, psychological and behavioral changes take place during this period. The health related interventions are required in the areas like diet, malnutrition, hygiene, avoidance of worm infestation safety, injury prevention, relationships, sexuality, parenthood and drug reduction.[5]

The major role of schools is about getting the maximum educational outcomes from their students. There are strong links between poor health and educational achievements.[6,7] The schools have started recognizing these links and attain the concept of a whole school approach in dealing the social issues and treating the health problems, which will help them in getting the maximum educational and learning outcomes.[8] This is usually known as 'health promoting school' or 'coordinated school health' approach. The basic aim of these schools is to attain educational goals by treating the health issues within an education set up. St Leger and Nutbeam have suggested that the health promotion through schools contribute to four main school related outcomes: learning skills for life long, competencies and behaviors, specific cognitive knowledge and skills and self-attributes. It is asserted that these building

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Dr. Muhammad Anwar Sulehri
Associate Prof. Department of Community Medicine
Sharif Medical and Dental College
E-mail: anwarsulehri73@yahoo.com

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blocks are necessary to achieve both health and educational outcomes, and are fundamental to health literacy.[9]

METHODOLOGY

This was a descriptive analytical study, which was conducted in eight secondary schools, four from each district Lahore and Faisalabad from January to February 2016. Two girls and two boys secondary schools were selected with simple random sampling method from each district. Ten teachers and ten students were interviewed from each school. A total of 160 respondents, 80 from district Faisalabad and 80 from Lahore were selected for the study. A semi-structured questionnaire was framed in English language and translated into Urdu and vice versa by a subject specialist. These were pilot tested to remove the ambiguities and then delivered to the respondents for data collection. Before data collection, permission was taken from the ethical committee of the institution. Consent was taken from the respondents. Data analysis was performed by using SPSS 21. The result was interpreted in percentages. Chi-square test was applied for calculating the results. The study was conducted at confidence level 95% and a P value < 0.05 was considered significant.

RESULTS

The majority of the respondents had good information regarding nutrition/ balanced diet, hygiene and hand-washing, safety, injury prevention during traveling at home and school, use of drugs, oral and dental hygiene. The response was poor regarding avoidance of worm infestation and availability of health facilities (Table 1). A statistically significant p-value indicates that there was a significant difference in the level of information of graduate teachers and matriculation students. The teachers had better knowledge and information than students regarding public health problems and issues.

Table 1: Perception of information regarding health education and medical problems according to respondent's education level

Responses regarding information about nutrition / balanced diet and health promotion				
Education	**Response**		**Total**	**P-Value**
	Yes	**No**		
Matric (student)	37(46.3%)	43(53.7%)	80	0.0001
Graduation and above (teacher)	67(83.7%)	13(16.3%)	80	
	104(65.0%)	56(35.0%)	160	
Responses regarding health education and health promotion about hygiene and hand-washing				
Education	**Response**		**Total**	**P-Value**
	Yes	**No**		
Matric (student)	48(60.0%)	32(40.0%)	80	0.0001
Graduation and above (teacher)	72(90.0%)	8(10%)	80	
	120(75.0%)	40(25.0%)	160	
Responses regarding health education about safety at home and school				
Education	**Response**		**Total**	**P-Value**
	Yes	**No**		
Matric (student)	52(65.0%)	28(35%)	80	0.034
Graduation and above (teacher)	64(80.0%)	16(20%)	80	
	116(72.5%)	44(27.5%)	160	
Responses regarding health education about injury prevention during traveling at home and school				
Education	**Response**		**Total**	**P-Value**
	Yes	**No**		
Matric (student)	34(42.5%)	46(57.5%)	80	0.011
Graduation and above (teacher)	50(62.5%)	30(37.5%)	80	
	84(52.5%)	76(47.5%)	160	
Responses regarding health education and health promotion about the use of drugs				
Education	**Response**		**Total**	**P-Value**
	Yes	**No**		
Matric (student)	21(26.2%)	59(73.8%)	80	0.001
Graduation and above (teacher)	42(52.5%)	38(47.5%)	80	
	63(39.4%)	97(60.6%)	160	

Responses regarding health education and health promotion about oral and dental health				
Education	Response: Yes	No	Total	P-Value
Matric (student)	30(37.5%)	50(62.5%)	80	0.004
Graduation and above (teacher)	48(60.0%)	32(40.0%)	80	
	78(48.8%)	82(51.2%)	160	
Responses regarding health education about how to avoid worm infestations				
Education	Response: Yes	No	Total	P-Value
Matric (student)	24(30.0%)	56(70.0%)	80	0.023
Graduation and above (teacher)	38(47.5%)	42(52.5%)	80	
	62(38.8%)	98(61.2%)	160	
Responses regarding the availability of health facilities in Schools				
Education	Response: Yes	No	Total	P-Value
Matric (student)	17(21.2%)	63(78.8%)	80	0.016
Graduation and above (teacher)	31(38.8%)	49(61.2%)	80	
	48(30.0%)	112(70.0%)	160	

The majority of the respondents had good information regarding attitude and behavior in schools, community and family, relationships with teachers and classmates & sports and physical health. There were poor responses regarding parenthood and sexually transmitted diseases. It showed that our schools are weak in imparting health education and health promotion about parenthood and sexually transmitted diseases. There was a significant difference in the level of information according to the age of the respondents (P-value < 0.05). The teachers had an age of 22 years and above so they had better knowledge and information than students regarding socio- cultural problems (Table 2).

Table 2: Perception of information regarding health education and socio- cultural problems according to respondent's Age

Responses regarding relationships with teachers, classmates and other friends				
Age in years	Response: Yes	No	Total	P-Value
16-18 (student)	49(61.3%)	31(38.7%)	80	0.004
22 and above (teacher)	31(38.7%)	49(61.3%)	80	
Total	80(50.0%)	80(50.0%)	160	
Responses regarding health education about attitude and behavior in schools, community and family				
Age in years	Response: Yes	No	Total	P-Value
16-18 (student)	32(40.0%)	48(60.0%)	80	0.04
22 and above (teacher)	45(56.3%)	35(43.7%)	80	
Total	77(48.1%)	83(51.9%)	160	
Responses regarding health education and health promotion about parenthood				
Age in years/Response	Response: Yes	No	Total	P-Value
16-18 (student)	19(23.8%)	61(76.2%)	80	0.041
22 and above (teacher)	31(38.8%)	49(61.2%)	80	
Total	50(31.2%)	110(68.8%)	160	
Responses regarding health education and health promotion about sexuality/sex education and sexually transmitted diseases (STDs)				
Age in years	Response: Yes	No	Total	P-Value
16-18 (student)	14(17.5%)	66(82.5%)	80	0.028
22 and above (teacher)	26(32.5%)	54(67.5%)	80	
Total	40(25%)	120(75%)	160	

Responses regarding sports and physical health				
Age in years	Response		Total	P-Value
	Yes	No		
16-18 (student)	59(73.8%)	21(26.2%)	80	0.048
22 and above (teacher)	69(86.2%)	11(13.8%)	80	
Total	128(80%)	32(20%)	160	

In this study, we found that majority of the respondents that had better knowledge 70(87.5%) were secondary school teachers with educational qualification of graduation and above. They had good information about health education & health promotion regarding important public health issues and problems in comparison with secondary school students 20(25%). A significant p-value showed the prominent difference of information and knowledge about health issues in the respondents according to their education level (Table 3).

Table 3: Perception of information according to their education level regarding important public health issues and problems

Responses regarding overall information about health education & health promotion regarding important public health issues and problems				
Education	Response		Total	P-Value
	Yes	No		
Secondary School (students)	20(25%)	60(75%)	80	0.00001
Graduation and above (teachers)	70(87.5%)	10(12.5%)	80	
	90(56.2%)	70(43.8%)	160	

DISCUSSION

According to our study, the majority of the respondents had good information regarding nutrition/ balanced diet, hygiene and hand-washing, safety, injury prevention during traveling at home and school, use of drugs, oral and dental hygiene, attitude and behavior in schools, community and family, relationships with teachers and classmates & sports and physical health. The response of the study subjects was poor regarding avoidance of worm infestation and availability of health facilities, parenthood and sexually transmitted diseases. It shows that our schools are weak in imparting health education and health promotion about some socio-cultural issues of public health importance. According to age and educational level of the respondents, the results of the study also showed that majority of the respondents were secondary school teachers and of age 22 years and above. They had good information about health education & health promotion regarding important public health issues in comparison with secondary school students of age 16-18 yeas, who had only 20(25%) positive responses in this regard. A statistically significant p-value showed the prominent difference of information and knowledge about health issues in the respondents according to age. The results of the respondents with reference to their qualification are the same and consistent as shown in their age group. The teachers had more information about public health problems than the students.

A study by Hopkins showed that good schools demonstrate quality teaching and learning approaches and attain all levels of health literacy. The schools have a strong effect on the child's social, cognitive and health attainments .It is evident that teachers and schools have a very effective role in creating a healthier learning environment for their students. The results of our study regarding socio-cultural issues are weak to some extent as compared to the study of Hopkins**.** Regarding the performance of teachers about information related to health issues, our results are inconsistent with other studies.[8,10,11]

The results of our study show that our teachers are well versed with the public health information. They have knowledge about social and physical health policies. Similar results were seen in other studies.[13,14] According to a study, schools play the very important role in the achievement of health education and public health and promotion.[15] The majority of the health problems affecting school children are preventable by the promotion of health hygienic practices through a proper health education by the teachers in the schools.[16] All the above findings are consistent with our study because majority (80%) students in boys and girls schools have good health activities and health status through health promotion and health education by their teachers.

CONCLUSION

The majority of the respondents had good information about nutrition/ balanced diet, hygiene and hand washing, safety, injury prevention during traveling at home and school, use of drugs, oral and dental hygiene and sports and physical health. The teachers had more information about public health problems than the students. Our schools are delivering good information and knowledge to achieve health education and public health promotion.

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Original Article

Frequency of Hypertension among Doctors and Paramedics working in a Tertiary Care Hospital, Lahore

Tahawar Hussain, Samina Khalid, Tahir Mahmud, Amna Iqbal, Qurat ul Asif, Laila Afzal, Syma Arshad, Muhammad Shahid Iqbal

ABSTRACT

Objective: The objective of the study was to find out the frequency of hypertension among doctors and paramedics working in tertiary care hospital.

Methodology: It was a cross-sectional study in which 220 doctors and paramedics working in Mayo Hospital, Lahore were included. Data was collected through a questionnaire, which was entered into the computer using SPSS 17.0.

Results: Among 220 doctors and paramedics, 74.1% were males and 35.9% were 25-30 years old. Out of 220 participants, 70.9% were doctors and 29.1% were paramedics. The majority (84.5%) had no family history of hypertension. Regarding risk factors for hypertension, 25.9% took more salt in meals, 23.2% were smokers and 80.5% did not perform physical activity regularly. Sixty one (27.7%) doctors and paramedics were aware that they are hypertensive and 59.1% had <5 years duration of hypertension. Among 61 doctors and paramedics, 45 were taking the anti-hypertensive drug. The prevalence of hypertension was 37.3%. Among doctors and paramedics, 31.8% male and 5.5% females had hypertension. Similarly, 30.0% married, 7.3% unmarried had hypertension, 6.4% postgraduates, 21.8% MBBS, 5.9% graduates and 3.2% undergraduate had hypertension.

Conclusion: The majority of doctors and paramedics had no family history of hypertension. Physical activity was found unsatisfactory. The prevalence of hypertension was 37.3%. The majority was taking an anti-hypertensive drug. Doctors and paramedics must be advised about healthy lifestyle modifications e.g. to control weight with planned exercise, curtail dietary salt and quit smoking.

Keywords: *Frequency. Hypertension. Doctors. Paramedics. Blood pressure.*

INTRODUCTION

Hypertension, also commonly called high blood pressure (BP), is a state in which the blood vessels have continuously increased pressure. Hypertension is defined as systolic blood pressure equal to or above 140 mmHg and diastolic blood pressure equal to or above 90mmHg.[1] Hypertension is an important cause of morbidity and mortality due to its high prevalence and severe consequences.[2,3] It has been labeled by the World Health Report as the third ranked factor for disability-adjusted life years. It is the most common risk factors for cardiovascular diseases, stroke, end stage kidney disease and premature death.[4,5] Hypertension has been claimed as a cause of at least 45% of deaths due to heart diseases and 51% of deaths due to stroke.[6]

In 2008, around the world, about 40% of adults of age 25 years and above had been clinically labeled as hypertensive. Countries with high economic status have a lower prevalence of hypertension (35%).[7] The prevalence of hypertension varies from 15-35% in an urban adult population of Asia as compared to the rural population.[8] In Pakistan, the prevalence of hypertension has been estimated as 34% in men and 24% in women.[9] Hypertension is more common in men after 35 years of age than women of that age. In Pakistan, there are approximately 12 million diagnosed hypertensive patients.[10]

Hypertensive people are usually asymptomatic but there is a common misconception that peoples with hypertension always experience symptoms. Sometimes hypertension causes symptoms such as headache, shortness of breath, dizziness, chest pain, palpitations of the heart and bleeding from the nose. Hypertension is a serious health issue that requires lifestyle modification.[1]

The risk factors such as aging, obesity, sedentary lifestyles, diabetes, smoking, unhealthy diet especially high salt consumption and excessive alcohol consumption have profound effect on the increasing prevalence of hypertension in middle and later decades of life.[4,11,12]

The overwhelming burden of high blood pressure demands not only an increase in awareness, management of this condition but also targeted efforts towards primary prevention. Changes in the lifestyle of the general population would result in a lower prevalence of high BP. For the management of hypertension, non-pharmacological options should be explored in all patients who are hypertensive or pre-hypertensive.[13] These scientifically proven methods include weight control with planned exercise, reducing

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Prof. Dr. Muhammad Shahid Iqbal
Prof. Department of Community Medicine
Sharif Medical and Dental College
E-mail: shahid.iqbal@sharifmedicalcity.org

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dietary salt, the DASH diet concept (dietary approaches to stop hypertension), which comprises dietary plan rich in fruits and vegetables and low-fat or fat free dairy foods, quitting tobacco and alcohol use and combating stress and strains with psychotherapy.[14] Several studies have been done regarding hypertension but a few studies were conducted among doctors and paramedics. Therefore, it is pertinent to conduct a study to assess the frequency of hypertension among doctors and paramedics working at Mayo Hospital, Lahore.

METHODOLOGY

It was a cross-sectional study. The place of study was Mayo Hospital, Lahore. Doctors and paramedics working in Mayo Hospital, Lahore were the study population. The duration of the study was one month. The sample size of the study was 220. The study was approved by hospital ethical committee and written consent was taken from all the study participants. A semi-structured questionnaire was prepared and finalized after pre-testing. The doctors and paramedics working in Mayo Hospital, Lahore were interviewed. The data collected through questionnaires was entered into the computer using SPSS17.0 and was statistically analyzed with same software. Chi-square test was applied for the association between variables.

RESULTS

Among 220 doctors and paramedics, 13 (5.9%) were less than 25 years old, 79 (35.9%) were 25-30 years old and 66 (30.0%) were 31-40 years old while 62 (28.2%) doctors and paramedics were more than 40 years old with majority 163 (74.1%) were males and 175 (79.5%) married. Regarding the educational status of study participants, 41(18.6%) had done their post-graduation, mainstream 115 (52.3%) had MBBS degree and 47 (21.4%) were graduate while 17 (7.7%) were undergraduate with 156 (70.9%) doctors and 64 (29.1%) were paramedics. The major proportion 156 (70.9%) had monthly family income more than 50,000 rupees (Table 1).

Table 1: Socio-demographic characteristics of doctors and paramedics (n = 220)

Characteristics	Frequency	Percentage (%)
Age		
<25 years	**13**	**5.9**
25-30 years	**79**	**35.9**
31-40 years	**66**	**30.0**
>40 years	**62**	**28.2**
Gender		
Male	**163**	**74.1**
Female	**57**	**25.9**
Marital status		
Married	**175**	**79.5**
Unmarried	**45**	**20.5**
Education		
Post-graduation	**41**	**18.6**
MBBS	**115**	**52.3**
Graduation	**47**	**21.4**
Under-graduation	**17**	**7.7**
Designation		
Doctor	**156**	**70.9**
Paramedic	**64**	**29.1**
Total monthly family income (Rs.)		
<25000	**47**	**21.4**
25000-50000	**17**	**7.7**
>50000	**156**	**70.9**

Among 220 doctors and paramedics, 34 (15.5%) had a family history of hypertension, 57 (25.9%) said they take more salt in meals and 51 (23.2%) were smokers. Only 43 (19.5%) performed physical activity regularly. Sixty one (27.7%) respondents were aware that they are hypertensive. Among 61 doctors and paramedics who were aware that they are hypertensive, 82 (37.3%) had hypertension while majority 138 (62.7%) had no hypertension and 45 (73.8%) were taking an anti-hypertensive drug (Table 2).

Association of hypertension with gender among doctors and paramedics was found statistically significant (P = 0.005). Similarly, an association of hypertension with marital status and education among doctors and paramedics was found statistically insignificant (P-value= 0.78 and P-value= 0.37 respectively) (Table 3).

DISCUSSION

Two hundred and twenty doctors and paramedics were included in the study. We found that most of the doctors and paramedics 158 (71.8%) were up to 40 years old while only 62 (28.2%) were more than 40 years old . This is in contrast to the findings of the study conducted by Sharif et al. who reported that only 22.4% doctors and paramedics were up to 40 years old while the significant majority (77.6%) were more than 40 years old.[15] As far as gender is concerned, the study disclosed that 163 (74.1%) doctors and paramedics were males while only 57 (25.9%) were females. The findings of the study are comparable with the study done by Ordinioha, who asserted that majority (65.3%) of doctors and paramedics were males and 34.7% were females.[16] The study also assessed the marital status and found that mainstream 175 (79.5%) of doctors and paramedics were married while only 45 (20.5%) were unmarried. This corresponds to the findings of the study conducted by Shaikh et al. who reported that majority (74.2%) were married and only 25.8% were unmarried.[13]

In this study, we found that only 34 (15.5%) doctors and paramedics had a family history of hypertension. The results of our study are better than the study done by Sobrino et al. who confirmed that 45.4% respondents had a family history of hypertension.[17]

Excessive salt intake and smoking could be a leading cause of hypertension. The study revealed that 57 (25.9%) doctors and paramedics took more salt in meals and 51 (23.2%) were accustomed of smoking. The findings of our study are comparable with the study undertaken by Sharif et al. who asserted that 25.7%

Table 2: Risk factors of hypertension in respondents

Risk factors	Frequency	Percentage (%)
Family history		
Yes	**34**	**15.5**
No	**186**	**84.5**
Increase salt intake		
Yes	**57**	**25.9**
No	**163**	**74.1**
Smoking		
Yes	**51**	**23.2**
No	**169**	**76.8**
Physical activity		
Yes	**43**	**19.5**
No	**177**	**80.5**
Hypertension awareness		
Yes	**61**	**27.7**
No	**159**	**72.3**
Frequency of hypertension		
Yes	**82**	**37.3**
No	**138**	**62.7**
Antihypertensive drugs intake (n=61)		
Yes	**45**	**73.8**
No	**16**	**26.2**

Table 3: Association of hypertension with socio-demographic variables

	Hypertension		Total	Statistical significance
Gender	**Yes**	**No**		
Male	70(31.8%)	93 (42.3%)	163 (74.1%)	0.005
Female	12 (5.5%)	45 (20.4%)	57 (25.9%)	
Marital status				
Married	66 (30.0%)	109 (49.5%)	175 (79.5%)	0.78
Unmarried	16 (7.3%)	29 (13.2%)	45 (20.5%)	
Education				
Post graduation	14 (6.4%)	27 (12.2%)	41 (18.6%)	0.37
MBBS	48 (21.8%)	67 (30.5%)	115 (52.3%)	
Graduation	13 (5.9%)	34 (15.5%)	47 (21.4%)	
Under graduation	7 (3.2%)	10 (4.5%)	17 (7.7%)	

doctors and paramedics were smokers.[15] Another study performed by Shaikh et al. exhibited better scenario than our study results that only 12.1% doctors and paramedics were accustomed of smoking.[13]

Physical activity plays an imperative role in keeping the population happy and healthy. According to our study only 43 (19.5%) doctors and paramedics had physical activity due to time constraints and other obligations. The results of the study carried out by Sharif et al. exhibited better scenario than our study results who stated that 30.0% doctors and paramedics performed physical activity.[15]

Only 61 (27.7%) doctors and paramedics were aware that they are hypertensive. The findings of our study are comparable but showed better results than the study done by Aquino et al. who asserted that 36.4% doctors and paramedics were aware that they are hypertensive.[18] Only 45 (73.8%) were taking an antihypertensive drug to keep them away from the ill effects of hypertension. The results of our study are much better than the study conducted by de Aquino et al. who confirmed that only 14.3% doctors and paramedics were taking antihypertensive drug.[21]

The results of the study carried by Shaikh et al. are better than our study results who confirmed that only 15.3% doctors and paramedics had hypertension.[13]

CONCLUSION

Most of the study participants were married males between 25-40 years with family monthly income more than 50,000 rupees. The majority of doctors and paramedics had no family history of hypertension. No additional salt intake was observed among majority with one-fourth of doctors and paramedics were smokers. Physical activity was found unsatisfactory. The little portion was aware that they are hypertensive and among them, more than half had a duration of hypertension up to 5 years. The frequency of hypertension was 37.3%. The majority of doctors and paramedics were taking the anti-hypertensive drug.

RECOMMENDATIONS

- Doctors and paramedics should check their blood pressure regularly.
- People who have a family history of hypertension should be more alert and should have regular check up for the prevention of hypertension.
- Excessive salt intake should be avoided for the prevention of hypertension. A nationwide health promotion campaign on the reduction of salt intake should be prioritized.
- Doctors and paramedics must be advised about healthy lifestyle modifications e.g. cessation of smoking, weight reduction and regular physical exercise, diet etc.
- Health education and programs on mass media regarding hypertension and its risk factors should routinely be arranged.

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Original Article

Violence During Pregnancy: Determinants and Association with Small Size of Baby at Birth

Muhammad Anwar Sulehri, Younas Mehrose, Madiha Anwar Sulehri, Rabia Anwar

ABSTRACT

Objective: Intimate partner violence (IPV) is a global health concern. The aim of this study was to determine whether there is an association between IPV and the size of child at the time of birth.

Methodology: A systematic data collected from Pakistan Demographic Health Survey (PDHS) who have undergone physical violence by the partner, measurements were made using Conflict Tactics Scale. Respondents were asked who committed the violence and the frequency of such violence during the 12 months preceding the survey, data was collected and analyzed using SPSS 22. The results are interpreted in percentages for standardization.

Results: Majority 699 (18.9%) reported cases belongs to age group 35-39 and out of these , 208 (29.7%) females suffered from severe violence. Majority 2050 (55.6%) cases belong to the group with no education at all. There is a robust relationship in physical violence and wealth index for the reported cases. Out of 3686 reported population 683 (18.5%) respondents belong to the poorest category and out of these 228 (33.4%) cases were reported who were suffered from physical violence. The size at the time of birth was measured and out of all the 1606 (79%) cases who delivered baby with normal or above size only 473 (29.5%) females were reported who have been victimized during pregnancy by less physical violence, while the rest of 427 (21%) cases delivered child with small size at time of birth and out of those 427, 145 (33.9%) females have experienced more severe physical violence during pregnancy by their husband or partner.

Conclusion: There is a significant relationship between the size of child at the time of birth with the occurrence of physical violence to the mother during pregnancy by the partner/husband The mothers who were reported to have severe physical violence during pregnancy have small size of baby at time of birth; While the mothers who had less physical violence had normal or above size baby at the time of birth.

Keywords: *Violence. Pregnancy. Small size baby. Intimate partner. Spouse.*

INTRODUCTION

Domestic violence during pregnancy is a serious public health problem and an important issue that threatens maternal and foetal out comes.[1-4] Domestic violence is defined as "Any act of gender-based violence that results in physical, sexual or mental harm or suffering to women including threats of such acts, coercion or arbitrary deprivation of liberty, whether it occurs in public or in private settings or places in a women's life.[5] Globally, it is estimated that at least one woman in every five has been physically or sexually abused at some time in her life.[5,6] The prevalence of domestic violence against pregnant woman varies widely ranging from 1.2 to 66 %. This variation is perhaps due to differences across the studied sampled population as well as differences in methodologies, cultural aspect and definitions that make it difficult to compare the results.[2-5] Spousal abuse and violence is related to use of physical force by the husband with the intention to cause injury, harm or death, or any act of psychological violence in the form of humiliation, forced separation, repeated yelling, degradation or intimidation.[7]

Spousal violence is not only prevalent in rural areas of Pakistan but also wide spread in cities such as Karachi, Lahore, Rawalpindi and other cities of Pakistan.[8] Pakistan is an Islamic democratic country, with majority of Muslim population (97%). According to Constitution of the Islamic Republic of Pakistan Article 2, it states that "Islam shall be the religion of Pakistan" and no law can be enacted that contradicts the basic teachings of Quran and Sunnah (Constitution of Pakistan 1973). Majority of the people trust in the Islamic institutions like mosques and madrassa (religious school) delivering Islamic teachings.[9]

Religion is not just a set of spiritual beliefs, but it also overwhelmingly dominates in the social, political and personal lives of individuals. They can play an important role in providing counselling services in domains of life including marriage, divorce, inheritance disputes and other day to day problems. It has been assumed that in Pakistani culture, spousal abuse and violence cases will first go for help, relief and counselling to these religious leaders or eminent personalities of their areas.[9]

Physical violence, sexual trauma or psychological stress during pregnancy are associated with adverse pregnancy outcome. Pregnancy provides an opportunity for physical violence assessment due to the frequent hospital visits of the pregnant women.[9] In Pakistan, there are few studies on spousal violence during pregnancy, its prevalence and associated

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Dr. Muhammad Anwar Sulehri
Associate Prof. Department of Community Medicine
Sharif Medical and Dental College
E-mail: anwarsulehri73@yahoo.com

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outcomes after delivery. In spite of signing the declaration by many countries of the world, violence against women is still present in many developed and developing nations worldwide. It is a global public health concern as it puts many women at severe risk for their health and lives .[10]

The women who are socially more vulnerable belong to low income families, have low education, are unmarried or are of younger age. They all are at higher risk for abuse and violence. In the women of reproductive age group, violence may cause adverse health effects on the women, pregnancy related problems and poor outcomes such as unwanted pregnancy, maternal pregnancy complications, lower birth weight, preterm birth, peri-natal morbidity, maternal physical health problems, abortions, higher hospital services utilization, depression after delivery, drugs abuse and suicide.[11]

The objective of this study was to assess the association of spousal physical violence during the 12 months before delivery and the size of child at time of birth as outcome measure and also to evaluate this association with other demographic parameters like age, locality, financial status and education level of males/females.

METHODOLOGY

In the 2012-13 Pakistan Demographic and Health Survey (PDHS), information was obtained from ever-married women between ages 15-49 years on violence committed by their current/former spouses and by others.

These detailed measurements were made using a concise version of Conflict Tactics Scale.

Respondents who answered this question in the affirmative were asked about who committed the violence against them. The frequency of such violence and the period during which it was inflicted before the study was also noted.

The questions were asked and the data was collected and analysed using SPSS version 22.0.

The results were interpreted and discussed in percentages for standardization. Informed consent was taken and the study was approved by hospital ethical committee.

RESULTS

The results of the study were interpreted in the textual and tabular form. The important results were mentioned in the end of the tables in textual form.

Table 1 shows the result that there is an insignificant relationship between age group of the reported population with the physical violence done by the husband/partner. It shows that out of all the population (3686), 116 (3.1%) cases were reported with age group 15-19 years and out of all those, 27 (23.3%) females have reported less severe violence by their partner/husband; 478 (12.9%) reported cases belonged to age group 20-24 years and out of all, 124 (25.9%) females suffered from any less severe violence; 691 (18.7%) cases were reported with age group 25-29 years and out of all those 188 (27.2%) women reported less severe violence by their guardians and husbands; 693 (18.8%) reported cases belonged to age group 30-34 years and out of all those 203 (29.3%) females suffered from any less severe violence; 699 (18.9%) cases were reported with age group 35-39 years and out of all those, 208 (29.7%) females reported less severe violence by their partner/husband; 523 (74.8%) reported cases belonged to age group 40-44 years and out of all those 148 (28.3%) females suffered from less severe violence; 486 (13.2%) cases were reported with age group 45-49 years and out of all those, 135 (27.7%) women reported less severe violence by their guardians and husbands.

Among women who had experienced any physical violence from their spouse, it was reported that they suffered cuts, bruises, aches, eye injuries, sprains, dislocations, burns, deep wounds, broken bones, broken teeth or other serious injuries.

According to the collected data, Figure 1 shows that there is a significant relationship in the prevalence of physical violence among various regions of Pakistan.

Table 1: Age of the spouse and physical violence by husband / partner

Age groups	Violence by husband/partner		Total
	No	Yes	
15-19	89	27	116
20-24	354	124	478
25-29	503	188	691
30-34	490	203	693
35-39	491	208	699
40-44	375	148	523
45-49	351	135	486
Total	2653	1033	3686

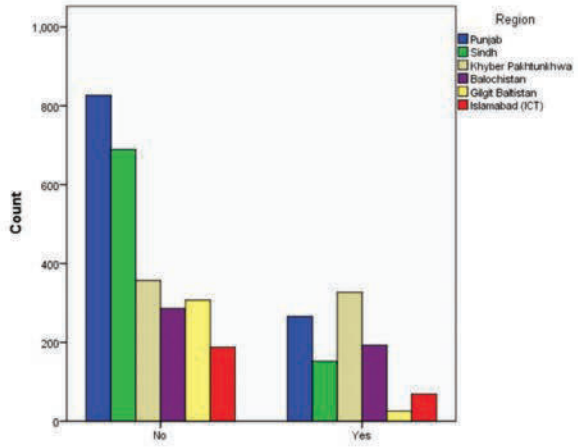

Figure 4: Experienced any less severe violence (D105A-C,J) by husband/Partner

Out of 1092 (29.6%) cases that were reported in the region of Punjab, 81 (7.4%) females reported less severe violence by their partner/husband; 841 (22.8%) reported cases belonged to the region of Sindh and out of all those, only 40 (4.75%) females suffered from less severe violence; among 684 (18.5%) reported cases in the region of KPK only 63 (9.2%) females have reported less severe violence by their partner/husband; 479 (12.9%) reported cases belonged to the region of Baluchistan and out of all those only 38 (7.9%) females suffered from less severe violence; 333 (9%) cases that were reported in the region of Gilgit Baltistan only 8 (2.4%) females have reported and 257 (69.7%) reported cases belonged to the region of Islamabad, out of all those only 27 (10.5%) females suffered from less severe violence.

Results show that there is insignificant relationship between the prevalence of physical violence and the locality of residence, out of 1733 (47%) cases that were reported in the urban regions of Pakistan, 106 (6.1%) females reported less severe violence while 1627 (93.9%) didn't report any such violence and from the remaining 1953 (53%) reported cases which belonged to the rural region of Pakistan, only 151 (77.3%) females suffered from less severe violence.

Violence during pregnancy showed a significant relationship with educational status of husband/partner as seen in Table 2. Among the total of 3683 reported cases, 1149 (31.2%) cases belonged to the group with no education at all. Out of those 1149 cases, 411 (35.8%) were reported who were involved in the incidence of physical violence. Four hundred and ninety eight (13.5%) cases who had education till primary standards and out of all those 149 (29.9%) cases reported to be involved in physical violence. Among 1164 (31.6%) cases, who had their education level till secondary school, 311 (26.7%) cases were reported with occurrence physical violence. Among 867 (23.5%) reported cases who were having higher education, 157 (18.1%) cases were reported to be involved in physical violence.

As shown in Table 2, violence during pregnancy showed a significant relationship with educational status of females who were being grieved with the incidence of physical violence by the partner/husband. From the total of 3686 reported cases, 2050 (55.6%) cases belonged to the group with no education at all. And out of those 2050 cases, 179 (8.7%) were reported who were involve in the incidence of physical violence. 530 (14.3%) cases reported who had education till primary standards and out of all those, 36 (6.8%) cases reported to be involved in physical violence. From the 654 (17.8%) cases who had their education level till secondary standards, 31 (4.7%) cases were reported with physical violence. And from the 452 (12.3%) reported cases who were having higher education, 11 (2.4%) cases were reported to be involved in physical violence.

There is a robust relationship in physical violence and wealth index for the reported cases. Out of 3686 reported population, 683 (18.5%) respondents belonged to the poorest category and 228 (33.4%) cases were reported who suffered from physical violence.

Table 2: Husband education level / female education level and experience of physical violence of the spouse

Education Level	Husband/partner's education level			Pearson Chi-Square Asymptotic significance (2 sided)	Female's Education level			Pearson Chi-Square Asymptotic significance (2 sided)
	Experience of violence by husband/partner		Total		Experience of violence by husband/partner		Total	
	No	Yes			No	Yes		
No education	738	411	1149		1871	179	2050	
Primary	349	149	498		494	36	530	
Secondary	853	311	1164	0.000	623	31	654	0.000
Higher	710	157	867		441	11	452	
Don't know	3	2	5		0	0	0	
Total	2653	1030	3683		3429	257	3686	

Table 3: Size at birth with relation to severity of violence by husband/partner

Recorded size	Experienced any less severe violence by husband/partner		Total	Pearson chi-square asymptotic significance (2 sided)
	No	Yes		
Normal or above size at birth	1133	473	1606	0.042
Small size at birth	282	145	427	
Total	1415	618	2033	

714 (19.4%) cases belonged to the category of poorer and had 248 (34.7%) reported cases of physical violence. 684 (18.5%) respondents belonged to the middle class category and 223 (32.6%) cases were reported who suffered from physical violence. 768 (20.8%) cases belonged to the category of richer and had 196 (25.5%) reported cases of physical violence. 837 (22.7%) respondents belong to the richest category and only 138 (16.5%) cases were reported who suffered from physical violence.

Only 2033 (55.1%) cases out of all the reported 3686 population were able to deliver alive baby. There is a significant relationship between the sizes of child at the time of birth with the occurrence of physical violence to the mother during pregnancy by the partner/husband as seen in Table 3. The size at the time of birth was measured and out of all the 1606 (79%) cases who delivered baby with normal or above size, only 473 (29.5%) females were reported who had been victimised during pregnancy by physical violence, while the rest of 427 (21%) cases delivered child with small size at time of birth and out of those, only 145 (33.9%) females had experienced any less or more severe physical violence during pregnancy by their husband or partner.

DISCUSSION

According to the World Health Organisation's (WHO) study on Women's Health and Domestic Violence against Women, the percentage of all women from the age of 15 who experienced physical or sexual violence or both, by partner or non-partners, was between 18.5% and 75.8%. Non-partner violence prevalence ranged from 5.1% to 64.6% and violence by an intimate partner from 15.4-70.9% depending on the country.[1-4] Spousal violence, especially of pregnant women is also a burning issue and an important problem. The literature review indicates a prevalence of 1.2% to 51%.[12] This wide range in frequency may be due to differences in study designs, definitions, study populations and sample size.[13] A study in Saudi Arabia indicated a prevalence of physical violence during pregnancy of 21%.[12] In this study it was found that husbands were the perpetrator in the majority of cases (87%).[12]

In our study, apparently there is a consistent relationship between size of child at birth and physical violence, about 34% (145/427) of the cases of violence had small size at time of birth, while 29.45% (473/1606) has normal or above size.

Pregnant women are no less vulnerable to violence than other women. The effect of this violence is apparent in the form of many birth related complications or abortion. In fact, pregnancy provides an opportunity for abuse assessment due to the frequent visits of the women to the hospital. Females can easily be approached. According to WHO 2002 report in 48 different countries, 10-69% of women were being physically hit by their partners in their life time. [14] The evident risk factors of spousal abuse and violence during pregnancy include maternal age, ethnicity, low level of education, employment status, smoking, alcohol and drug abuse.[15]

Domestic violence has usually been seen in Punjab as compared to other provinces, more in rural areas, most commonly to the females of ages 25 to 40, who are illiterate by the men who were usually illiterate and were skilled or holding some managerial post belonging to upped middle or lower class.

In a study, conducted by Nabila on effect of domestic violence on pregnancy outcome, infant birth outcome (in terms of birth weight and size) did not differ in the two groups.[16] In our study, there is a significant relationship between the size of child at the time of birth and occurrence of physical violence to the mother during pregnancy by the partner/husband.

CONCLUSION

It has been concluded from the above results that the underage marriage, lower education level of men and women, being jobless or inexperienced or having poor job nature has direct relation with incidence of physical violence. There is a significant relationship between the size of child at the time of birth (p-value 0.042) with the occurrence of physical violence to the mother during pregnancy by the partner/husband. The mothers who were reported to have severe physical violence during pregnancy had small size of baby at time of birth; while the mothers who had less physical violence had normal or above size baby at the time of birth.

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Original Article

In Vivo Comparison of Conventional and Resin Reinforced Glass Ionomer Cement for Banding of Teeth

Iffat Batool, RaheelaYasmin, Hasnain Abbas

ABSTRACT

Objective: The present in-vivo study was performed to analyze the clinical efficacy of molar bands cemented with resin modified glass ionomer cement (RMGIC Gc Fuji Plus) with that of a conventional glass ionomer cement (GC 1 Gold Label) adhesive.

Methodology: Fifty-Nine orthodontic subjects were assigned into 2 groups randomly. Group 1 included 29 patients having all the maxillary and mandibular first permanent molar teeth banded with conventional non-resin glass ionomer cement (GC 1 Gold Label). Group 2 had 30 Orthodontic patients having all the maxillary and mandibular first permanent molar teeth banded with resin modified glass ionomer cement (GC Fuji Plus). This one year randomized clinical trial was conducted at Orthodontics Department, Sharif Medical and Dental College.

Results: The rate of band failure at first visit after banding with conventional glass ionomer cement (GIC) was 41% and with resin modified glass ionomer cement was 23%. At second visit the rate of band failure with conventional GIC was 24% and with resin modified glass ionomer was 18%.

Conclusion: The band failure rate of resin modified glass ionomer cement was significantly lower than conventional GIC in terms of bond strength and band stability.

Keywords: *Molar Bands. Resin Modified Glass Ionomer Cement. Conventional Glass Ionomer Cement.*

INTRODUCTION

Whenever anchorage requirements are a consideration factor, banding of teeth is a major treatment need in most orthodontics patients. In the present era, thanks to the availability of a variety of adhesive cement, many can be used as luting materials for banding of teeth. One of the pre-requisites of an ideal material is its ability to adhere to the teeth and prevent microleakage. The penetration of ions, molecules, fluids or bacteria between the tooth surface and the applied adhesive material is termed as microleakage.[1] It may lead to staining at the margins and development of white spot lesions on tooth surface.[2] Consequently, microleakage and failure of tooth surface adhesion have been a significant problem with current luting materials.[3]

As dental fluorides are regularly used in dentistry due to their beneficial enamel remineralization effects.[4] Glass ionomer cement have been frequently employed for cementation of bands due to their fluoride releasing properties. Therefore, these shortcomings can be effectively reduced if stannous fluoride or a glass ionomer adhesive is used.[4,5]

Decreased enamel demineralization can be the result of fluoride ions released into surrounding tooth structures and fluoride releasing cement might enhance caries protection during banding to the enamel surface.[6,7] Therefore, glass ionomer is considered a slow-release fluoride ions reservoir. The ease of glass ionomer removal makes cleanup after removal much quicker than with resin-based adhesive and it causes much reduced enamel surface damage as compared to the polyacid-modified resin cement group and non-fluoride releasing zinc phosphate cement.[8-10] GIC has the characteristic of being able to bond chemically to enamel and dentine in the absence of any etchant, and release fluoride ions to the surrounding areas.[11,12] These characteristics allow for the routine usage of GIC in orthodontic banding.[13,14] Conventional GIC have the benefits of fluoride ion leaking and absorption by enamel and dentin, and identical characteristics like biocompatibility, the formation of chemical bonds with enamel and dentin, same tooth coloring and co-efficient of thermal expansion almost alike to that of tooth structure. The disadvantages are prolonged setting duration, tendency to get dissolved while setting, poor wear resistance and low fracture strength upon setting.[15] This has compelled the researchers to develop newer hybrid versions of glass ionomer cement. These adhesives consist of a small amount of polymerizable resin component (4%-6%) added to glass ionomer cement.[16] To increase the bond strength, some resins, such as Hydroxyl dimethacrylate and BIS-GMA, are added to GIC.[17] The resin-reinforced GIC has proved to have a higher shear bond strength than conventional chemically cured GIC in vitro.[8,9,18-20] High viscosity glass ionomer cement have established themselves to be a valuable substitute for clinical application since it is reported that their properties are

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra,
Lahore 54000, Pakistan.

Correspondence: Prof. Col. Iffat Batool
Prof. Department of orthodontics
Sharif Medical and Dental College
E-mail: assad14@hotmail.com

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improved. Recent studies of resin-modified glass ionomer (RMGI) cement have produced highly effective clinical results.[21-23]

The resin modified glass ionomer cement have benefits like improved physical properties, especially high tensile strength and improved abrasion and wear resistance, plus extended working time with rapid setting, command set, biocompatibility and fluoride release similar to that of conventional GIC, good adhesion to enamel and dentin and improved aesthetics.[24]

METHODOLOGY

This one year randomized clinical trial study was conducted at Orthodontic Department, Sharif Medical and Dental College after approval from the ethical committee. Informed consent was sought from all the participants. The total number of orthodontic patients was fifty nine which were assigned randomly into two groups. The first group (Group1) comprised of 29 Orthodontic patients having all the maxillary and mandibular first permanent molar teeth banded with a conventional non-resin glass ionomer cement (GC 1 Gold Label). The second group (Group2) included 30 Orthodontic patients having all the maxillary and mandibular first permanent molar teeth banded with resin reinforced glass ionomer cement (GC Fuji Plus).

Inclusion Criteria

Orthodontic patients requiring banding of maxillary and mandibular 1st molar teeth as part of their treatment were included in the study.

Exclusion Criteria

Orthodontic patients having grossly restored maxillary and mandibular 1st molar teeth as part of their treatment.Orthodontic patients having moderate to severe fluorosis, dentinogenesis imperfecta and amelogenesis imperfect.

A total of 236 molar teeth were banded. To eliminate inter-examiner variation, one single operator was employed. Care was taken to attain moisture control. The teeth were then dried and the adhesive was prepared as per instructions on the label before loading onto the molar bands. Adhesive was placed on teeth and was allowed to set in the presence of continuous suction and oil-free air spray. All 59 patients were evaluated throughout the one year study period. Patients were again examined after every one month for their band integrity and white spots were evaluated at end of treatment completion. Each banded tooth was examined to see loose or missing bands at each subsequent appointment, and failures were noted and recorded. Bands were then re-cemented with the same adhesive at each appointment visit after removal of adhesive. Tooth surface was examined for the development of any white spot lesions.

SPSS 20 software package was used for collecting the results and their statistical analysis. Wilcoxon signed rank test was used to compare the first-time failures per patient between the two cement. The Cox proportional hazards regression model was used to calculate the relative risk of failure. P-value of less than 0.050 was considered to be significant (Table 2).

RESULTS

The rate of band failure at first visit after banding with conventional non-resin glass ionomer cement was 41% and with resin modified glass ionomer cement was 23%. At second visit the rate of band failure with conventional GIC was 24% and with resin modified glass ionomer was 18%. The results showed a P value (P= 0.015).

Table 1: Patient characteristics

	Number (%) of patients	Age(years) Mean ± SD
Total No of Patients	59 (100%)	14.2 ±2.4
Females	43 (72.881%)	15.4 ± 3.7
Males	16 (27.1%)	13.8±1.7
Malocclusion Classification		
Class I	15 (25%)	
Class II Division 1	31(54%)	
Class II Division 2	7 (11%)	
Class III	6 (10%)	

Table 2: Distribution of band cementation failures per patient for two types of adhesive

Number of banding failures per patient	RMGIC	Conventional GIC
1	23%	41%
2	18%	24%
3	0%	4%

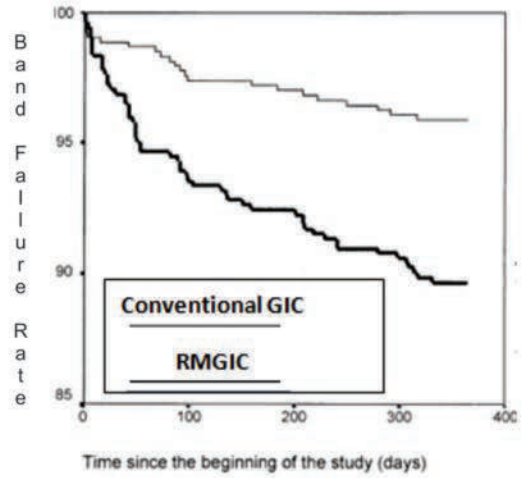

Figure 1: Survival analysis showing band failure rates of RMGI and conventional adhesives.

DISCUSSION

Loosening of molar bands is a major problem in clinical dentistry. Evaluation of microleakage is used as a measure by which clinician and researcher can predict the performance of an adhesive material.[25] So, the present in-vivo study was conducted for analysis of the comparison of leakage of conventional non-resin glass ionomer cement and resin-modified glass ionomer cement on permanent molars, which will act as a further tool for evidence based dentistry.

Castro et al. conducted a study and according to his results, the microleakage rate for the conventional GIC (Fuji II) was significantly greater than the values obtained for conventional GIC, Fuji IX GP, a resin modified glass ionomer (Vitremer) and TPH (composite resin).[26]

Another study was conducted by Eronat et al. to evaluate the microleakage of resin-modified glass ionomer (Ketac N100, 3M ESPE) at a high viscosity glass-ionomer restoration (Ketac N100, 3M ESPE). The results showed that high viscosity glass ionomer showed significantly reduced microleakage compared to the Nano-filled resin-modified glass ionomer (RMGIC) at the occlusal margin. No significant differences were found between the groups at the gingival margin.[21]

CONCLUSIONS

It was concluded that both the RMGI (GC Fuji Plus) and the conventional (GC Gold Label) adhesives produced clinically acceptable banding-failure rates in routine clinical usage.

The conventional adhesive (GC Gold Label) demonstrated a significantly higher banding-failure incidence than did the RMGI (GC Fuji Plus) product.

Teeth that contacted the molar bands had higher chances to show band failures than those without occlusion. The highest band failure incidence was observed for the conventional (GC Gold Label) with occlusion against opposing teeth. Within the limitations of this in vivo study.

Resin Modified Glass Ionomer cement performed significantly better than conventional glass ionomer in terms of bond strength and band stability which was, in turn, an indicator of decreased microleakages between the band and tooth surface.

The oral hygiene maintenance during treatment (being at least partially a patient dependent factor) might be an impact for the insignificantdifference in the development of white spot lesions between the two groups.

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Case Report

Ascites Reinfusion Dialysis in Patients with Idiopathic Dialysis Ascites

Roshina Anjum, Wajid Abdullah, Salman Tahir Shafi, Tahir Shafi

ABSTRAC

Idiopathic dialysis ascites is an ascites of unknown etiology in patients with end stage renal disease. Here, we describe two hemodialysis patients, who had idiopathic dialysis ascites with poor response and tolerance to ultrafiltration and intermittent paracentesis. Ascites reinfusion dialysis was performed in these patients, during which ascites fluid was infused into arterial line of blood circuit while performing conventional hemodialysis with ultrafiltration. Both patients tolerated the procedure well with reduction in abdominal ascites. Ascites reinfusion dialysis is a safe and effective treatment option for patients on hemodialysis with idiopathic dialysis ascites.

Keywords: *Ascites. Hemodialysis. Paracentesis. Ultrafiltration.*

INTRODUCTION

Idiopathic dialysis ascites refers to refractory ascites of unknown etiology and occurs mainly in patients with end stage renal disease (ESRD).[1-3] It is a poorly understood disease with adverse prognosis and has limited treatment options with no definite treatment except renal transplant.[4,5] For patients, who do not respond to or do not tolerate dietary fluid and salt restriction, aggressive ultrafiltration or large volume intermittent paracentesis, ascites reinfusion dialysis is a potential therapeutic option.[6,7] But experience with this treatment modality is limited to -case reports and case series in literature.[6,7] Here, we describe our experience with ascites reinfusion dialysis in two ESRD patients with idiopathic dialysis ascites.

CASE 1

A 47 year old man known to have ESRD due to hypertension, has been on hemodialysis via right radiocephalic arteiovenous (AV) fistula for last one year. The patient developed progressive abdominal distension over 3 months requiring therapeutic paracentesis twice in the past. Patient had inter-dialytic weight gains of 3.5-4 Kg. Ultrafiltration during hemodialysis was limited due to intradialytic hypotension.

On physical examination, his blood pressure was 120/70 mmHg and pulse was 90 beats/min. His physical examination was unremarkable except for presence of massive acites. Diagnostic paracentesis revealed, protein of 4.5 g/dl, albumin 1.5 g/dl, white blood cells (WBC) count 20/mm^3 with 95% lymphocytes. Ascitic fluid bacterial and mycobacterial cultures were negative. Ascitic fluid cytology was negative for malignant cells. Ultrasound abdomen didn't show hepatosplenomegaly. Ecchocardiography showed normal ejection fraction. Serum albumin was 2.5 g/dl.

Informed consent was obtained from patient to undergo ascites reinfusion dialysis. Hemodialysis machine was set up just like routine hemodialysis. AV fistula was cannulated. A 16 gauge intravenous catheter was inserted in left iliac fossa under local anesthesia and aseptic conditions. This catheter was connected with a tubing to the pre-pump infusion port of arterial line of blood circuit. Blood flow rate, dialysate flow rate and ascitic fluid flow rate were set up at 300 ml/min, 500 ml/min and 15 ml/min (with infusion pump) respectively. Ultrafiltration rate at hemodiialysis machine was set up at one liter/hour. Ascitic fluid mixed with blood circulated through dialyzer along with blood. During four hours, 4 liters of ultrafiltration was achieved without patient having hypotension.

Patient's pre and post dialysis vital signs and other parameters are shown in table 1. Figure 1 and 2 show the pictures of the patient at the start and end of procedure.

CASE 2

A 60 year old man with history of diabetes mellitus for 25 years and hypertension for 4 years. He was on hemodialysis 3 times a week via AV fistula for last 2.5 years. He presented with worsening abdominal distension for 3 days. He had history of ascites for last 1 year requiring multiple intermittent therapeutic paracentesis with intravenous (IV) albumin infusions. Patient was non-compliant with dietary salt and fluid restriction. He had history of frequent intradialytic

Sharif Medical and Dental College
Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.

Correspondence: Dr. Salman Tahir Shafi
Associate Professor of Nephrology
Sharif Medical & Dental College
E-mail: salmanshafi@email.com

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Figure 1: Patient's abdomen after one hour of start of procedure

Figure 2: Patient's abdomen at the end of procedure.

hypotensive episodes requiring IV saline boluses, vasopressor support or discontinuation of dialysis.

Physical examination revealed an ill looking man with a blood pressure of 90/50 mmHg, pulse rate of 98 beats /min, afebrile, respiratory rate of 24 breaths /min; grossly distended abdomen, paraumbilical swelling with bluish discoloration of overlying skin, positive fluid thrill and normal bowel sounds. Rest of examination was unremarkable.

Ascitic fluid analysis showed white blood cell count of 54/mm^3 with 89% lymphocytes, a red blood cell count of 7/mm^3, protein of 3.6g/dl and an albumin level of 1.6 g/dl with a serum ascitic albumin gradient of 0.6 g/dl. Ascitic fluid amylase and lactate dehydrogenase (LDH) levels were normal. Cultures for fungus, bacteria and mycobacteria were negative and no malignant cells were found. 2 D echo showed 50% ejection fraction. Liver function tests and abdominal US didn't show any evidence of chronic liver disease.

A therapeutic paracentesis was performed with removal of 3 liters of clear straw colored fluid preceded by IV albumin. Patient became hypotensive requiring norepinephrine infusion. Next day, after obtaining informed consent for ascites reinfusion dialysis, ascites reinfusion dialysis was setup similar to what has been described under case 1. Session was performed for 4 hours and 4 liters ultrafiltration was achieved during the session. Patient's pre and post dialysis parameters are shown in table 1.

DISCUSSION

Ascites may develop in hemodialysis patients without any apparent cause. Such patients usually have evidence of other abnormal findings including malnutrition, cachexia, hypoalbuminemia and generalized fluid overload.[1] Over years, idiopathic ascites in dialysis patients has declined in incidence due to better volume management, increased dialysis dose and improved nutritional status; however it still remains an intractable problem.[2] Multiple pathogenic factors have been proposed to be responsible for idiopathic ascites, including increased peritoneal membrane permeability, chronic volume overload and hepatic venous congestion, hypoalbuminemia and impaired lymphatic drainage.[1,8] Idiopathic dialysis ascites requires work up especially analysis of ascitic fluid to exclude other causes of ascites. Idiopathic dialysis ascites is characteristically straw in color, has high protein content and variable leukocyte count.[1] In our patients, investigations including ascitic fluid analysis were consistent with diagnosis of idiopathic ascites, as other causes of ascites were excluded. In second patient, non-compliance with dietary salt and fluid restriction was the major contributing factors towards development of ascites.

Treatment of dialysis ascites is difficult. Treatment usually starts with dietary salt and fluid restriction, aggressive ultrafiltration and intermittent therapeutic paracentesis.[9] However, ultrafiltration and intermittent therapeutic paracentesis may be limited due to hypotension in many patients. Improvement of dietary protein intake may also help in improving nutritional status. One of our patients also developed hypotension requiring vasopressor support with ultrafiltration and therapeutic paracentesis.

If initial measures are unsuccessful, switching to continuous ambulatory peritoneal dialysisor placement of peritoneovenous shunt helps in reduction of ascites and improvement of nutritional status.[10,11] However, continuous ambulatory peritoneal dialysis is limited by expense and possible patient's inability to learn this technique in our resource limited set up. In addition, placement of peritoneovenous shunt may result in infections and malfunction.[11] Our patients were unwilling for either procedure.

Since large amount of albumin is lost in ascitic fluid, ascites reinfusion dialysis is a potential cost effective and safe therapeutic option in these patients especially

Table 1: Pre and post-dialysis parameters of Case 1 and Case 2

	CASE 1	CASE 2
PRE-DIALYSIS		
Pulse (beats/min)	90	112
Blood Pressure (mm Hg)	115/87	80/40 (Norepinephrine-10 mcg/min)
Weight (Kg)	67.8	65
Abdominal girth (cm)	98	128
Serum Albumin (g/dl)		1.6
POST-DIALYSIS		
Pulse (beats/min)	98	92
Blood Pressure (mm Hg)	108/79	130/80 (Norepinephrine 4 mcg/min)
Weight (Kg)	64.0	61
Abdominal girth (cm)	93	112
Serum Albumin (g/dl)	Not available	2.4

in our set up.[1,6,7] In this procedure, ascitic fluid is directly infused into arterial inlet of dialyzer. Ultrafiltration is achieved across dialyzer and concentrated albumin is returned to the patient through venous line along with blood. Increase in serum albumin results in higher plasma colloidal osmotic pressure and may limit re-accumulation of ascites at least for short term. This procedure also saves the cost of IV albumin administration which is often required with large volume paracentesis. Experience with this option is limited to case reports and series where it was found to be safe. In a case series by Mcgill et al. only 1 episode of transient hemoperitoneum was noticed, whereas light pyrogenic reaction was noticed in 13% of sessions in another case series.[6,7] Since our patients didn't tolerate ultrafiltration and therapeutic paracentesis, we decided to perform ascites reinfusion dialysis. Patients tolerated this procedure well with no complications. Ultrafiltration was achieved; abdominal distension and hemodynamic parameters were also improved including blood pressure significantly in second patient after the session. Intra-abdominal infection and bleeding are potential complications of this procedure.[7] We did not observe these complications in our patients.

In summary, in ESRD patients with idiopathic dialysis ascites refractory to initial treatment, ascites reinfusion dialysis is an effective and safe treatment option. Further studies are needed to evaluate whether safety and efficacy of this treatment modality can be sustained if this procedure is performed on regular basis for long term in these patients.

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Sharif Medical & Dental College

Sharif Medical City Road, Off Raiwind Road, Jati Umra, Lahore 54000, Pakistan.
Tel: +92-4237860101-4 Fax: +92-4237860122 UAN- 042-111-123-786
E-mail:editor@jsmdc.pk Web:www.sharifmedicalcity.org