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Aims & Scope

The Journal aims to publish research in all fields of clinical, diagnostic, experimental & preventive areas related to medical sciences to disseminate scholastic work among clinicians and scientists around the globe.

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Research Articles

Research article

Differential Viral Load of HBV and HCV in Co-infected Patients: A Potential Battle between the Viruses

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Abstract

Viral hepatitis is one of the major health problems, in which Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) have the highest affinity to cause chronic liver disease. 5% of the people are infected from HBV and 1% are infected from HCV worldwide. In Pakistan 7.4% of the population is suffering with HBV and HCV (An Overview of Hepatitis B and C in Pakistan). Co-infection is more frequent than single infection particularly in areas where these two viruses are endemic. This study was conducted to observe and compare the viral loads of HBV and HCV in co-infected and mono infected patients in Karachi, Pakistan. A total 419 serum samples were collected from suspected patients with HBV and HCV infection. 276 were males and 143 were females, with the age ranging from 10 to 40 years. HBV DNA and HCV RNA were extracted. HCV viral load was detected in 86 patients (20%), whereas HBV/HCV Co-infected patients were detected in 89 (21%) patients. In co-infected patients, an HCV viral load of <1000 was found in 37 (41%) patients while the viral load >1000 was 52 (58%) patients. The HBV viral load of <1000 was found in 32 (35.95%) patients and >1000 was in 57 (64.04%). 87 (20.76%) of the patients tested negative for both HBV and HCV. The HBV viral load was higher than HCV viral load in co-infected patients, indicating that there may be a competition between the two viruses in which HCV is suppressed by HBV.

Keyword: HBV/HCV; Viral load; Pakistan

Introduction

Globally HBV and HCV are important human pathogens that can cause chronic liver disease resulting in cirrhosis and even hepatocellular carcinoma. It is estimated that nearly 350 million people around the world are infected with the Hepatitis B virus (HVB) and 170 million people are infected with hepatitis C virus (HCV)[1]. The viruses are classified as hepatotropic viruses because they replicate primarily in the liver. Both viruses belong to different families and therefore have different life cycles. HBV belongs to a Hepadnaviridae family and HCV belongs to a Flaviviridae family[2]. Co-infection of these two viruses is prevalent in areas where these viruses are endemic.

In non-endemic areas, co-infection of HBV/HCV is found in the high risk population which includes injection drug users, immunocompromised patients, organ transplantation recipients, and persons

having multiple sex partners3. Some cross-sectional studies have shown that in comparison with mono-infection of HBV and HCV the co-infection has a higher prevalence of liver cirrhosis4-6. Clinical observation on disease outcome and procession among patients with both HBV and HCV are uncertain and inconsistent. Reports declare reciprocated replicative abstinence of these two viruses and viral disturbance7,8. There is a lack of an appropriate model system, thus molecular and virological aspects of the co-infection of HBV and HCV are not well established2. Co-infection of HBV/HCV can occur because they share same route of transmission and patients are at high risk of progression to hepatocellular carcinoma (HCC)9-11.

Numerous studies have revealed the possible interaction of HBV and HCV and their associated effects on immune response. These studies also discovered that in co-infection both viruses are capable of inducing suppression over the other depending on the condition of co-infection11-13. In co- infected patients, the suppression of either one of the viruses depends on which virus was introduced first.

HBV superinfection is less common than HCV superinfection comparatively. Some reports have declared the clearance of HCV infection after the superinfection of HBV, whereas in Asian countries, HCV superinfection is common where HBV is prevalent13,14.

Materials and Methods:

A total of 419 samples were collected, out of which 276 were male (65.8%) and 143 were female (34.1%) within the age group of 10 to 40 years. Patients known to have chronic liver disease due to any reason other than HBV and HCV were excluded. Patients with dual infection of HBV/HIV, HBV/HDV, HCV/HIV or with triple infection were also excluded.

HBV DNA was extracted from 500 µl of serum by using the Abbott m2000sp, an automated sample preparation system designed for the purification of nucleic acids from the samples. HBV DNA was quantified with Abbott HBV Quantification kit by using Abbott rt2000 amplification and detection system. The target region of this kit is the conserve region of HBV surface antigen and the lower detection limit of kit is 10 IU/ml. HCV RNA was also extracted from 500 µl of serum by using the Abbott m2000sp. HCV RNA was quantified with Abbott HCV Quantification kit by using Abbott mrt2000 amplification and detection system. The target region of this kit is the conserve region of HCV (5 prime UTR) and the lower detection limit of kit is 12 IU/ml.

Results

A total of 419 samples were extracted and amplified to obtain HBV and HCV viral loads. Out which 332 were positive and 87 were negative for HBV and HCV (Figure 1). Gender distribution showed that 276 (66%) were male and 143 (34%) were female (Figure 2). This showed a higher prevalence of HBV and HCV in males as compared to females. HBV was detected in 157 patients and HCV was detected in 86 patients with co-infection of HBV/HCV detected in 89 patients. (Figure 3). Out of 89 co-infected samples, the HBV viral load <1000 was observe in 32 (36%) samples, whereas, HBV viral load > 1000 is observe in 57 (64%) samples. On the other hand, HCV viral load < 1000 was observe in 37 (42%) samples and HCV viral load >1000 is observe in 52 (58%) samples.

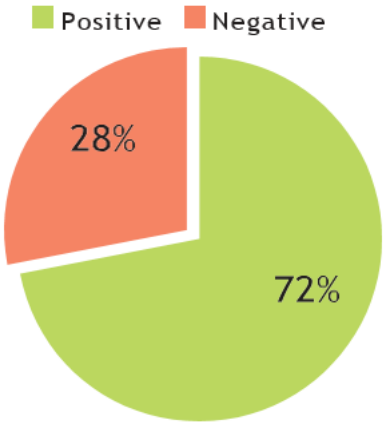

Figure 1: Total no of positive and negative patients

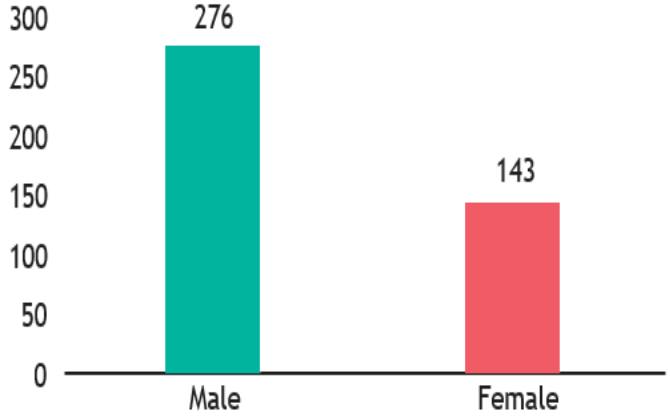

Figure 2: HBV and HCV viral loads in 419 samples

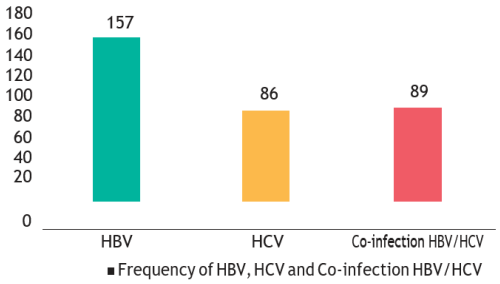

Figure 3: Frequency of HBV, HCV and Co-infection HBV/HCV

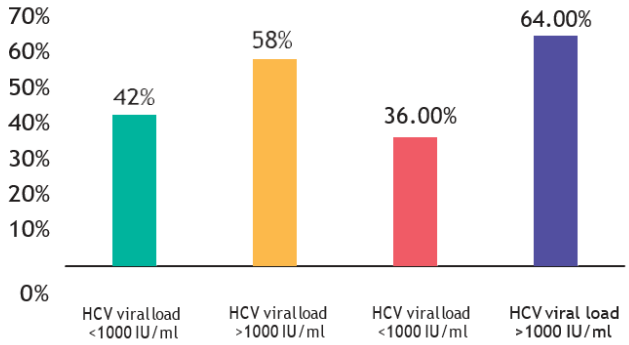

Figure 4: HBV and HCV viral load in co-infected patients

Discussion

A medical condition like co-infection of HBV/HCV is of great concern due to its treatment response, unpredictable clinical appearance and development of liver cirrhosis or carcinoma. HBV and HCV have common risk factors for infection, so the co-infection of these viruses is not uncommon[15-17]. To the best of our knowledge the data regarding the prevalence of HBV/HCV co-infection is still limited[3]. And there is not ample information regarding the treatment of these co- infected patients. The recent guidelines cannot approve any specific treatment for co-infected patients[16]. Pakistan is included in developing countries with limited economic and health care resources, low literacy rate and limited awareness about diseases. HBV and HCV share the same route of transmission, so there is a high risk of developing co-infection of HBV/HCV. The combined action of both HBV and HCV increases the chances of cancer due to combined oncogenic effects of both viruses. In this study, we observed the age of infected individuals ranging from 10 to 40 years. Males were more infected than females which may be due to exposure of high risk activities.

Out of 419 patients 157 (37.4%) were HBV positive patients and 86 (20%) were HCV positive. There was a higher chance of HBV infection as opposed to HCV. 89 (21%) of the patients were con-infected with both viruses, which established that there was a higher increase in co-infection. Combination therapy of peg-

interferon and ribavirin is recommended as a standard treatment for mono infection of HCV17. Unfortunately, because of little data available on the co-infection, there is no established treatment for HBV/HCV co-infected patients3. A study reported that in HBV with chronic hepatocellular carcinoma both peg-interferon and conventional interferon-based regimens were not effective18. Recently in Taiwan a randomized prospective trial showed that for both HCV mono-infection and HBV/HCV co-infection the combination therapy of peg interferon and ribavirin is equally effective[19]. We observed high viral load of HBV DNA as compared to HCV RNA in co-infected patients, which is, may be due to possible competition of both viruses and in result possible suppression of HCV by HBV. There is also a possibility of inactive carriers. In HBV and HCV co-infected patients the treatment ability of the combination therapy of ribavirin and peg-interferon alpha was relatively similar to HCV mono-infection patients, though there are less studies to support this data. The recurrence of HBV replication is very susceptible after the viral suppression of HCV and the treatment of chronic hepatocellular carcinoma.

References

1. Koff R. S. Risks associated with hepatitis A and hepatitis B in patients with hepatitis C. J Clin Gastroenterol. 2001;33(1):20-6.
2. Volker Brass Darius Moradpour. New insights into hepatitis B and C virus co-infection. Journal of Hepatology. 2009;51(3):423–5.
3. Chu C. J., Lee S. D. Hepatitis B virus/hepatitis C virus coinfec- tion: epidemiology, clinical features, viral interactions and treatment. J Gastroenterol Hepa- tol. 2008;23(4):512-20.
4. Mohamed Ael S., al Karawi M. A., Mesa G. A. Dual infection with hepatitis C and B viruses: clinical and histological study in Saudi patients. Hepatogastroenterology. 1997;44(17):1404-6.
5. Chakravarti A., Verma V., Jain M., Kar P. Characteristics of dual infection of hepatitis B and C viruses among patients with chronic liver disease: a study from tertiary care hospital. Trop Gastroenterol. 2005;26(4):183-7.
6. Fong T. L., Di Bisceglie A. M., Waggoner J. G., Banks S. M., Hoofnagle J. H. The significance of antibody to hepatitis C virus in patients with chronic hepatitis B. Hepatology. 1991;14(1):64-7.
7. Liaw Y. F., Tsai S. L., Chang J. J., Sheen I. S., Chien R. N., Lin D. Y., et al. Displacement of hepatitis B virus by hepatitis C virus as the cause of continuing chronic hepa- titis. Gastroenterology. 1994;106(4):1048-53.
8. Zarski J. P., Bohn B., Bastie A., Pawlotsky J. M., Baud M., Bost- Bezeaux F., et al. Character- istics of patients with dual infec- tion by hepatitis B and C viruses. J Hepatol. 1998;28(1):27-33.
9. Chiaramonte M., Stroffolini T., Vian A., Stazi M. A., Floreani A., Lorenzoni U., et al. Rate of incidence of hepatocellular carcinoma in patients with compensated viral cirrhosis. Cancer. 1999;85(10):2132-7.

10. Kaklamani E., Trichopoulos D., Tzonou A., Zavitsanos X., Koumantaki Y., Hatzakis A., etal. Hepatitis B and C viruses and their interaction in the origin of hepatocellular carcinoma. JAMA. 1991;265(15):1974-6.

11. Pontisso P., Gerotto M., Ruvoletto M. G., Fattovich G., Chemello L., Tisminetzky S., et al. Hepatitis C genotypes in patients with dual hepatitis B and C virus infection. J Med Virol. 1996;48(2):157-60.

12. Chu C. M., Yeh C. T., Liaw Y. F. Low-level viremia and intracellu- lar expression of hepatitis B surface antigen (HBsAg) in HBsAg carriers with concurrent hepatitis C virus infection. J Clin Microbiol. 1998;36(7):2084-6.

13. Jardi R., Rodriguez F., Buti M., Costa X., Cotrina M., Galimany R., et al. Role of hepatitis B, C, and D viruses in dual and triple infec- tion: influence of viral genotypes and hepatitis B precore and basal core promoter mutations on viral replicative interference. Hepatol- ogy. 2001;34(2):404-10.

14. Sagnelli E., Coppola N., Pisaturo M., Masiello A., Tonziello G., Sagnelli C., et al. HBV superinfection in HCV chronic carriers: a disease that is frequently severe but associated with the eradication of HCV. Hepatology. 2009;49(4):1090-7.

15. Peters M. G. Special populations with hepatitis B virus infection. Hepatology. 2009;49(5 Suppl):S146-55.

16. Lok A. S., McMahon B. J. Chronic hepatitis B: update 2009. Hepatol- ogy. 2009;50(3):661-2.

17. Dalgard O., Mangia A. Management of patients with hepatitis C virus genotype 2 or 3: comments on updated American Association for the Study of Liver Diseases practice guidelines. Hepatology. 2009;50(1):323; author reply 4-5.

18. Senturk H., Tahan V., Canbakan B., Uraz S., Ulger Y., Ozaras R., et al. Chronic hepatitis C responds poorly to combination therapy in chronic hepatis B carriers. Neth J Med. 2008;66(5):191-5.

19. Liu C. J., Chuang W. L., Lee C. M., Yu M. L., Lu S. N., Wu S. S., et al. Peginterferon alfa-2a plus ribavi- rin for the treatment of dual chronic infection with hepatitis B and C viruses. Gastroenterology. 2009;136(2):496-504 e3.

Research article

An Evaluation of Rubber-Dam Acceptability by Dental Practitioners in RAKCODS

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Abstract

This study was conducted to evaluate prevalence of usage and reasons why rubber-dam used and not being used as well as the patients concerns. The study also aimed to determine if rubber-dam improves the quality of care? This observational study was conducted at RAKCODS clinics, UAE. A paper-based questionnaire was distributed to 120 candidates of 4th and 5th year clinical students and interns in RAKCODS clinics. Only 26% of the responders answered that they always use rubber. Patients who refuse the application of rubber-dam claimed that it is harder for them to breath, painful, lack of communication with the dentist and that they are terrified. While 90% of participants answered that the rubber-dam improved the success rate of the treatments. The study showed that rubber-dam usage in RAKCODS clinic is less than it should be. Hence promotion of rubber-dam usage must be done more effectively in pre-clinical. Solutions should be provided to eliminate the discomfort while using rubber-dam.

Keywords: Rubber-dam, RAKCODS, Dental practitioners, Dentistry

Introduction

A dental rubber-dam is a thin sheet of latex rubber which isolates the operative site from the rest of the mouth. The rubber-dam has been the most useful way of care when performing operative and root canal treatment. Rubber-dam is an excellent mean of providing infection control during dental procedure. It is used to prevent saliva from contaminating the work field and to keep the operation field dry as well as stopping the dental material to be inhaled by the patient. Yet it is not always used. This study was designed to gather information and see why dentists think it's very time consuming or is it because patients don't accept it or is it both. Isolation is the adjunct for the success of dental treatment in its various fields and aspects. It can be achieved by different means. For example, the direct methods which are (rubber-dam, cotton rolls, retraction cord and suction devices) also indirect methods are available such as local anesthesia and drugs. But among them of all, the rubber is said to be the most successful and effective method[1,2].

Rubber-dam is being used in dentistry since it was invented in 1986 by Sanford Christie Barnum, and it's considered by countless textbooks to be the standard of care in dental practice[3]. The rubber-dam has many components such as sheets which varies in thickness size and color, retainers (clamps) which anchors the tooth and retracts gingiva and available in different types, Holder (frame) which maintains the rubber-dam borders in position (they are available for children and adults) as well as punch, clamp forceps, dental floss, scissors and lubricant4,5,8. The rubber-dam offers the dentist and the patient a variety of advantages such as

isolation of the operative area, provision of aseptic field, prevention of infection transfer, prevent ingestion or aspiration of instruments, tooth debris, hemorrhage and materials or irrigants, as well as protection and retraction of soft tissue during operative procedures, minimizes patient conversation during treatment hence reduces the need for frequent rinsing. However, there are some factors limiting the application such as patient's asthma, mal positioned teeth, third molars and teeth that have not erupted sufficiently 4,6,7.

With all these advantages as well as legal point of view favoring the rubber-dam, the use of rubber-dam there still seems to be ignored by practitioners and dental students. This issue has been drawing attention by authors who determined a significant underuse in general practice8,9. It has been indicated that dentists believe that rubber-dam is too time consuming and patients do not accept the rubber-dam experience. Many patients are afraid of the rubber-dam because they think that they won't be able to breath, there are limited clamp sizes and unlimited tooth shapes. If the dentist chooses the wrong size the clamp it can damage the gingiva8-10. The aim of this study was to determine the attitude of a group of clinical year's students and interns in RAK College of Dental Science (RAKCODS) towards rubber-dam application specifically focusing on endodontic and operative aspect of dentistry.

Methodology

This study was performed through a paper-based questionnaire, given to 120 candidates from the 4th and 5th year BDS program and interns at RAKCODS, during March 20th 2017 to September 2017. The study included questions about the usage of Rubber-dam and the reasons for it being used or not being used. This study focused on establishing the number of dental students using who actually use the rubber-dam and why they use it and why they don't and provide solutions for the problems they face. The data were entered and analyzed in SPSS version 20. Frequency distributions of the data were analyzed using Chi square tests. According to inclusion criteria the 4th and 5th year BDS program and interns at RAKCODS were eligible to participate in the study. Exclusion criteria was non clinical year students and 3rd year students.

Results

After collecting 90 responses from 4th - 5th year students and interns, data was analyzed. Table 1: Shows the Frequency of use of rubber-dam in RAKCODS clinic and the reasons why they use it and the reasons why it's been ignored in percentage. A statistical significance was found in the frequency of usage as the majority of participants often use rubber and a very low proportion rarely and never use it. Students and interns are aware of the advantages of rubber-dam and the table below shows the reasons why they use it. The reasons to refuse the rubber-dam was mostly because it is very difficult to take x-rays as the patients are not trained to hold the film and students take extra radiation just to make sure of the quality of the images and to make it less time consuming and less exposure to the patient. A significance was found because of low percentage of responders to point that cost is a reason to ignore rubber-dam.

Table 1. Frequency distribution of pattern of rubber-dam use

		Proportion	P-value	Significance
Frequency of Use	Always	26%		
	Often	41%		
	Occasionally	29%		
	Rarely	4%		
	Never	0%	0.00	Significance
Reason (yes)	Minimize patient conversation	15%		
	Retraction of soft tissue	17%		

	Isolation and provision of a septic field	25%		
	Prevention of infection transfer	20%	0.0965	Not Significance
	Prevention of material aspiration	23%		
Reason (No)	Difficult to use	16%		
	Time consuming	26%		
	Patient discomfort	22%		
	Difficult when taking X-ray	29%		
	Cost	7%	0.0001	Significance

Figure 1 shows whether the patients accept or refuse rubber-dam according to the students and interns in percentage, 53% accepted and 47% refused. Figure 2 shows the reasons behind patient's refusal and the percentages of each, 27% of patients says it's painful because each tooth is different than the other and the clamps do not fit all the time so pain can be felt from the pressure on the gingiva. 31% said lack of communication as they cannot tell their doctor what they are feeling and if they want to ask or recommend something, while 25% had difficulty in breathing, especially in mouth breathers were the sheet covers the mouth and sometimes the doctors extend the sheet to cover the nose. Another 17% were terrified as they are not introduced to the rubber-dam earlier and about its advantages, but they only see the sheet, frame clamp and clamp holder going into their mouth and on the tooth which makes them anxious and think that the doctor might extract the tooth without telling the patient. Findings regarding the treatment outcome according to the responders is given in Figure 3.

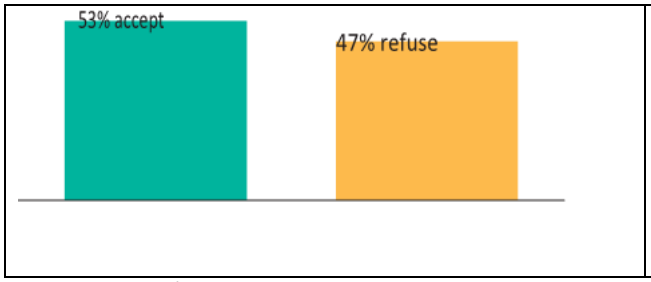

Figure 1. Patient's attitude

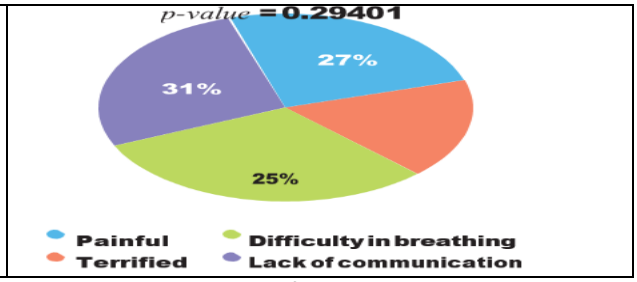

Figure 2. Reasons behind refusal

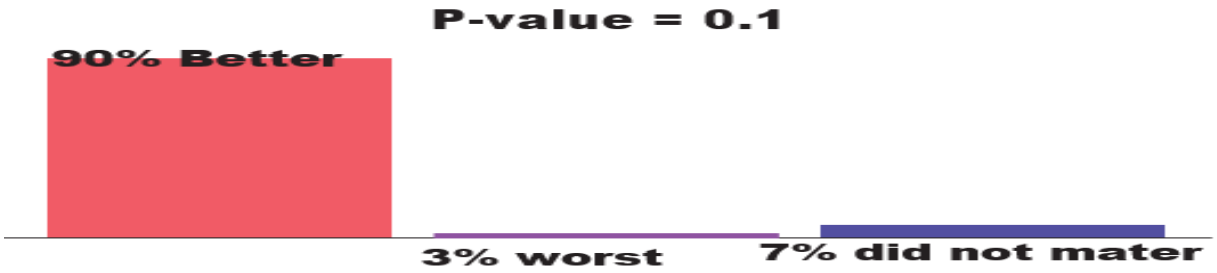

Figure 3. Treatment outcome

Discussion

90 students out of 120 participated and replied to the questionnaire. The results in Table (1) were found less than adequate when compared to the results of NDPBRN (National Dental Practice-Based Research Network) which has showed that 44% of practitioners always used the rubber-dam, 24% used often, 17% occasionally and 15% not used at all. The participant was also asked whether if the patient refusal is a factor in not using the rubber-dam or not and results were as followed 53% of the patients accept the use of rubber-dam while 47% refuse it .31% refused because of lack of communication, 27% being painful, while 25% felt difficulty in breathing and the other 17% terrified.

One of the questions referred to the success rate of the treatment with rubber-dam according to the participants experience and knowledge in comparison, only 68% of students in a study which was done in two British schools implied that rubber-dam had enabled higher clinical standards. This percentage was lower than RAKCODS clinic.

A higher rate of students (ie 59%) use rubber-dam in endodontic treatment compared to a 41% in operative treatment to provide good isolation of the canals and prevent aspiration of files and irrigation solutions. 65% of responders preferred single tooth isolation over 35% multiple isolation stating that it's easier and less time consuming 64% implied that they prefer using rubber-dam in the mandible as there is more accumulation of saliva and fluids when compared maxilla. The study has a limitation of a small sample size because the study setting was limited to RAKCODS clinics and not all the candidates participated in the survey

Conclusion

The study showed that rubber-dam usage in RAKCODS clinics was less than the rate reported in the literature. A very high 90% of the responders admitted that rubber-dam increased the success and effectiveness of treatments done. Hence promotion of rubber-dam usage must be done more effectively in pre-clinical and clinical practice in various ways such as information regarding better brands of rubber-dam sheet, patient education, providing film holders and more strict approach by the supervisor towards rubber-dam application. We suggest for the future research to include a larger number of participants and include other dental schools in UAE. In addition research needs to be conducted to evaluate the effectiveness of rubber-dam against other isolation methods.

References

1. Garg, N., & Garg, A. (2010). Textbook of endodontics. Boydell & Brewer Ltd.
2. Lynch, C. D., & McConnell, R. J(2007). Attitudes and use of rubber-dam by Irish general dental practitioners. International endodontic journal, 40(6),427-432.
3. Anabtawi, M. F., Gilbert, G. H., Bauer, M. R., Reams, G., Makhija, S. K., Benjamin, P. L., The DPBRN CollaborativeGroup. (2013). Rubber-dam use during root canal treatment: findings from The Dental Practice-Based Research Network. Journal of the American Dental Association

(1939), 144(2), 179–186. (Rub ber-dam use during root canal treatment Findings from The Dental Practice-Based Research Network)
4. Heymann, H. O., Swift Jr, E. J., & Ritter, A. V. (2014). Sturdevant's art & science of operative dentist-ry. Elsevier Health Sciences.
5. G, S., Jena, A., Maity, A. B., & Panda, P. K. (2014). Prevalence of Rubber-dam Usage during Endodontic Procedure: A Ques- tionnaire Survey. Journal of Clini- cal and Diagnostic Research/Z: JCDR, 8(6), ZC01–ZC03.
6. Tanalp J, Kayata**,** M, Baer Can ED, Kayahan MB, Timur T. Evalu- ation of Senior Dental Students' General Attitude towards the Use of Rubber-dam: A Survey among Two Dental Schools. The Scientif- ic World Journal. 2014
7. Gilbert GH, Litaker MS, Pihlstrom DJ, Amundson CW, Gordan VV. Rubber-dam use during routine operative dentistry procedures: findings from The Dental PBRN. Operative dentist- ry. 2010;35(5):491-499.
8. Robbins, J. W., Hilton, T. J., & Schwartz, R. S. (2006). Funda- mentals of operative dentistry: a contemporary approach. J. B. Summitt (Ed.). Quintessence Pub.
9. Zou, H., Li, Y., Lian, X., Yan, Y., Dai, X., & Wang, G. (2016). Frequency and Influencing Factors of Rubber-dam Usage in Tianjin: A Questionnaire Survey. International Journal of Dentistry, 2016, 7383212.
10. Madarati, A. A. (2016). Why dentists don't use rubber-dam during endodontics and how to promote its usage? BMC Oral Health, 16, 24.

Research article

Distribution of Mega-Platelet Units (Platelet Apheresis) During Four Years at Blood Bank and Transfusion Center LUMHS Hyderabad

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Abstract

The transfusion of constituents drawn from human blood strengthens up-to date medicine. But, transfusion is not devoid of hazards. Platelet transfusions are rising more speedily than the transfusion of other parts. Single-donor apheresis clusters are spent favorably commonly known as single donor platelet procedure; blood is obtained from a donor in anticoagulant solution. Benefit of solo provider platelets upon shared donor platelets are of decreased hazard of bacterial infection. To determine the distribution of platelet concentrates from healthy donors to various units of LUH Hyderabad. This cross sectional and descriptive study was done at Blood bank and transfusion center, Diagnostic and research (D&R) Laboratory LUMHS Hyderabad from March 2012 to February 2016. Platelet apheresis was processed in 691 healthy males; age between 21 to 45 years. Apheresis was done by cell separators (Fresenius Hemo Care GmbH, Germany and Trima accel United States). And were distributed in different units of Liaquat University Hospital, Hyderabad, i.e. Oncology 176(25.47%), Medicine 169 (24.45%), Surgery 126 (18.23%), Gynecology and Obstetrics 115 (16.64%), Intensive Care Unit (ICU) 61 (8.82%), Casualty 44 (6.36%). Reviewing of blood component's demand is an effective workout to decrease the figure of inapplicable transfusions, given the threats of transfusions despite progresses in preparing them harmless.

KEYWORDS: Platelet apheresis, Transfusion, Distribution, Units

Introduction

The transfusion of constituents drawn from human blood strengthens up-to date medicine, But, transfusion is not devoid of hazards[1]. Platelet transfusions are rising more speedily than the transfusion of other parts. Single-donor apheresis clusters are spent favorably[2], commonly known as single donor platelet procedure; blood is obtained from a donor in anticoagulant solution. Platelets suspended in plasma are retained as end product and the remaining constituents i.e. red blood cells and plasma are returned to the donor. A single unit of platelet collection manufactured from a unit of entire blood contains, on the average, 7.5×10^{10} platelets and must rise the platelet tally by 5 to 10×10^{9}/L (5,000 – 10,000/mL) in a 70 kg beneficiary. Apheresis platelet assembles normally contain $3 - 6 \times 10^{11}$ platelets, subject on compendium preparation. Therefore, 6-times more platelets can be collected at one time through the apheresis than through whole blood donation. Benefit of solo provider platelets upon shared donor platelets are of decreased hazard of bacterial infection3. Today 50% to 80% of patients with leukemia are given platelet apheresis. Platelet transfusion is indicated in leukemia, aplastic anemia, AIDS, hyper-spleenism, sepsis, bone marrow transplant, radioactivity treatment, organ transplant, cardio-pulmonary bypass and dengue fever. This study aimed to determine the distribution of platelet concentrates from healthy donors to various units of LUMHS Hyderabad.

Material and Methods

This cross sectional descriptive study was carried out at Blood Bank and Transfusion Center Diagnostic & Research Laboratory, LUMHS Hyderabad. Samples were collected from 691 fit and healthy first time voluntary and alternate platelet apheresis donors aged between 21 to 45 years from March 2012 To February 2016. Details of platelet apheresis were described to each donor who gave due consent before the process. Donors were selected based on the criteria including weight more than 50 kg, as a minimum 3 months from last whole blood donation or 3 days from previous platelet apheresis, hemoglobin above 12.5 gm/dl, platelet count above 200 x 10^3/cmm, absence of any illness, no any intake of non-steroidal anti-inflammatory drugs for last 7 days, not taken Aspirin for last 72 Hours, negative viral profile i-e HIV, HBV, HCV, Syphilis and Malaria, ABO identical donor for the patient and adequate venous accesses. Procedure was performed on cells separators platelet apheresis machines Fresenius separator (COM.TEC), DN (Fresenius Hemo Care GmbH, Bad Homburg V.D.H, Germany) and Trima accel Automated Blood collection System

Result

A total of 691 donors were there and platelet apheresis were used in the following departments4 of attached Liaquat University Hospital Hyderabad.

No	Department	No of Plateletpheresi	Percentage
01	Medicine	169	24.45%
02	Oncology	176	25.47%
03	Surgery	126	18.23%
04	Gynaecology and Obstetrics	115	16.64%
05	Emergency Room	44	6.36%
06	Intensive Care Unit (ICU)	61	8.82%
	Total	691	100%

Table 1. Department wise distribution of patients

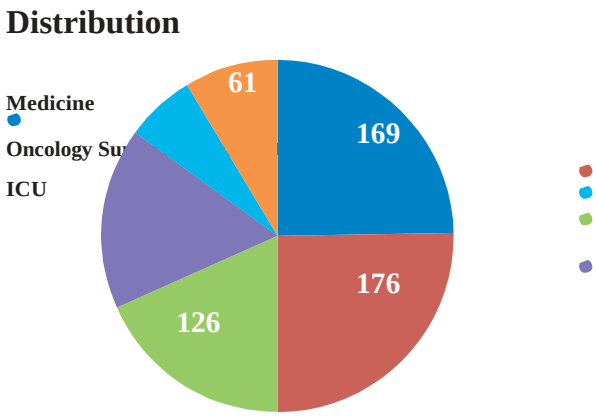

Figure 1. Distribution of departments

Discussion

Platelet apheresis is practiced all over the world. Platelet manufacture must comprise widespread guidance of clinicians (on proper component use) as it is an invasive procedure, but it requires a greater dedication to the donor because of the prolonged duration of the procedure as compared to whole blood collection. The primary goal of platelet transfusion is to ensure that it is done safely and used appropriately for specific clinical condition, thereby avoiding the unnecessary use of donor blood in clinical practice. This study revealed that platelet apheresis for obtaining platelet concentrates can be used in many clinical situations. Transfusing patients with thrombocytopenia to sophisticated platelet counts has several prospective benefits; as one of the probable advantage is to diminish the frequency of hemorrhagic situations. Attention should also be given to the long-lasting sustainability of Platelet manufacturing systems, especially given the extraordinary per unit costs, a consideration of the blood service's need to regain an increasing percentage of charge8. One important benefit of platelet apheresis is that no further supervision is required for the outcome to be labeled as 'leukoreduced'. Leukocytes must be $<5 \times 10^6$ per concentrate corresponding to USA standards and $<1 \times 10^6$ per concentrate according to European standards[9]. One of the negative point is that Platelet concentrates have the shortest expiry time of all routine blood components; and they are also associated with risk of bacterial growth particularly beyond the shelf life of 5-day. As demand for platelet transfusions is continuing increasing, donor availability poses a major challenge for blood banks. For that ideal managing of platelet supply, a close relationship between clinicians, blood banks and transfusion specialists is compulsory[10].

A study conducted by Trivo et al[7] in Indonesia used 204 Platelet apheresis from 2009-2013 in oncology department in another study by John P. Pitman et al[8] in Namabia used 771 Platelet apheresis from 2006-2011 in oncology department. A local study conducted at Islamabad by Samina Tufail Amanat et al[3] used 200 Platelet apheresis from 2010-2014 in Dengue fever while a study in trauma center of India by

Arulselvi S et al4 used 950 Platelet apheresis in only one year. Results of this study we praise that apheresis donors should be observed for post-donation haematological issues. Donors with noteworthy decrements should be reviewed successively to exclude or, if necessary, treat properly. The generation of high-dose apheresis concentrates has financial associations for transfusion services and blood centers. Thus, in end, sensible execution of guidelines for the use of various blood products may help decrease unsuitable use of blood constituents and guarantee their availability to larger number of needy patients as well. Knowledge and teaching amongst all those considering patients would go a long way in bringing the percentage of appropriate transfusion to nearly 100%. Auditing of blood order is a productive practice to minimize the number of inappropriate transfusions, given the risks of transfusions despite advances in making them safe6.

Conclusion

The platelet apheresis procedure is considered relatively safe. However, several complications may occur. It forms an important adjuvant to blood bank inventory. It is also useful in wide variety of clinical situations; the need of platelet concentrates obtained from single donors by apheresis is growing[5]. Transfusing patients with thrombocytopenia to sophisticated platelet counts has several prospective benefits; as one of the probable advantage is to diminish the frequency of hemorrhagic conditions.

Acknowledgment: Donors, Patients and Technical Staff of Diagnostic &Research laboratory, LUMHS.

References

1. William N Schofield, George L Rubin and Mark G Dean Appro- priateness of platelet, fresh frozen plasma and cryoprecipitate trans- fusion in New South Wales public hospitals MJA Vol 178 3 February 2003
2. Lawrence T. Goodnough, David J. Kuter, Jeffrey McCullough, Sherrill J. Slichter, John DiPersio, John Romo, Randolph Peterson, Kenneth J. Smith, Thomas Raife, Dianne Tomita, and Susan Armstrong Prophylactic platelet transfusions from healthy aphere- sis platelet donors undergoing treatment with thrombopoietin Blood, 1 September 2001 Z Volume 98, Number 5
3. Samina Tufail Amanat1, Huma Abdul Shakoor1, Masooma Raza1, Nadeem Khan2 and Abdul Rauf2 Clinical Indications and Adverse Reactions of Platelet Apheresis Journal of the College of Physicians and Surgeons Pakistan 2015, Vol. 25 (6):403-406
4. Arulselvi S, Rangarajan K, Sunita S, Misra M C Blood transfusion practices at a level one trauma centre: a one-year retrospective review Singapore Med J 2010; 51(9): 736
5. Stefano Fontanaa Peter Kellerb Behrouz Mansouri Taleghanib Platelet Recruitment during Multiple Donor Platelet Apheresis Differs between Cell Separators Transfusion Medicine and Hemotherapy 2011;38:195–198
6. Minal Wade · Ratna Sharma · Mamta Manglani Rational use of blood components – an audit Indian J Hematology Blood Transfusion 25(2):66–69 Indian Society of Hematology and Trans- fusion Medicine 2009
7. Trivo et al J Clin Apher 2015 Jun;30(3):139-40. doi: 10.1002/j- ca.21350. Epub 2014 Aug 12
8. John P. Pitman1,7, Sridhar V. Basavaraju1, Ray W. Shiraishi1, Robert Wilkinson2, Bjorn von Finckenstein2, David W. Lowrance4, Anthony A. Marfin1, Maarten Postma6,7, Mary Mataranyika3, and Cees Th. Smit Sibinga5 Namibia's transition from whole blood–derived pooled platelets to single-donor apheresis platelet collections Author manuscript Transfusion. Author manuscript; available in PMC 2015 October 15.
9. Fevzi Altuntasa Ismail Sarib Ismail Kocyigita Leylagul Kaynara Sibel Hacioglub Ahmet Ozturkc Mehmet Oztekina Musa Solmaza Bulent Esera Mustafa Cetina Ali Unala Comparison of Plateletpheresis on the Fenwal Amicus and Fresenius Com.Tec Cell Separators Transfus Med Hemother 2008;35:368–373
10. Andreas Holbroa, Laura Infantia, Jörg Sigleb, Andreas Busera Platelet transfusion: basic aspects Swiss Med Wkly. 2013;143:w13885

Research article

Relationship between Academic Stress and Personal Wellness in Medical University Students

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Abstract

This study aimed to explore the relationship of academic stress with personal wellness as well as academic stress as a predictor of personal wellness in medical university students. One hundred and seventy five undergraduate students, including 67 males and 108 females were selected through convenient sampling. This study was conducted during February 2017 to July 2017 at Jinnah Medical & Dental College (JMDC) and Bahria University Medical & Dental College (BUMDC). Participants were assessed by using Lakaev Academic Stress Response Scale (Lakaev, 2009) and Five Factor Wellness Inventory Adult Form (Witmer & Sweeney, 2004). The results found a significant relationship between personal wellness in medical university students ($p \leq .001$). The findings indicated a moderate downhill (negative) relationship between academic stress and personal wellness as per the hypotheses statement. A slight deviation from the results has occurred which might be due to some extraneous variable.

KEYWORDS: Academic stress, Personal wellbeing, Medical students.

Introduction

Nowadays, every person in this world is suffering from cravings for achievement. Either it is job related, family related, social, economic or academics related stress. Among variety of variables producing negative effects on people's health and wellness, stress is one of them. Researchers reported that it is prevailing vastly among the students of university level[1]. Academic stress creates a sense of stringent among not only students but also on parents. This clench has been extending day by day on the life of students, due to the competitive environment. Academic stress has been characterized as the disturbance in psychical capabilities due to some pre-empt frustration which is the result of unable to succeed in academic life as well as their probability has the same consequence[2]. Without using any techniques to cope up with academic stress by students, it becomes very harmful and can result in serious physical as well as psychological health conditions including weakened immune system, insomnia,

muscle pain, troubled social life, anxiety, troubled cognition and high blood[3]. Researchers suggested that stress as a consequence of academic demands counting as the major irritating daily life stressors. Academic Stress among adult students has been under investigation for a long time. Researchers have directed stressors, which are piles of assignments, competitions in academics, failures and poor relationships with other students5-6. Research has also shown that quality of learning would negatively impact if there will be high academic stress7. Furthermore, this will even importantly impact physical and emotional wellness of the students8. However, due to stress the student's emotional problem, social and physical problem may influence the learning ability of students9. There is a significant increase in number of students, which are at high risk for experiencing symptoms of depression and there is an increased risk of experiencing perceived stress as well10. The objective of this study was to explore the relationship of academic stress with personal wellness as well as academic stress as a predictor of personal wellness in medical university students.

Methodology

This study was conducted during February 2017 to July 2017 at Jinnah Medical & Dental College (JMDC) and Bahria University Medical & Dental College (BUMDC) located in the city of Karachi, Pakistan. For this observational study convenience sampling was done. Third year and fourth year medical students, free from any kind of psychiatric medication, not under any psychotherapy treatment were selected. Data was collected by using questionnaires for analysing the relationship academic stress and personal wellness. Before taking written consent all participants were informed regarding the nature and protocol of the study with reassurance of confidentiality of identity and personal information. In this study, 175 participants were considered consisting of 67 males and 108 females age ranged from 19 to 26 years. The data has gathered by using two of the questionnaires according to the variables of study i.e. Lakaev Academic Stress Response Scale (LASRS) and Five Factor Wellness Inventory Adult Form. Both of the instruments were self-administered inventories. Lakaev Academic Stress Response Scale (LASRS) is a 26-items scale that measures severity of academic stress from Nil to High. The alpha coefficient for 26 items were 874, suggesting that the items have relatively high internal consistency. Five Factor Wellness Inventory Adult Form is a 96-items questionnaire that measures a person's holistic health and wellness and represents from illness to wellness. Percentages & frequencies of sample's demographics (Year of study, Gender, Marital Status & Age) was analyzed by descriptive statistics. Moreover, for analyzing the relationship between variables i.e. Academic Stress and Personal Wellness, Pearson Correlation and Regression Analysis was calculated.

Results

Out of 175 participants 67 (38%) were males and 108 (61%) were females. Marital status as shown in Table 1. 85.7% of the participant were unmarried, 10.9% were married and 3.4% were committed. There were 30.9% in 2nd year and 30.3% were in 3rd year while 21.7% were in 4th year, 1st year students were 15.4% and 5th year were 1.1%. The age-range of participants was 18 to 26 years from which majority from the range of 21 to 23 years in the study.

Academic Stress had a significant negative relationship with Personal Wellness. Pearson Correlation -0.539** indicating a moderate downhill (negative) relationship between academic stress and personal wellness, while overall results of the study suggest that around 29% of wellness correlates with academic stress (Table 2). Coefficient of Independent variable is showing that academic stress is a

predictor of personal wellness personal. If academic stress increases, personal wellness will decrease by -0.539 standard deviation (Table 3).

Table 1: Frequencies and Percentages of Demographic Variables (N=175)

Gender	Frequencies	Percentages
Male	67	38.3%
Female	108	61.7%
Total	175	100.0%
Marital Status		
Committed	6	3.5%
Married	19	10.9%
Single	150	85.7%
Total	175	100.0%
Year of Studies		
1st Year	27	15.4%
2nd Year	54	30.9%
3rd Year	53	30.3%
4th Year	38	21.7%
5th Year	2	1.1%
Total	175	100.0%

Table 2: Relationship Between Academic Stress And Personal Wellness Among Medical Students (N=175)

		Academic Stress	Personal Wellness
Academic Stress	Pearson Correlation	1	-.539**
	Sig. (2-tailed)		.000
	N	175	175
Personal Wellness	Pearson Correlation	-.539**	1
	Sig. (2-tailed)	.000	
	N	175	175

Table 3: Academic Stress As A Predictor Of Personal Wellness In Medical Students (N=175)

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	4.107	.180		22.796	.000
Academic Stress	-.502	.060	-.539	-8.425	.000

Discussion

The aim of this study was to test whether there is a relationship between academic stress and individual health that is personal wellness among medical students, which was cleared in the results that academic stress can negative effect person's wellness. The burden of studies in academic years mostly leads to stress in students that effect their health as well as learning abilities[11]. Idea of performing best in the exams its- self is a stressful situation for the students of medical colleges and universities and continues stress affect the student's physical and emotional health[12]. It was further supported by different studies that medical students have high work load in their academic years as they have to give more hours of their day to their studies which in return affect their quality of life. Approximately 50% of medical students in United States experience stress, 25% have depression, and many suffer from chronic anxiety [13,14]. As Lazarus and Cohen study indicates that the environment of the individual become negative and unyielding, the weariness is regularly referred to as a stressor

[15]. Another study suggested that the clinical training period appears to be less unpleasant. Be that as it may, in the primary year of house work (the temporary job), fatigue, burnout and lack of sleep end up noticeably real stressors[16]. Absence of individual time keeps on focusing on them assist in their training years. Some level of Anxiety is helpful and at first important for self-awareness to happen, however now and again the measure of stress can overpower and influence their capacity to adapt. Concealment of feelings is not the sound way to deal with controlling feelings, it acts as a moderate toxin and continues influencing emotional well-being from time to time. In situations of facing stress, it may turn worst, however sensible view of situation and figuring out how to adapt to it by changing the person responds to it. Different studies showed that stress management skills' including training sessions has a good impact on the psychological well-being of people. The same was also analyzed in different studies and proved helpful[17,18].

Conclusion

Academic stress effects the personal wellbeing in medical students. Our results shows that students of medical colleges and universities are suffering from emotional problems because of high level of academic stress. Authors recommend for the teachers and parents to keep in mind the meaning and importance of academic stress that influence students' personal wellness to better understand and evaluate students' personal needs and values, in order to assist and help them through their personal growth and development.

References

1. Zajacova A, Lynch SM, Espen- shade TJ. Self-efficacy, stress, and academic successin college. Research in higher education. 2005 46;(6): 677-706.
2. Kalariya NM, Ramana KV, Srivas- tav SK, Van Kujik FJ. Carotenoid derived aldehydes-induced oxida- tive stress causes apoptotic cell death in human retinal pigment epithelial cells. Experimental eye research. 2008 86(1): 70-80.
3. Shankar NL, Park CL. Effects of stress on students' physical and mental health and academic success. International Journal of School & Educational Psychology, 2016 4(1): 5-9.
4. Wilbert C. The relationship between stress and mental health among students at the University of Twente. Bachelor's thesis, University of Twente. 2012.
5. Dhull I, Kumari S. Academic Stress among adolescents in relation to gender. IJAR. 2015 1(11): 394-396.
6. Brantley PJ, Garrett VD. Psycho- biological apporaches to health and disease. In Comprehensive handbook of psychopathology. 2002 (pp. 647-670). Springer US.
7. Lumley MA, Provenzano KM. Stress management through written emotional disclosure improves academic performance among college students with physical symptoms. Journal of Educational Psychology. 2003 95(3): 641-649.
8. Garlow SJ, Rosenberg J, Moore JD, Haas AP, Koestner B, Hendin H, Nemeroff CB. Depression, desperation, and suicidal ideation in college students: results from the American Foundation for Suicide Prevention College Screening Project at Emory University. Depression and Anxi- ety. 2008 25(6): 482-488.

9. Shaikh BT, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N, Khan S. Students, stress and coping strategies: a case of Pakistani medical school. Educa- tion for Health Abingdon Carfax2004 17, 346-353.
10. Ludwig AB, Burton W, Weingar- ten J, Milan F, Myers DC, Kligler B. Depression and stress amongst undergraduate medical students. BMC Medical Education 2015 15(1): 141.
11. Khalatbari J, Azizzadeh-Haqiqi F. The impact of life skills training and stress management strategies on the mental health of female university students. Knowledge and research in applied psycholo- gy. 2011 2(12).
12. Edwards MT and Zimet CN. Problems and concerns among medical students. Journal of Medical Education 1976 51(8): 619–625.
13. Dyrbye LN, Thomas MR, Massie et al. Burnout and suicidal ideation among U.S. medical students. Annals of Internal Medicine. 2008 5(149):334–341. View at Publisher.
14. Dyrbye LN, Thomas MR, and Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. Academic Medicine. 2006 4(81):354–373.
15. Lazarus RS and Cohen JB. Environmental Stress. 2000. Springer US.
16. Weidner G, Kohlmann CW, Dotzauer E and Burns LR. The effects of academic stress on health behaviors in young adults. Anxiety, stress and coping. 1996; 9(2):123-133.
17. Qadiri-Bahramabadi F and Mikaeli-Manee F. The effective- ness of cognitive-behavioral stress management training on psycho- logical well-being and school satisfaction of teenage girls. A r m a q a n - e D a n e s h . 2015;20(5):433–443.
18. Chubforushzadeh A, Kalantari M and Molavi H. The effectiveness of cognitive-behavioral stress management on the subjective well-being of infertile women. Quarterly of Clinical Psychology. 2009;1(4):1–9.

Research article

Pierre Marie-Bamberger Syndrome: A unique case report

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Abstract

Hypertrophic osteoarthropathy (HOA) was described by Friedreich in 1868. It is a rare condition with variable presentations including clubbing of the toes and fingers, arthralgia with edema, bilateral ptosis, thickening of the skin and leonine facies. Bone and peri-articular tissue proliferation leads to expansive extremities. It is a distant effect disorder in various neoplasms (para-neoplastic syndrome); often associated with lung neoplasm. We report a case of a 36 year old Pakistani male smoker, presenting with bilateral joint pains, shortness of breath and grade 4 digital clubbing on general examination.

Introduction

Hypertrophic osteoarthropathy (HOA) clinically presents with clubbing of the fingers and toes, increase in the size of extremities, arthralgia and swelling in the joints. A characteristic feature of HOA is symmetric periostitis which mainly affects long bones of both upper and lower limbs. Etiologically the disease can be primary (pachydermoperiostosis) or secondary. Primary form, or idiopathic, is a rare familial autosomal dominant disease, accounting to 3-5% of all cases. In majority of the cases, the disease is secondary to a pulmonary tumour, hence called hypertrophic pulmonary osteoarthropathy (HPO)[1, 2]. We present a case of 36 years old Pakistani male, who presented with generalized malaise and lethargy. The patient complained chronic pain in joints of hands and axial skeleton and was later diagnosed to have non-small cell carcinoma, squamous cell cancer of lungs.

Case Report

We here present a case of a Pakistani 36 year's old male, presenting in the clinic with generalized malaise and lethargy. Patient was stable with BP 130/90, pulse rate 74/min, respiratory rate of 16/min and afebrile. Patient gave history of bilateral chronic pain in joints of hands and axial skeleton. Pain in his hand joints started almost 5 years back, dull aching in character without any morning stiffness, worse on movement, relieved on taking acetaminophen and rest. The swelling was associated with joint pain but no fever or chills. Patient also reported exacerbation of pain in the joints of hands on motion and

had been consuming over the counter painkillers for these arthritis like symptoms for last 5 years on and off. He also complained of shortness of breath and occasional non-productive cough. He is known smoker for past 16 years with history of 24 pack years and has complained of chronic bronchitis for many years. There was also a positive family history of lung cancer.

On general physical examination, grade 4 clubbing of the digits was seen with excessive proliferation of skin. There was visible swelling of small joints of hands and elbows with no calor, warmth (a cardinal feature of inflammation) on palpation. There was severe pain on movement of interphalangeal joints. Initially a provisional diagnosis of degenerative joint disease was made, although a positive family history of lung cancer and smoking habit, a paraneoplastic syndrome was considered as s differential for diagnosing the case. Patient was referred to radiologist for the radiographs of hands and the chest. The hand radiograph showed periosteal reaction around the shafts of all visible bone, (Figure 1). Periosteal reaction is seen around the shafts of all visible bones with no cortical break. No fracture is seen. Findings are consistent with hypertrophic pulmonary osteoarthropathy.

The chest radiograph showed a right mid-zone focal lesion, suggestive of malignancy (Figure 2). The lung biopsy was done, which showed a non-small cell carcinoma, squamous cell cancer. A diagnosis of Pierre Marie-Bamberger Syndrome, rare condition was made. Patient was advised to continue NSAIDS for symptomatic management and was referred to surgery department for treatment of primary cause

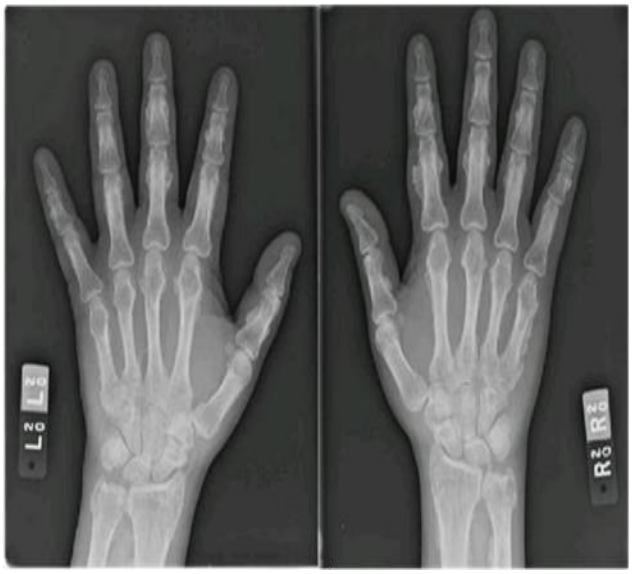

Figure 1. X-ray bilateral hand PA view

Figure 2. Soft tissue density mass is seen in right mid zone with irregular indistinct margins suggestive of malignancy

Discussion

HOA is a syndrome manifesting bony deformities and multi-organ involvement[3]. The major work on the syndrome is done in 1889 by Bamberger followed by further research by Pierre Marie in 1890, hence the name Pierre Marie– Bamberger (PMB) disease was coined[4]. PMB is a rheumatologic disease with variable presentations. The common features include digital clubbing, increase in size of the limbs secondary to bone and periarticular tissue proliferation, arthralgia with edema, bilateral eyelid ptosis,

leonine facies, and thickening of the skin. Histological examination of tissue biopsy shows hyperplasia of the adjacent subcutaneous tissue[5, 6]. PMB is etiologically classified into primary (hereditary or idiopathic) or secondary disease. Touraine et al divided the primary disease into three forms: complete, incomplete, and fruste form. The complete and fruste variety both present with pachydermia along with skeletal abnormalities. However digital clubbing and periostosis is seen in complete form7. Incomplete form cases do not exhibit pachydermia. Secondary HOA is associated with an underlying multiorgan involvement and often has a fatal course. HPO is an uncommon paraneoplastic syndrome which is frequently associated with pulmonary tumor; the actuarial incidence of HPO is, however, not well known8.

Our patient in the reported case initially presented with bilateral joint pains in the hands with increased pain on movement. He was on over the counter pain medications for chronic arthritis. On general physical exam he had grade 4 clubbing in hands, thickened skin, edema and joint pain on movement of the hands which are all features of HPO. Considering shortness of breath, smoking history and digital clubbing in our reported case we suspected Hypertrophic Osteoarthropathy (HPO) secondary to lung pathology and sent the patient for chest X-ray. Further tests and biopsy revealed lung carcinoma.

Simple clubbing of the fingers should be differentiated from osteoarthropathy. The preliminary alteration in the architecture of limbs of patients with pulmonary HPO is an overgrowth of vascular connective tissue involving structures in the distal part of the limb. The new tissue formed lies over the periosteum and osteogenesis takes place beneath it. Surrounding the joints, the newly formed tissue gives the appearance of periarthritis, though there are no specific articular changes. The nail beds invasion gives rise to clubbing of the fingers. Osteoarthropathy is commonly secondary to pulmonary disease, but it may be associated with thoracic lesions without pulmonary involvement9.

In the end summarizing the treatment of secondary hypertrophic osteoarthropathy (HPO) we consider the option of treating underlying primary cause like resection of tumor, chemotherapy, radiotherapy etc. and supportive management including bisphosphonates, NSAIDS and vagotomy4.

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References

1. Jajic Z, Jajic I, Nemcic T. Primary hypertrophic osteoarthropathy: clinical, radio logic, and scinti-graphic characteristics.Arch Med Res. 2001; 32:136-142.
2. Ntaios G, Adamidou A, Karamit- sos D. Hypertrophic pulmonary osteoarthropathy secondary to bronchial adenocarcinoma and coexisting pulmonary tuberculo- sis: a case report. Cases J. 2008; 1:221.
3. Martínez-Lavín M, Matucci-Cerinic M, Jajic I, Pineda C. Hyper- trophic osteoarthropathy: consensus on its definition, classification, assessment and diagnostic criteria. J Rheumatol. 1993 Aug. 20(8):1386-7.
4. Nguyen S, Hojjati M. Review of current therapies for secondary hypertrophic pulmonary osteoar thropathy. Clin Rheumatol. 2011 Jan. 30(1):7-13

5. Resnick D: Diagnosis of bone and joint disorders, 3 ed., Philadelphia: W.B. Saunders Company. Capítulo: Enostosis, hyperostosis and periostitis. Resnick, D; Niwayama, G. 1995.
6. Carvalho TN, Araújo CR Jr., Fraguas SRF, Costa MAB, Teixeira KS, Ximenes CA. Osteoartropatia hipertrófica primária (paquider-moperiostose): relato de casos emdois irmãos. Radio Bras 2004;37(2):147-9.
7. Karnan S, Krishnamoorthy V, EthirajP, Sathyanathan BP. T o u r a i n e - S o l e n t e - G o l e syndrome: The complete form needs to be recognized. Indian J Nucl Med. 2012 Jul. 27(3):201-4.
8. QIAN, XINYU, and JING QIN. "Hypertrophic Pulmonary Osteoarthropathy with Primary Lung Cancer." Oncology Letters 7.6 (2014): 2079–2082. PMC. Web. July 2016.
9. Holling H, Brodey RS. Pulmonary Hypertrophic Osteoarthropathy. JAMA. 1961;178(10):977-982.

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