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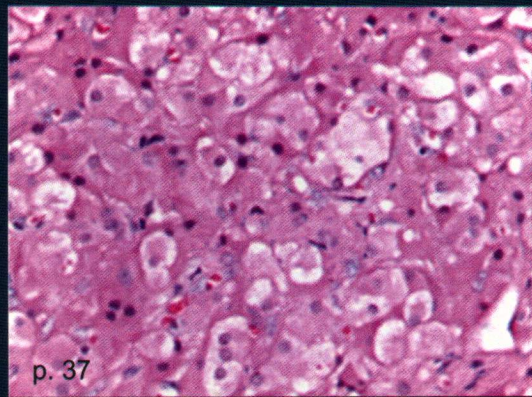


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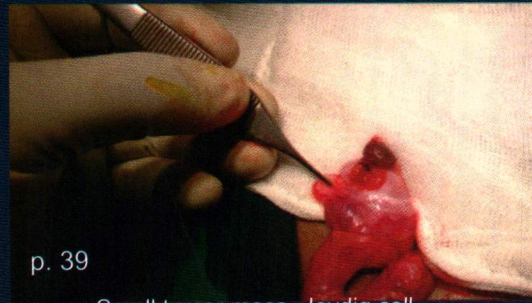
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EDITORIAL

Translational Research or the new Implementation and Dissemination Science

Traditionally, the concept of research is equated with basic research which is conducted without aiming for practical ends.⁽¹⁾ As a result, the training programmes towards promoting research often do not appeal to a practical problemsolver. Patient-oriented research is a different stream altogether. Here, the seeds of research fall into the minds of an inquisitive medical professional even during the student life and seriously during post graduate studies. The process of applying these small discoveries into practice is often equated with translational research.

When you try to answer the unusual events or findings during your professional career, research takes form in different shapes and new findings and observations evolve and new techniques and treatment modalities are formulated during the process. During the post graduate studies one has to present a formal research proposal and to complete the same as part of their course of study. The unidirectional continuum of basic research to clinical research could be the first step in this process (T1).⁽¹⁾

However, in a typical study of this sort, a significant observation may evolve which may be left alone and may just decay after the PG course. If such observations were documented as research articles, these may enrich the scientific world and may lead to further elucidation of the unravelled and might benefit the community in many ways. This is often extended to practical settings and public health itself. This is termed as the second stage in translational research (T2).

(1) The new thought process of such kind also could be defined as "implementation and dissemination science (IDS)".

(2) Any curious person, whether clinical or nonclinical, who asks a question like what, why, when or how regarding an unusual occurrence of anything in their routine professional life or even in their personal observation and approaches the issue in a scientific way simply becomes a researcher. He needs to integrate the translational disciplines of social sciences (e.g. Economics) with principles of clinical sciences (e.g. Medicine) using the tools of population sciences (e.g. Epidemiology).⁽²⁾ Here the researcher's professional background, selection of topic, research question, research objectives, and importance of the study question, research objectives, and importance of the study, scope, methodology, conceptual framework and potential outcome becomes important.

In olden days, practitioners of a system of medicine acquired quantum knowledge by observation and experience, but due to the lack of a medium for communication, such valuable information usually died with the person. Moreover, some people did not like to divulge such great bits of information mainly regarding 'panacea' for diseases ("Ottamoolies") due to fear of professional competition even to their most beloved disciple and kept them as secrets till their last breath and the same died with them. Now we have ample opportunities for dissemination of observations and inferences and experiences in the form of different media like journals, news bulletins, e-journals, media groups, and such many other and share the wealth of knowledge with others.

We survive on the knowledge provided by our predecessors hence we have the moral obligation to document and publish our observations for others even if it is very small and seems to be irrelevant. The research becomes popular when it becomes simple and easy to perform when you are busy with your routine chores of activity and designing a research should not become a dreadful affair and you shiver on hearing the word "research". Even during your busy clinical practice you can carry out simultaneous research and publish your wealth of experience and get feedback also. Integrating clinical medicine into basic sciences has become the need of the hour. Several initiatives are already on the way to implementation trying to bridge the gap between pure science and applied science.⁽³⁾ The competency oriented activities include direct reading of the literature, a grant writing course, trips to local science conferences etc. and more. To reduce the gap between the basic scientists and clinicians, translational biology and molecular medicine programmes have been evolved.⁽⁴⁾

Medical Council of India (MCI) has mooted the mandatory requirement of a research cell in every medical college to help in designing a study or publishing observations, aided by expert and enthusiastic clinical epidemiology units and good research teams is a right step in the direction. The research funding in India has shifted focus to practical applications from pure esoteric pursuits and a department of health research (DHR) has been formed under the central ministry of health, and this should attract more clinicians and medical graduates into this new arena.

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ORIGINAL ARTICLE

Circadian variation of blood pressure in normotensive & hypertensive subjects in a tertiary care hospital

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Abstract

Blood pressure recordings invasive as well as noninvasive procedures have demonstrated cyclical changes over a period of twenty four hours in a day; with this background we tried to investigate blood pressure changes in hypertensive and nonhypertensive subjects visiting our hospital. In normal subjects though we found mean blood pressure decreasing during night time during 1 am to 3 am it was not statistically significant but the values in hypertensive subjects was statistically significant. We also observed that blood pressure was statistically different for the same time of the day between hypertensive and normal subjects. Hence we concluded that continuous monitoring of blood pressure at frequent intervals gives an early indication for the development of hypertension and similarly in hypertensive subjects regular monitoring gives the progression of the disorder and autonomic activity of the subject

Introduction

Blood pressure tends to vary during a 24 hour period; it usually tends to be on lower side during night as part of circadian rhythm in normotensive subjects. This fall in pressure during sleep is found to be greater in group of patients with high systolic pressure than normotensive as observed in various studies. The nocturnal fall in blood pressure is more on days when the patient was active; there is inversion in this observation noted during certain pathological conditions (pheochromocytoma, preeclampsia & cushings syndrome)¹.

Various neurohumeral regulatory factors play an important role in diurnal variation of blood pressure which is also dependent on sleep-wake cycle. Circadian rhythm is constituted of specialized neural, hormonal and cellular function with time structures that are interdependent. Systolic and diastolic blood pressure along with heart rate has circadian patterns in health which will be altered in pathological conditions therefore arterial pressure has to be evaluated by multiple readings obtained over 24 hour span at least on two to three occasions².

During sleep blood pressure fall is associated with increased baroreflex sensitivity this reversed as mental arousal signs were present blood pressure increased and baroreflex sensitivity decreased on full arousal state which suggests baroreflex activity is involved in medium term regulation of blood pressure during light-dark cycle along with its well established role in buffering acute changes in blood pressure within minutes³.

The blood pressure variability at normal and high recordings showed that absolute short term blood pressure variations become progressively greater as blood pressure becomes more and more elevated which indicates that increased blood pressure values so that by percentage do not differ between normotensive and subjects of hypertension of either degree, hence this study was undertaken to study the blood pressure variation in a day between normotensive and hypertensive subjects.

Methodology

The study was performed in tertiary care hospital in , Thiruvalla department of nephrology with a random sample of 60 male subjects in the age group of 25-65 years. Informed consent was obtained, the study population constituting of 15

normotensive and 45 hypertensive subjects. The hypertensive subjects group was investigated for biochemical parameters to rule out secondary cause for hypertension and malignant hypertension, which revealed five secondary causes for hypertension and hence formed the third group.

The blood pressure was measured in a quiet surrounding in outpatient department in supine position after five minutes of rest using mercury sphygmomanometer by both palpatory and indirect auscultatory method using stethoscope, recordings were done at 10am, 11pm, 1am, 3am and 6am next day morning. All the values obtained were expressed in mean \pm SD and variations in the blood group was compared between normotensive, hypertensive (idiopathic group) and hypertensive (secondary cause) subjects using ANOVA and students unpaired 't' test (p value < 0.05) will be considered statistically significant.

Results

Sixty male subjects were classified in three different groups Group I normotensive subjects ($n = 15$), Group II hypertensive subjects (essential hypertension) ($n = 40$) and Group III secondary hypertensive subjects ($n = 5$). The normotensive and hypertensive subjects were age matched and were in the age group of 25-65 years.

As shown in Table no.1 systolic blood pressure and Table no.2 diastolic blood pressure recorded in morning 10am followed by recording at 11pm, 1am, 3am and early morning 6am are depicted along with appropriate statistical application, we noted that in Group I normotensive subjects mean blood pressure recorded 10am mean value of 123.87 ± 13.68 (SBP) and 80.26 ± 7.63 (DBP) mm of Hg gradually drops down to mean value of 109.33 ± 17.92 (SBP) and 72.53 ± 11.33 (DBP) mm of Hg around 1am which again increased and reached to the levels present in the day time though we noted fall in the mean systolic and diastolic blood pressure which is not statistically significant as observed by ANOVA one way analysis ($p=0.25$) within the normotensive group.

In Group II essential hypertension we observed mean systolic and diastolic blood pressure in morning 10 am being 181.15 ± 29.93 (SBP) and 111.23 ± 16.09 (DBP) mm of Hg to 144.7 ± 32.18 (SBP) and 91.63 ± 15.03 (DBP) mm of Hg around 3am which later gradually increased and the levels noted during day time. The results on analysis by ANOVA one way analysis the variation in systolic and diastolic blood pressure throughout day is statistically significant ($F=8.5, p=0.001$)

In Group III secondary hypertensive group the blood pressure variation was similar to change as observed in Group II with pressure in morning 10am being 153.5 ± 13 (SBP) and 135.0 ± 19.15 (DBP) mm of Hg begins to fall as low as 135 ± 19.15 (SBP) and 94.46 ± 11.54 (DBP) mm of Hg around 3am but the difference in blood pressure was not statistically significant ($p=0.55$)

On comparison of systolic and diastolic blood

pressure between three groups we observed that at each interval of time the difference in blood pressure was statistically significant and on post hoc test of Tukey we noted that Group I systolic blood pressure of normotensive was statistically significant different at all intervals on comparing with Group II essential hypertensive subjects and Group III secondary hypertensive subjects

Post hoc Tukey test observed that Group II essential hypertensive subject's blood pressure did not show significant difference on comparing to Group III secondary hypertensive subjects.

Table no. 1 – Recording of Systolic blood pressure [SBP] (mm of Hg) at various intervals

	Time of recording					'F' Test
	10am	11pm	1am	3am	6am	
Group I Normotensive (n=15)	123.87 \pm 13.68	116.80 \pm 17.56	109.33 \pm 17.92	115.2 \pm 20.81	117.73 \pm 15.68	F=1.36 p=0.25
Group II Hypertensive (n=40)	181.15 \pm 29.93	153.4 \pm 30.13	149.1 \pm 30.72	144.7 \pm 32.18	160.38 \pm 31.68	F=8.5 p=0.001*
Group III Secondary Hypertensive (n=5)	153.5 \pm 13.0	141.0 \pm 17.63	136.0 \pm 23.04	135.0 \pm 19.15	137.5 \pm 21.25	F=0.78 p=0.55
'F' Test	F=27.17 p=0.001*	F=10.18 p=0.002*	F=11.56 p=0.001*	F=5.56 p=0.001*	F=13.1 p=0.001*	
Post hoc analysis by Tukey between two groups						
I vs II	p= 0.001*	p= 0.001*	p= 0.001*	p= 0.003*	p= 0.001*	
I vs III	p= 0.005*	p= 0.01*	p= 0.01*	p= 0.5	p= 0.03*	
II vs III	p=0.04*	p=0.3	p=0.5	p=0.7	p=0.1	

Table no. 2 – Recording of Diastolic blood pressure [DBP] (mm of Hg) at various intervals

	Time of recording					'F' Test
	10am	11pm	1am	3am	6am	
Group I Normotensive (n=15)	80.26 \pm 7.63	72.13 \pm 13.13	72.53 \pm 11.33	72.67 \pm 11.36	75.87 \pm 12.59	F=1.38 P=0.24
Group II Hypertensive (n=40)	111.23 \pm 16.09	92.25 \pm 13.57	92.72 \pm 15.56	91.63 \pm 15.03	96.23 \pm 14.48	F=12.16 P=0.001*
Group III Secondary Hypertensive (n=5)	106.5 \pm 7.0	96.5 \pm 12.91	95.5 \pm 12.91	94.46 \pm 11.54	96.0 \pm 16.25	F=0.77 p=0.55
'F' Test	F=6.33 p=0.003*	F=13.2 p=0.001*	F=11.3 p=0.001*	F=11.1 p=0.001*	F=11.5 p=0.001*	
Post hoc analysis by Tukey between two groups						
I vs II	p= 0.002*	p= 0.001*	p= 0.001*	p= 0.001*	p= 0.001*	
I vs III	p= 0.001*	p= 0.01*	p= 0.01*	p= 0.005	p= 0.09*	
II vs III	p=0.5*	p=0.6	p=0.9	p=0.8	p=0.9	

Discussion

The circadian Blood pressure [BP] profile is due to complex interaction of neurological and hormonal circadian changes which gets influenced by other factors like physical/mental activity and posture^{4,5}. As part of this variation, there is a long-standing observation that BP decreases in the majority of normotensive and hypertensive subjects during sleep. This change in the circadian rhythm has called for subjects with normal sleep BP decline as dippers and those with a less-than expected decline are called nondippers. The extent of BP reduction during sleep is affected by several factors such as age, sleep quality, and underlying comorbidity⁶.

Monitoring of blood pressure throughout the day has shown a characteristic circadian pattern in which lowest values of SBP and DBP were seen between 1am to 4am. Then after the blood pressure values gradually began to rise and reach the value of day time recording. The fall in night blood pressure were higher when day values was high as noted in case of essential hypertensive group which was statistically significant but as recorded in normotensive and secondary cause hypertensive's the trend of blood pressure values were lower during the same period which was statistically not significant this is in agreement with various other studies^{6,7}.

In the present study the secondary hypertensive group did not show significant variation in SBP and DBP during night gives an early indicator that essential hypertension group circadian rhythm still follows the cycle of an normotensives, which gives an indication of secondary causative agent in the diagnosis of secondary hypertensive's, similarly malignant hypertensive subjects do not show a nocturnal fall of blood pressure as noted in studies^{8,9}.

O'Brein, Shendanet al⁹. Observed that age, sex and weight matched hypertensive subjects between the two groups of dippers and nondippers, the frequency of stroke is significantly higher (23.8%) in non dippers on compared to dippers which becomes an important parameter to be monitored after labeling an subject as an hypertensive.

As noted by various studies^{6, 7, 8, 9, 10} the nocturnal fall in blood pressure profile is altered in diabetics suggesting autonomic dysregulation as one of the prime factor affecting the circadian variations and other disturbances which can also have an impact would be either peripheral vascular origin which is observed in malignant hypertension or with fixed vascular resistance of humoral origin or posture, physical or mental activity.

Several studies¹¹ with renal patients have investigated the relationship between hypertension and fluid or salt overload. Blumberg et al.¹², >30 years ago, realized that there was a strong association between fluid overload and hypertension which is reflected in the our study.

This abnormal nocturnal blood pressure profile could be one of the early important markers for the development of hypertension which can be picked early on continuous ambulatory recording of blood pressure and prevention of complications associated with hypertension

Conclusion

Blood pressure varies during a 24 hour period with nocturnal fall in blood pressure around 1am to 3 am. This nocturnal fall in blood pressure is significant in essential hypertensive then the secondary hypertensive individuals. The difference in blood pressure between normotensive to hypertensive individuals is highly significant. Hence 24 hour blood pressure monitoring at regular intervals gives a good insight of autonomic activity and early intervention if required to prevent the complications of hypertension.

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✪ ORIGINAL ARTICLE

Scrub typhus: A Retrospective Study at a tertiary health care centre in Central Kerala

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Abstract

Background:Scrub typhus is an acute febrile illness caused by *Orientia tsutsugamushi*, transmitted by the bite of larvae of *Leptotrombidium* mites. In Asia, about one million new cases are identified annually and one billion people may be at risk of this disease. It is widespread in Japan, South Korea, India, Nepal, and Australia. In India, there are reports of resurgence of scrub typhus, including Kerala. It presents clinically as a non specific febrile illness and is often overlooked. We did a retrospective study to estimate the number of scrub typhus cases diagnosed in our hospital, which is located in Central Kerala.

Methodology: A retrospective study was done to find out the number of scrub typhus cases diagnosed either by Scrub Typhus IgM ELISA or Weil Felix test during the period January 2013 to December 2014 at Pushpagiri Medical College, Tiruvalla. **Results:** During the period of study, there were nine cases of scrub typhus, out of which six cases were positive by both ELISA and Weil Felix test, three cases positive only by ELISA. Scrub typhus accounted for 0.4% of the non specific febrile illnesses, both in 2013 and 2014. It was found that 40% of the undifferentiated febrile illnesses in 2013 and 57% of them in 2014, were negative for all serological tests done and, were not tested for scrub typhus.

Conclusion: Recent reports from several parts of India, including South India, indicate that there is a resurgence of scrub typhus. Many cases are being reported every year from the Northern and Southern parts of Kerala and very few number of cases from Central Kerala. It is grossly under diagnosed due to its non specific clinical presentation, limited awareness and low index of clinical suspicion. In this scenario of increasing incidence of scrub typhus, it is essential to consider scrub typhus as a differential diagnosis in acute febrile illnesses.

Keywords: Scrub Typhus, Weil-Felix Test, Scrub Typhus IgM Elisa

Introduction

Scrub typhus, also known as tsutsugamushi fever or Japanese River disease, is an acute febrile illness caused by *Orientia tsutsugamushi* which is transmitted by the larvae of *Leptotrombidium* mites (chiggers)¹. It is a public health problem in Asia where about one million new cases are identified annually and one billion people may be at risk of the disease¹. It is widespread in the so called Tsutsugamushi triangle which extends from far eastern Russia and northern Japan in the north, to territories around the Solomon sea and northern Australia in the south, to Pakistan and Afghanistan in the west². Although it was known in China in the 3rd century A.D, scrub typhus was

first described in 1810 in Japan. Tsutsugamushi is a Japanese term where in tsutsuga means "dangerous" and mushi means "bug"³. Western medicine became more interested in this infection during military campaigns fought in East Asia. During the second World War, 18,000 cases were observed in Allied troops. It was the second or third most common infection reported in US troops stationed in Vietnam and continues to infect troops in the region². The first reported cases in India were in 1934, in Himachal Pradesh³. During the second World War and 1965 Indo-Pak war, there had been outbreaks of the disease in Assam and West Bengal. There was a resurgence of scrub typhus in India in 1990, when cases were reported in a unit of the army stationed at the

Pakistan border of India⁴. In the recent years scrub typhus has been reported from Jammu and Kashmir, Himachal Pradesh, Rajasthan, West Bengal, Maharashtra, Karnataka, Tamil Nadu and Kerala.

In India, *Leptotrombidium deliense* species of trombiculid mites are responsible for the transmission of the disease. They serve as vectors as well as reservoirs for the disease due to transovarial transmission of the bacteria within them. These mites primarily feed on rodents, especially the wild rats of the genus *Rattus*. Man becomes an accidental host, when occupational or recreational activities bring him in contact with 'mite islands'- which is a zone of infected mites. These are areas of secondary scrub vegetation formed after the clearance of a primary forest. It can also be specific ecotypes like abandoned plantations, gardens, grassy fields, rice fields and river banks⁶. It presents clinically as a non specific febrile illness often accompanied by prodromal symptoms. The pathognomonic clinical sign is an 'eschar'(7-80%) which is often missed as it is present in inconspicuous areas like axilla, groin, genitalia and is painless. Severity varies from subclinical to severe illness with multiple organ system involvement⁷.

The mainstay in the diagnosis of scrub typhus is serology. Weil Felix test is the oldest test which is still in use. It is inexpensive but lacks sensitivity and specificity, so it is used only as a screening tool⁸. ELISA utilizes *O. tsutsugamushi* derived recombinant antigen mixture for the detection of IgM antibodies in the serum of the patients. Indirect immunofluorescent assay (IFA) was long considered to be the gold standard, but the lack of standardization of endpoints and of the antigen strains used in the test has resulted in considerable confusion. PCR assay is a useful tool for detecting scrub typhus, but the high resource cost and training required make it impractical in many endemic areas.

In Kerala, first cases of scrub typhus were reported from Thiruvananthapuram district in year 2000. Since then, scattered cases have been reported every year, not only from Thiruvananthapuram, but also from the Malabar region including the districts of Kozhikode, Kannur, Malappuram, Palakkad, Wayanad. Cases reported from Central Kerala are very few. It is expected that a fair proportion of the undiagnosed febrile illnesses in our hospital, which is situated in Central Kerala, would be due to scrub typhus. We did a retrospective study to estimate the number of scrub typhus cases diagnosed in our hospital.

Materials and methods

A retrospective study was done to find out the number of scrub typhus cases, diagnosed either by Scrub Typhus IgM ELISA or Weil Felix test during the period January 2013 to December 2014 at Pushpagiri Medical College, Tiruvalla. Weil Felix test was done using the Progen kit with Proteus OX-K, OX-2 and OX-19 antigens. Agglutination was observed after incubation at 37°C in a water bath for 18-24 hours. A titre of ≥ 160 was taken as positive.

ELISA was done using the INBIOS Scrub typhus IgM ELISA kit. The cut off optical density value was 0.346, value above which was considered to be positive. Records of serological tests done for patients with febrile illnesses were scrutinized. The number of fever cases which were leptospira IgM and dengue profile (NS1, IgM and IgG) negative and also negative for other causes of fever was estimated using the WHONET software.

Results

During the study period, a total of 110 serum samples were received in the Microbiology laboratory for testing of rickettsial diseases. Out of this, nine samples (8%) were positive for scrub typhus. The results are enumerated in Table 1. Seven of the positive cases were males and two females. Most of them were > 40 yrs of age. (Figure:1) There was no seasonal variation noted in both the years. (Figure:2) Cases of scrub typhus formed only 0.4% of all the undifferentiated febrile illnesses both in 2013 and 2014. 40% of the undifferentiated febrile illnesses in 2013 and 57% of them in 2014, were negative for all other serological tests done and were not tested for rickettsial diseases (Figure:3 and Figure:4). Of the samples subjected to Weil Felix test, it was interesting to note that OX-2 was positive for 8 cases (8.3%) and OX-19 positive for 4 cases (4%) suggesting the prevalence of other rickettsial diseases.

Table-1. Cases of scrub typhus

Year	No of Positives	ELISA: Positive Weil felix OX-K Positive	ELISA: Positive Weil felix OX-K Negative
2013	6	5	1
2014	3	1	2

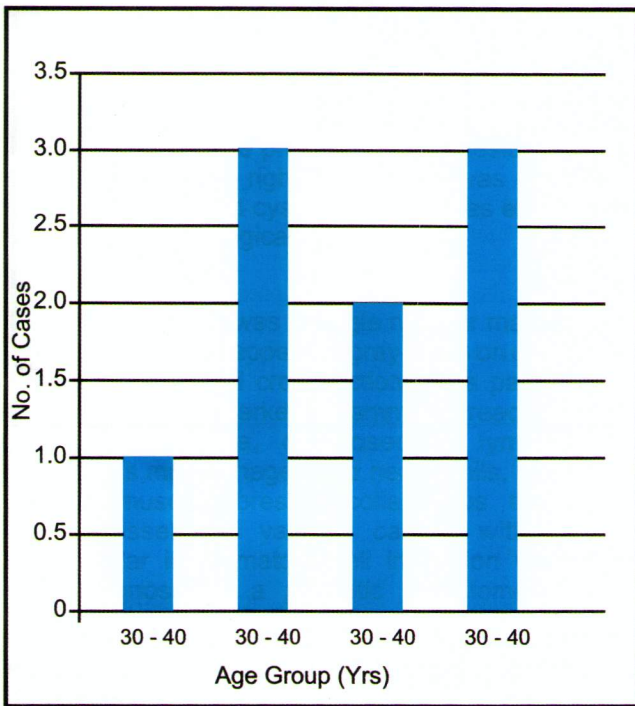


Fig. 1: Age distribution of Scrub Typhus Cases in PIMS & RC

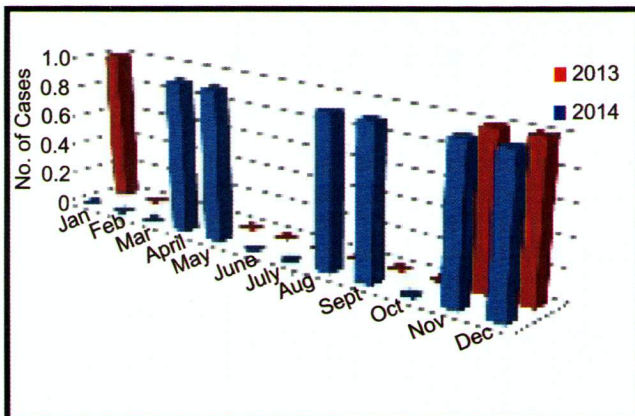


Fig 2: Cases of Scrub Typhus at PIMS & RC

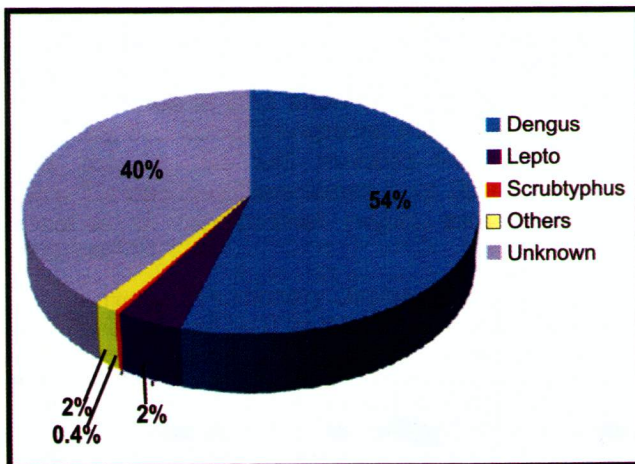


Fig 3: Undifferentiated Febrile Illness: 2013 (PIMS & RC)

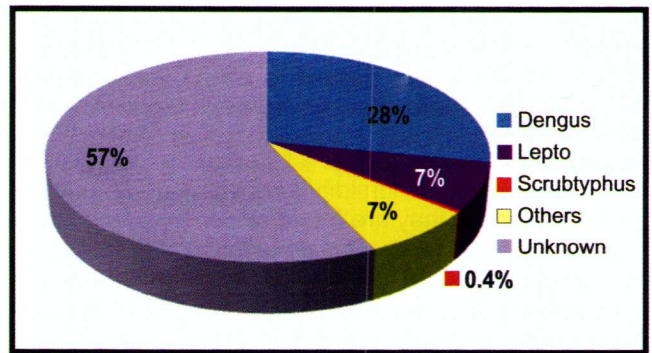


Fig 3: Undifferentiated Febrile Illness: 2014 (PIMS & RC)

Discussion

There have been reports on outbreak of scrub typhus in the recent past in our country, including South India. There are several studies conducted in Tamil Nadu and Pondicherry to find out the prevalence of scrub typhus among patients admitted with undifferentiated febrile illnesses. Studies conducted in Kerala are very few. Cases of scrub typhus were reported from Government Medical College, Thiruvananthapuram in the year 2000. Since then, several cases have been reported in clusters from the district. First cases from the Malabar region were reported in the year 2006, following which several cases are being reported from the districts of Kozhikode, Malappuram, Kannur, Wayanad and Palakkad (unpublished). Saifudheen et al., (2012) reported two cases of scrub typhus meningoenzephalitis from northern Kerala. Christopher and Sreekanthan (2012) reported a case of scrub typhus presenting as atypical pneumonia from Aruvikkara in Thiruvananthapuram district, a highly endemic zone for scrub typhus. Recently few cases of scrub typhus were reported among labourers engaged in grass cutting activities in Wayanad (unpublished). Reports from central Kerala are almost nil. This could be due to the limited awareness and low index of clinical suspicion. Also, the disease can go unnoticed as it responds to commonly used antibiotics like doxycycline and azithromycin. Data on communicable diseases, given by the Directorate of Health Services (DHS) Kerala state, show that there were 68 cases of scrub typhus in 2013 and 437 cases in 2014 along with reported 6 deaths due to scrub typhus. The enormous increase in the number of scrub typhus cases in 2014 can be presumed to be due to increased awareness and suspicion among doctors and subsequent serological confirmation of the disease. The maximum number of cases were reported from Thiruvananthapuram district in 2013 and 2014. (figure:5) with minimum cases from central Kerala. In our study, out of the nine scrub typhus cases, five cases were from Pathanamthitta district, three cases from Alappuzha district and one case from Kottayam district. The distribution of cases across the year, according to DHS, Kerala state, shows a seasonal variation with maximum

number of cases in the monsoon and post monsoon season, both in 2013 and 2014 (figure:6). In our study, no such variation was noted, but cases were invariably present in November and December in both 2013 and 2014, the cooler months, as suggested by Mathai et al.. This is because the larvae of *Leptotromidium* mites require high level of humidity for their survival, and for the same reason they are found on scrubs and bushes rather than on tall trees. This period also correlates well with the season when higher number of field rats are infected with *Orientia tsutsugamushi* and months when more mites are attached to rodents.[1]

In our study, 40% and 57% of the acute undifferentiated febrile illnesses in 2013 and 2014 respectively, were negative for dengue profile (NS1 antigen, IgM, IgG antibodies), *Leptospira* IgM and others like enteric fever, malaria, Hepatitis A and other viral fevers. They were not tested for rickettsial diseases. It is a possibility that atleast a few of them could have been scrub typhus. Clinical diagnosis of scrub typhus is difficult as the only pathognomonic sign for scrub typhus is an eschar which is present only in 12.5% of the patients.. In our study only one patient had an eschar(11%) over the left thigh, 2cms below the inguinal ligament. While diagnosing scrub typhus, Weil Felix test alone should not be relied upon. In our study, 3 cases which were negative for OX-K antigen by Weil Felix test, gave a positive result with Scrub typhus IgM ELISA. The sample size was limited in our study. Further prospective studies with a larger sample size over a span of few years comparing the clinical and laboratory parameters, and outcomes may be done to evaluate the actual burden of the disease in our population.

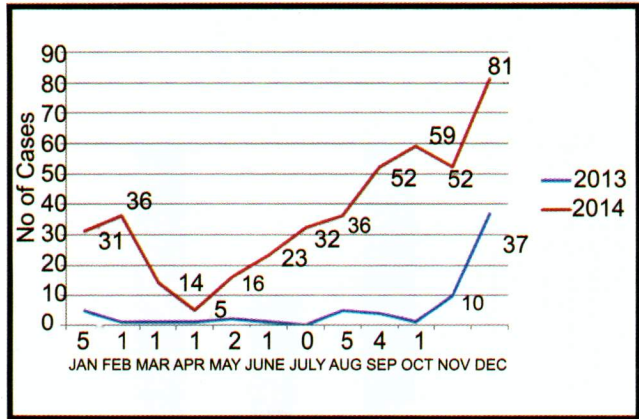


Fig. 6: Month wise distribution of scrub typhus in kerala, 2013-2014: dhs21

Conclusion

A number of cases are being reported every year from Northern and Southern parts of Kerala. It is grossly under diagnosed in the Central part of Kerala. A high index of suspicion and routine screening is required to diagnose the disease. This study shows that the prevalence of scrub typhus is increasing in central Kerala as well. In this scenario of increasing incidence of scrub typhus, it is time to wake up and consider scrub typhus as a differential diagnosis for non specific febrile illnesses.

Acknowledgement

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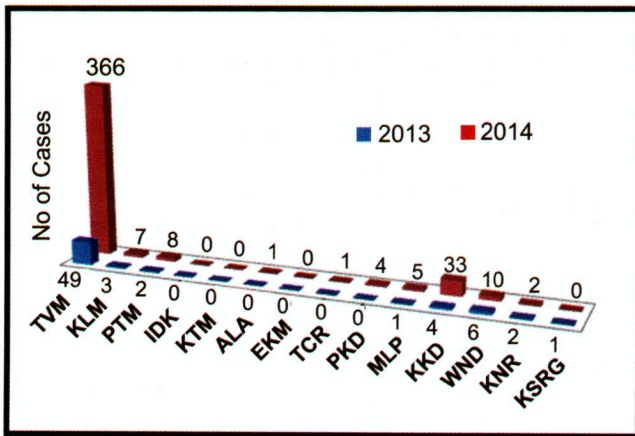


Fig. 5: District wise distribution of scrub typhus in kerala, 2013-2014: dhs21

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ORIGINAL ARTICLE

Treatment of Femoral Neck Fractures: Unipolar Versus Bipolar Hemiarthroplasty

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Abstract

Background and objective: Intracapsular femoral neck fractures are common in the elderly population. To avoid the poor outcome of internal fixation and for early mobilization, hemiarthroplasty is performed. However, there is inadequate evidence to support the choice between unipolar or bipolar hemiarthroplasty. The aim of this study was to compare the outcome of unipolar with the bipolar prosthesis in geriatric patients. **Methods:** Forty-one patients above 60 years of age and an acute displaced fracture of the femoral neck were randomly allocated to treatment by either unipolar or bipolar hemiarthroplasty, in the Department of Orthopaedics, between September 2011 and October 2013. Functional outcome was assessed and compared using Harris hip score and radiological parameters with a follow-up of one year. **Results:** The two groups of patients with mean age of 67.3 in bipolar group and 75.6 in unipolar group did not differ in their pre-injury characteristics and perioperative parameters. The mean Harris hip score in bipolar and unipolar groups was 86.18 ± 12.18 and 79.79 ± 15.55 , respectively ($p=0.183$); range of motion was 210.63 ± 28.39 and 181.58 ± 37 ($p=0.015$) with bipolar and unipolar groups, respectively. Functional activities were better in the bipolar group. Complications like painful hip, posterior dislocation, periprosthetic fracture and acetabular erosion were encountered in unipolar prostheses. **Conclusion:** The use of bipolar endoprosthesis in the management of displaced femoral neck fractures in the elderly was associated with better mean Harris hip score and incidence of complications was limited. Hence, bipolar would be a better option in elderly patients with fracture neck of femur.

Key Words: Unipolar, Bipolar, Hemiarthroplasty

Introduction

Fracture of the hip is a common injury. With increasing life expectancy worldwide, the number of elderly individuals is increasing, and it is estimated that the incidence of hip fracture will rise from 1.66 million in 1990 to 6.26 million by 2050. According to the Swedish National Hip Fracture Register, intracapsular fractures of the femoral neck constitute 53% of all hip fractures with 33% undisplaced and 67% displaced¹.

The rationale for operative treatment by means of internal fixation is to reduce the risk of secondary displacement from undisplaced and displaced fractures, and to maintain fracture reduction for displaced fractures. The main reasons for the failing of internal fixation are avascular necrosis and non-union. Failure of

internal fixation leads to a re-intervention rate of 35% with decreased function and increased morbidity as demonstrated by a meta-analysis by Lu Yao².

Replacement of the femoral head and neck with a prosthesis offers a way to prevent complications of internal fixation and is therefore an attractive alternative in the elderly patient³. There is however no consensus on how to treat patients with a displaced intracapsular fracture between sixty and eighty years of age. It is because of the poor clinical results that the displaced intracapsular fracture is referred to as "the unsolved fracture"⁴. Moore and Bohlman^{5,6} after removal of a giant cell tumor of the femoral head, introduced hemiarthroplasty in 1940. Since then it has also been used for the treatment of displaced femoral neck fractures. It

had the following features: solid polished unipolar head with a collared, straight, fenestrated stem designed for non-cemented use.

The development of bipolar hemiarthroplasty was based on the clinical experience with limited success of unipolar prosthesis due to progressive acetabular erosion and protrusion. Based on Charnley's pioneering arthroplasty principles, two bipolar designs emerged in the early 1970's: the Bateman and the Gilbert prostheses. This is a prospective randomized study of the short-term results of hemiarthroplasty using Austin Moore unipolar prosthesis and bipolar prosthesis. Outcomes at six weeks, three months, six months and 12 months were analyzed and compared using Modified Harris hip score and radiographs.

Subjects and methods

The present study is of intracapsular fracture neck of femur in elderly patients above the age of 60 years, irrespective of gender, treated with hemiarthroplasty using uncemented unipolar Austin Moore's prosthesis (AMP) in 20 patients and bipolar endoprosthesis in 21 patients, in the Department of Orthopaedics at Pushpagiri institute of medical sciences, Tiruvalla, selected on the basis of purposive sampling (judgment sampling) method (Figure 1 and 2). All implants used were manufactured by Inor Medical Products, Mumbai, India. All the patients were walking normally before injury.

All patients were operated through a southern approach, and received antibiotics and venous thromboembolism prophylaxis. Postoperatively, full weight bearing was allowed with the help of physiotherapists as per their compliance. The patients were assessed preoperatively and post operatively based on Harris hip score at intervals of six weeks, three months, six months and one year. Sequential radiographs were compared to assess diminishing joint space, acetabular erosion, proximal migration and protrusion of the acetabulum. Loosening, subsidence and angular shift of the femoral stem were also assessed on these radiographs. Descriptive and inferential statistical analyses were carried out in the present study with Student t test (two tailed, independent), inter group analysis on metric parameters. Chi-square/ Fisher Exact test were used to find the significance of study parameters on categorical scale between two or more groups. Ethical clearance was obtained from our institutional ethics committee.

Results

Patients who had unipolar prostheses were comparatively older to those with bipolar prostheses (75.5 vs. 67.3, $P < 0.01$). Females constituted 65.8%. Mortality rate was statistically similar in both groups, due to age related factors ($p = 0.663$). Mean length hospital stay was similar in both groups ($p = 0.894$).

All cases were analyzed based on the Harris hip score (Table I). The total score was tabulated and graded as excellent, good, fair, poor and failure (Table II).

Most of the complications were recorded with the unipolar group (Table III). All cases, one (4.7%) in the unipolar group presented with posterior dislocation (Figure 4) on the 8th post-operative day, for which closed reduction was done under GA and immobilized for one and half months and there after mobilized successfully. Another case (4.7%) of unipolar group presented with periprosthetic fracture (Figure 3) after three months following trauma, which was managed with open reduction and internal fixation with plate and screws retaining the same prosthesis. The patient was mobilized after two months and he continued to have thigh pain. A case of acetabular erosion (Figure 5) was noted in the unipolar group. A single case of superficial infection was recorded in each group, which responded to antibiotics.

Discussion

Comparison between 21 cases of bipolar hemiarthroplasty and 20 cases of Austin-Moore prosthetic replacement for femoral neck fractures in elderly patients over a two year period has shown that patients with bipolar prostheses had better functional outcomes in terms of range of motion, ability to use public transport and ability to cut toe nails. Mean Harris hip score was better with the bipolar group.

Lunceford⁷ felt that the pain following hemiarthroplasty should not be the reason for condemning the procedure. He listed the following causes for pain: infection, improper prosthetic seating, metallic corrosion and tissue reaction, improper sized femoral head, contractures, periarticular ossification, toggle or acetabular wandering and redundant ligamentum teres.

Limping is a common consequence of hemiarthroplasty in adults. Alteration in the abductor mechanism due to a marginally greater excision of neck is the most probable cause⁸.

Cornell et al⁹ reported that patients with bipolar prosthesis did better on walk tests and had better range of motion at six months. Sabnis and Brenkel¹⁰ reported 14 % unipolar patients walking unaided compared to 54% of bipolar patients walking unaided.

Yamagata et al¹¹, in their classical study, reviewed 1001 cases of hip hemiarthroplasty. There were 682 unipolar and 319 bipolar cases. Patients undergoing bipolar arthroplasty exhibited higher hip scores and lower acetabular erosion rates compared to the unipolar replacement.

Lestrangle¹² reviewed 496 patients with bipolar replacement for displaced femoral neck fractures and

compared them with patients having fixed-head prosthesis. He found that the bipolar prosthesis offered advantages over one-piece designs in terms of stability, decreased acetabular erosion and improved function. D'Arcy and Devas¹³ reported incidence of dislocation following prosthetic replacement ranging from 0.3% and 10%.

Dislocation following hemiarthroplasty was due to the disruption of the posterior stabilizers while performing the posterior approach, ultimately leading to failure and dislocation¹⁴. The dislocated hemiarthroplasties have a lower center-edge angle of Wiberg and the patients with low offset hips were more inherently unstable and hence prone to dislocation. The posterior approach is associated with higher dislocation rate¹⁵. Sikorski and Barrington¹⁶ reported dislocation rates of 10% in the unipolar prosthesis. Blewitt and Mortimore^{17, 20} reviewed cases of dislocation in a series of 1000 consecutive hemiarthroplasties. Recurrent dislocation can be related to component malalignment or improper soft tissue tensioning.

Table 1:

Parameters	AMP hemiarthroplasty	Bipolar hemiarthroplasty	P value
Mean Age (Years)	75.57	67.35	
Sex			
Male	11(52.3%)	3(15%)	
Female	10(47.6%)	17 (85%)	
Mortality	2(9.5%)	3(15%)	0.663
Postoperative pain			
No pain	6(31.5%)	9(52.9%)	0.225
Limp			
No limp	8(42.1%)	9(52.9%)	0.558
Use of support			
No support	9(42.95%)	5(25%)	0.771
Sitting on chair			
More than an hour	11(57.8%)	14(82.3%)	0.278
Distance walked			
Unlimited	5(26.3%)	9(52.9%)	0.232
Use of public transport	10(52.6%)	14(82.3%)	0.083
Stair climbing			
without support	4(21%)	7(41.1%)	0.281
Ability to wear shoe or socks			
With ease	2(10.5)	7(41.1%)	0.281
Range of movements			
211-300 degrees [Flex+Add+Abd+ER+IR]	4(21%)	7(41.1%)	0.042
Mean HHS	79.79	86.18	

Table II Harris hip score

HARRIS SCORE	BIPOLAR (%)	AMP (%)
Failure (<60)	1(5.9)	1(5.6)
Poor (60-69)	0	2 (11.1)
Fair (70-79)	1 (5.9)	5 (27.8)
Good (80-89)	7 (41.1)	5 (27.8)
Excellent (90-100)	8 (47.1)	6 (33.3)
Total	17	19
Mean ±SD	86.18 ±12.18	79.79 ±15.55
No recorded	3 (15)	2 (9.5)

Table III Complications

Complications	AMP (%)	Bipolar (%)
Superficial Infection	1(5.2)	1(5.8)
Gaping	1 (5.2)	-
Painful Hip	1 (5.2)	1 (5.8)
Posterior Dislocation	1 (5.2)	-
Acetabular Erosion	1 (5.2)	-
Restricted range of motion	2 (10.5)	-
Periprosthetic Reacture	1 (5.2)	-

Bochner et al¹⁸ observed that dislocation occurs less frequently with bipolar prostheses. The theoretical advantage of the bipolar prosthesis is that the combined arc of motion of the dual joint should reduce the incidence of dislocation, because most of the motion during activities of daily living should take place at the inner articulation. Attarian¹⁹ reported that bipolar prosthesis has a self-aligning acetabular component, which finds a correct orientation on its own (self-centering mechanism), and the incidence of subluxation and dislocation is low.



Fig. 1 Post operative radiograph of unipolar prosthesis



Fig. 2 Post operative radiograph of bipolar prosthesis.

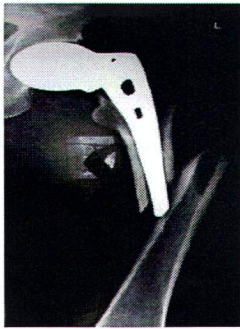


Fig. 3 Periprosthetic fracture of unipolar prosthesis

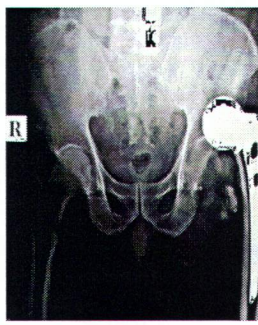


Fig. 4 Posterior dislocation of unipolar prosthesis

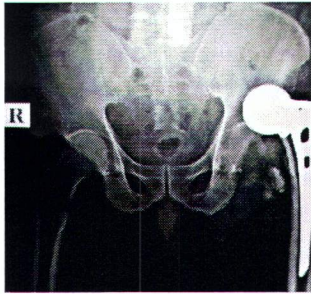


Fig 5 Acetabular erosion in unipolar prosthesis.

Whittaker et al²⁰ reporting in a series of 160 hemiarthroplasty cases noted the rate of joint spacing in a 5-year study was 64% with the unipolar prosthesis. Acetabular erosion occurs as a result of impact causing injury to the acetabular cartilage at the time of the trauma, especially as the elderly often sustain injury by a fall directly on the hip.

Excessive pressure on the acetabular cartilage after arthroplasty also produces erosion when insufficient femoral neck is resected. The exact matching of the size of the prosthetic head is particularly important as too large a head produces ring wear of the acetabulum and too small a head increases point bearing with subsequent wear. Finally, the cemented metal implant within the upper part of the femoral shaft will be more likely to transmit the impact of each step with greater stress across the prosthesis to bone interface than would normal bone in which there is considerable resilience²¹. Skala-Rosenbaum et al²² observed that prosthesis migration depended on the position of the head, CE angle and position of the prosthetic stem in the medullary canal. The resection level of the femoral neck and the subsequent position of the prosthetic head is a significant factor influencing the progress of acetabular erosion.

Conclusion

Which type of hemiarthroplasty should we select for the elderly patients with displaced fractures of the femoral neck? Based on the results of our study, there appears to be statistical difference between the two groups, that is bipolar being better in functional aspects. The results of our study showed that the incidence of complications were lower after bipolar hemiarthroplasty.

Some Western literature report the disadvantage of bipolar prosthesis as being more expensive but in our institution, there was not much cost difference between the two prostheses.

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ORIGINAL ARTICLE

Knowledge of Medical Students on Geriatric Health Care

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Abstract

Background: Health care system faces the challenge of catering to the health needs of the rising elderly population, due to their unique morbidity pattern and lack of geriatric training for the health care professionals. **Objectives:** To compare (a) the knowledge of first and fourth year medical students regarding geriatric health care, (b) their felt need for specialised training and (c) geriatric care as their career preference. **Methods:** In this cross sectional study, a self-administered personal data questionnaire and Quiz on Old People's Health covering basic information, were administered to 98 first and 77 fourth year students of a private medical college in central Kerala, South India. The results are presented by the objectives. **Results:** The groups were comparable with respect to gender, type of family, personal contact with elderly, and place of childhood residence, but seniors had significantly more Christians. The mean rank for knowledge did not differ significantly in the area of physical, mental or social health and also the total; the median scores were similar. Only around 4% of juniors and 1% of seniors opted a career among elderly; 58.4% of juniors and 72.4% of seniors considered working among those of any age. Significantly more of the first years felt the need for special geriatric training. **Conclusion:** The first three years of medical education has not changed the basic knowledge of the medical students regarding health care of older adults. Similar to paediatrics, a special course in geriatrics may be necessary considering the vulnerability of the elderly, morbidity pattern and the proportion of clientele.

Key Words: knowledge, geriatric health care, medical students

Introduction

The life expectancy at birth is continuing to increase globally. Despite the greater need due to an aging population, geriatrics (the branch of medicine or social science concerned with the health and care of old people) and gerontology (the scientific study of old age and old people) do not seem to be getting adequate importance. Only 41 % of countries with national regulations governing medical curriculum had geriatrics mentioned in the curriculum in some way. Half of the 161 medical schools which participated in this WHO global survey had mandatory training in geriatric medicine whereas 27% had no training at all¹.

In India, life expectancy at birth has increased from 41.38 years in 1960 to 66.21 years in 2012². The proportion of elderly in the country is

also increasing and this will impose a greater burden on the already overstretched health services. Geriatric Medicine is little known and in fact not even taught formally at most medical colleges in India^{3,4}. Thus the medical students in India have inadequate training in Geriatric Care. Even many practicing physicians have little knowledge of the clinical and functional implications of aging^{3,5}. Tripathy⁶ examines the Indian scenario and highlights the need to raise the capacity of health professionals in geriatric care through specialized courses and trainings. But since the medical graduates enter health care services soon after graduation, the medical students need to be equipped for care of the elderly by the time they graduate.

A recent study in India among 229 students from medicine, nursing, and social work programmes,

demonstrated poor recognition of age-related health needs in the care of the elderly⁷

The older people have a right to good health and quality of life. In order to provide quality health care to the older adults, the students of health profession need to be trained and motivated to work among the elderly. In order to plan for need based and effective training programs in geriatric health, the knowledge and interest of the medical students need to be assessed.

Minimal knowledge among first years regarding geriatric medicine was reported by Fitzgerald⁸, Mathew⁹ and Kishimoto¹⁰ and the latter two studies have reported increased knowledge scores with advanced level of training. Fitzgera⁸, Hughes¹¹, Chua¹² and Mathew⁹ had assessed the interest of students in geriatric medicine (as a career choice) and all the studies have reported lack of interest. Having more positive attitudes toward older adults and having cared for older persons prior to medical school were associated with greater interest in geriatric medicine⁵.

In the context of the available literature and the recent changes proposed and implemented in the medical curriculum, a step was taken to identify the lacunae in the undergraduate training in the area of geriatrics.

Methods

The present cross sectional survey was conducted among first and fourth year MBBS students of one private medical institution in Central Kerala, South India. After obtaining clearance from the Research and Ethics Committees of the Institution, a suitable class period was selected for scheduling the conduct of the study. From a batch of 100 first year students, 98 and 77 of the 88 fourth year students who were present on the day of survey participated in the study. A self-administered questionnaire was used to collect information on demographic details and their interest in working for geriatric age group after graduation. Knowledge about the health of the elderly was assessed using the Quiz on Old People's Health developed by Mathew et al⁹. This questionnaire had 26 questions to be answered as yes or no, of which 12 were regarding physical health, six on mental health and eight on social health. A score of one was given to each correct answer and zero for wrong entries.

The questionnaires were distributed in the respective classes after explaining the purpose of the study and obtaining consent. The investigators were available for any clarification. The completeness of the questionnaires was ensured after collection. The information obtained were coded and analysed with respect to the objectives. The total score on knowledge questionnaire for each individual was calculated and presented as median. Separate totals were calculated for knowledge on physical, mental and social health. Mann-Whitney Test was used to compare the knowledge of the first and fourth year students. Statistical significance of the differences in the mean

rank of knowledge scores between the various demographic categories was also tested.

Results

The study was conducted among 98 first year (22.4% males) and 77 fourth year students (32.5% males). The mean (SD) age of the first years was 19.43 (0.89) years with a range of 18 to 25 years and that of the fourth years was 21.49 (3.4) years with a range of 21 to 28 years. 55.1% of the first years and 77.9% of the fourth years were Christians(p=0.007). The two batches of students were not significantly different from each other except for their religious background (Table 1).

Table 1. Distribution of study groups by demographic variables

Variable	Category	First year (n=98)		Fourth year (n=77)		p value
		No	%	No	%	
Sex	Male	22	22.5	32	32.5	0.14
	Female	76	77.6	52	67.5	
Type of Family	Nuclear	85	86.7	68	88.3	0.82
	Others	13	13.3	9	11.7	
Religion	Christians	54	55	60	77.9	0.007
	Hindus	29	29.6	11	14.3	
	Others	15	15.3	6	7.8	
Personal contact with elderly	Yes	93	94.9	70	90.9	0.37
	No	5	5.1	7	9.1	
Type of contact	Living with	29	29.6	16	20.8	0.22
	others	69	70.4			
Residence till 12 yrs of life	Kerala	76	77.6	52	67.5	0.17
	Outside	22	22.4	25	32.5	

The median values for both the batches on knowledge were same for total score (15), physical health (9), social health (4) and mental health (2).

Mann-Whitney U Test was done to assess the difference in knowledge between the first year and fourth year students. No significant difference was found in the knowledge scores, that is; total score, physical, mental or social score (Table 2).

Table 2 Mean rank of the two study groups on Knowledge about health of older adults

Variable	Mean Rank		p value
	First year n= 98	Fourth year n= 77	
Total score	86.43	89.99	0.109
Physical health	85.59	91.06	0.64
Mental health	93.24	81.32	0.12
Social health	82.9	94.49	0.47

There was no significant difference in knowledge scores with regard to sex, type of family, religion, personal contact with elderly, type of contact and residence of the students.

The students were asked whether the medical

graduates need special training for the care of the older persons. The first year students (85.7%) felt more the need for further training as compared to the fourth years (72.7%) ($p=0.038$).

The bar diagram shows the distribution of study participants by the year of study and the age groups they prefer to work with (Figure 1).

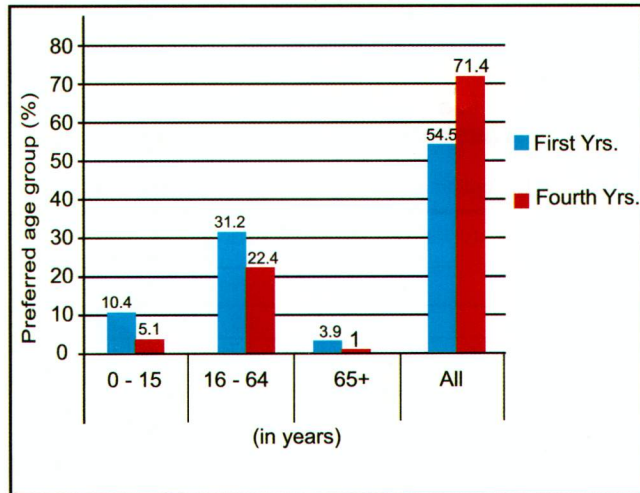


Figure 1. Preferred age group to work with among the first and fourth year medical students

It is seen that only one percent of the fourth years and 3.9% of the first years preferred the age group 65 years and over. When considering the preferred age group to serve as "all age groups" along with 65+ years, it adds up to 58.4% and 72.4% among the first and fourth years respectively.

The need for special training in geriatrics or preferred age group to work with did not vary according to sex, type of family, religion, personal contact with elderly, type of contact and residence of the students.

Discussion

The knowledge and the interest of the undergraduates in further training were assessed among the first and fourth years of medical students. 98% of the first years and 87.5% of the fourth years who were present at the time of the data collection participated in this study.

The fourth year students who had completed training in preclinical and paraclinical sciences along with two years of clinical exposure were found to have similar knowledge as the entry level students with no apparent medical training. This was true for the three domains, physical, mental and social health as well. This finding was in contrast to other reported studies⁹⁻¹⁰. Kishimoto et al¹⁰ found that knowledge on health of the elderly increased with medical education. Mathew⁹ et al observed significant improvement in the physical health among final years as compared to first years, but no difference in the knowledge of social and mental health. It is notable that the first year students recognize the need for special training in geriatric health significantly more than the fourth years. Though there is no

significant higher score in the knowledge of geriatric care among the fourth years, they do not seem to recognize the need for further training in this topic. The three years of clinical exposure does not seem to have had an effect on either knowledge or the importance. This is probably because there is no comprehensive section on geriatrics in medical education or a career option as geriatrician as we would see with paediatric age group.

Majority of the students preferred to work with all age groups, whereas a meagre one percent of the fourth years and 3.9% of the first years showed interest exclusively in serving the older adults. A longitudinal study on one group throughout the course may give a better understanding of the trend by years of study than a cross sectional study.

Low interest in geriatrics as career choice was also reported by other researchers⁸⁻¹⁰. Fitzgerald⁸ et al reported that previous exposure to care of elderly positively influenced the geriatric career choice more than the medical education, but not Mathew⁹ et al. The result of the present study is in concordance with the latter.

With the recognized need for health professionals trained to serve the rising geriatric population, this situation needs serious consideration. India has a nation-wide health delivery system with primary health centres and community health centres. The medical educators need to take up the task of equipping the primary care doctors with basic knowledge necessary for providing quality health care to the older population. With only a minority of graduates preferring to undertake specialized training in geriatric care, it becomes more important to ensure that a suitable level of education in geriatric medicine is given at the undergraduate level in order to cater to the overwhelming presence of the older people in most departments of a modern hospital.

Conclusion

The knowledge regarding geriatric health care-physical, mental and social- did not have significantly higher knowledge score among the fourth year medical students, even after completion of pre and para-clinical courses and five semesters of clinical exposure as compared to the first years with no medical training. Considering the rising requirement of geriatric health professionals in primary health care, to provide quality service to this large vulnerable group, the study highlights the need for special training during the undergraduate programme. Similar to paediatrics, a special course in geriatrics may be necessary considering the vulnerability of the older adults, morbidity pattern and the proportion of clientele.

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ORIGINAL ARTICLE

Risk factors for development of community acquired pneumonia in under-five children

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Abstract

Objective: To find out the risk factors associated with the occurrence of pneumonia in children aged 1 month to 60 months. **Method:** Case control study. Subjects were 100 cases of clinically diagnosed pneumonia in the specified age range. Controls were children aged 60 months, who never had pneumonia till that age. Children with any chronic illnesses were excluded from the study. Demographic and growth parameters were analyzed in both cases and controls. Independent predictors of development of pneumonia were modelled using multivariate logistic analysis. **Results:** 40% of the pneumonia cases were under 1 year of age. 57% were boys and the rest girls ($p>0.05$). 24% cases were prematurely born (controls 6%, $p=0.0004$) and 30% cases were low birth weight (controls 7%, $p=0.000$). 35% cases had lack of exclusive breast feeding in first 6 months (control 7%, $p=0.000$), 11% cases had maternal education below 10th standard (control 3%, $p=0.03$), 68% cases had air pollution inside house (controls 14%, $p=0.00$), 30% cases had passive smoking (controls 6%, $p=0.00$), 17% cases had overcrowding (controls 4%, $p=0.003$), 47% cases had external air pollution (controls 10%, $p=0.00$), 14% cases had kachcha housing (control 4%, $p=0.024$), 28% cases between the ages of 2 and 5 years had day care attendance while only 8% controls had ($p=0.00$), 48% cases were malnourished and 26% stunted against 12% and 4% among the controls ($p=0.00$, $p=0.00$) respectively. When multivariate logistic analysis was done, the most significant individual risk factors were lack of breast feeding, lack of exclusive breast feeding, presence of indoor air pollution, day care attendance and low birth weight. Among the cases of pneumonia, the risk factors for development of severe pneumonia were suboptimal breast feeding, kachcha house, low maternal education, malnutrition and stunting. **Conclusion:** Though univariate analysis found a lot of risk factors for development of pneumonia, multivariate logistic regression analysis found that the most significant risk factors were- low birth weight, lack of breast feeding, lack of exclusive breast feeding, indoor air pollution, and day care attendance. Severe forms of pneumonia were more likely if there is lack of optimum breast feeding, kaachcha housing, low maternal education, malnutrition and stunting

Keywords: pneumonia, underfive children, risk factor

Introduction

Pneumonia is a substantial cause of morbidity and mortality among children throughout world especially below the age of 5 years with an estimated incidence of 151 million out of the total 156 million new episodes per year happening in developing countries¹. According to recent estimates, India tops the list of countries with high disease burden with 43 million new cases of childhood pneumonia occurring every year with an estimated 0.37 episodes per child per year contributing to 19% of underfive mortality². Incidence of pneumonia in developed countries is 2

-3% whereas in developing countries like ours, it is 20-30%, because of various risk factors³. Even though we know the number of children who die of pneumonia, not many epidemiological studies are there from our country. This study was undertaken to throw light in this regard.

Subjects and methods

Hundred children between the age of one month and 60 months admitted with pneumonia during the specified study period were included as cases. Diagnosis of pneumonia was made clinically according to WHO guidelines of fast breathing (respiratory rate- $>60/\text{min}$ in 1month-2 months,

>50/min in 2 months to 12 months and >40/min in 12 months to 60 months) in children having respiratory symptoms. Severe pneumonia was diagnosed if there was associated lower chest in drawing and, very severe pneumonia if there were any danger signs like, inability to feed, cyanosis, hypothermia and drowsiness. Children having any chronic systemic illnesses like asthma, cardiac, neurological illnesses and metabolic diseases were excluded from the study. Detailed past history was taken to rule out such major systemic illnesses. Standard pre designed proforma was used to get perinatal history with regard to gestational age at birth, birth weight and presence of any respiratory problems in newborn period, duration of breast feeding, socioeconomic history, parental education, and history of indoor and outdoor air pollution in home environment, type of house and overcrowding. These risk factors were selected considering the previous published data. Growth parameters of all children were assessed. Weight measurement was done using electronic weighing scales for babies as well as children and height measurement using infantometer/ stadiometer for infants and children respectively. PEM was diagnosed if child's weight for age was below 80% of expected (IAP classification) and stunting diagnosed if height for age was below 95% (Waterlow classification). Hundred healthy children, who never had pneumonia in the past, attending the immunization clinic for the second DPT booster at 4 ½ to 5 years were included as controls. Comparison of the epidemiological factors and growth parameters were done between cases and controls and statistical significance found out using univariate analysis by Chi square test. Multivariate logistic regression analysis was done to find out most significant individual risk factors. Among the pneumonia cases, the risk factors for the development of severe forms of pneumonia were analyzed separately.

Results

Mean age of cases with pneumonia was 23.2 months. 76 cases were classified as pneumonia, 18 as severe pneumonia and 6 as very severe pneumonia. 40% of the cases of pneumonia were below the age of 12 months and the rest above that (Table 1). 57% were males and the rest females, but gender was not found to be significantly correlated with the development of pneumonia ($p>0.05$). 24% were prematurely born children among the cases, whereas 6% among the controls ($p=0.00$, highly significant). Low birth weight was noted in 30% children with pneumonia, but only 7% had low birth weight among the control group ($p=0.00$, highly significant). 12% children with pneumonia had some kind of respiratory problem in the newborn period (8 - RDS, 3-congenital pneumonia, 1 meconium aspiration syndrome) whereas 5% in the control group had (4-RDS, 1-congenital pneumonia). This difference was not found to be statistically significant ($p=0.308$). Exclusive breast feeding was practiced in only 65% of pneumonia group, against 95% in the control group ($p=0.00$, highly significant). 89% of children with pneumonia were belonging to class II Modified

Kuppuswamy scale of socioeconomic stratification and rest 11% to class III. In the control group, 96% belonged to class II and 4% to class III. Being in social class III was not found to be a significant risk factor ($p=0.105$). Maternal education was below 10th standard was there in 11% of cases and 3% of controls ($p=0.03$, significant). 7% of the fathers had not passed 10th standard among the cases against 4% among the controls, but this was not found to be significant ($p=0.35$). Indoor air pollutants in the form of passive smoking, exposure to smoke from firewood, exposure to mosquito coils, agarbathis and pet animals were present in 68% of cases, while the same was there in 14% of controls ($p=0.00$, highly significant). Exposure to passive smoking alone was present in 30% of children with pneumonia and 6% of healthy controls ($p=0.006$, highly significant). 47% cases had exposure to outdoor air pollution while 10% control had this ($p=0.00$). 17% of cases and 4% controls had overcrowding ($p=0.003$, significant). Kachcha housing was present in 14% cases against 4% of controls ($p=0.013$, significant). Day care attendance, as a risk factor was assessed separately in children between 2 and 5 years. 28% (10/36) had a history of day care attendance whereas only 8% of the control had been to day care ($p=0.00$, highly significant). Malnutrition was there in 48% cases and 12% controls ($p=0.00$, highly significant). 26% of cases had stunting while only 4% of the controls ($p=0.00$, highly significant) (table 1).

Table 1: Association of risk factors with development of pneumonia (univariate analysis)

Parameter	Cases (n=100)	Controls (n=100)	P value (<0.05-significant)
Prematurity	24	6	0.00
Low birth weight	30	7	0.00
Socioeconomic class III	11	4	0.107
Respiratory problems in newborn period	12	5	0.308
Maternal education<10 th std	11	3	0.03
Paternal education<10 th std	7	4	0.35
Indoor air pollution	68	14	0.00
Passive smoking	30	6	0.006
Overcrowding	17	4	0.003
External pollution	47	10	0.00
Kachcha house	14	4	0.013
Day care attendance	10 (out of 36 aged 2-5 years)	8	0.002
PEM	48	12	0.00
Stunting	26	4	0.00

There were no deaths during the study period. By multivariate logistic regression analysis, the risk factors found to be significantly associated with the development of pneumonia were low birth weight, lack of breast feeding, lack of exclusive breast feeding, presence of indoor air pollution and day care attendance (Table 2).

Table 2: Risk factors associated with the development of pneumonia (multivariate logistic regression analysis, forward conditional, final model)

Parameter	Odds ratio	95% Confidence interval
Low birth weight	4.729	1.596-14.017
Lack of breast feeding	11.987	1.23-16.624
Lack of exclusive breast feeding	3.884	1.249-11.824
Indoor air pollution	11.85	5.468-25.68
Day care attendance	3.876	1.405-10.69

Among the pneumonia cases, risk factors found to be significantly associated with severe forms of pneumonia were suboptimal breast feeding practices, kachcha house, maternal education below 10th standard, malnutrition and stunting (Table 3).

Table 3: association of risk factors with development of severe forms of pneumonia (severe and very severe pneumonia according to WHO)

Risk factor	Pneumonia (n=76)	Severe and very severe pneumonia (18+6=24)	P value (<0.05 =significant)
Lack of /Exclusive breast feeding <6 months	21	13	0.016
Maternal education <10 th std	3	8	0.00
Kachcha housing	4	14	0.00
Internal air pollution	49	19	0.18
Passive smoking	20	10	0.15
External air pollution	32	15	0.08
Low birth weight and prematurity	31	14	0.13
Presence of malnutrition	27	21	0.00
Presence of stunting	9	16	0.00

Internal and external air pollution as well as passive smoking, neonatal risk factors like LBW and prematurity though found to lead to development of pneumonia, was not found to increase the chance of occurrence of severe forms of it.

Discussion

Incidence of pneumonia was more below the age of 12 months compared to any 12 month period above that in our study (Table 1). Other studies done by Broor et al⁴ and Savitha et al⁵ report higher incidence of 62.2% and 62.5% below the age of 12 months respectively. The particular vulnerability of this group is explained by the lack of fully developed immunity, narrower airways and incomplete development of the lungs. Our study population had less incidence in this susceptible age group compared to other studies possibly because of better nutrition and immunization practices. Male sex was found to be one of the risk factors for pneumonia by other studies like Broor et al⁴, Savitha et al⁵, Victoria CG et al⁶, but Shah N et al¹⁴ did not find such a gender difference (56% males and 44% females) which is more correlating with the finding in our study. Prematurity and low birth weight was found to be significantly associated with the development of pneumonia, particularly below 12 months of age (Table 1). Similar observation was also found in study done by Victoria CG et al⁶ and Chan et al⁷. Lack of exclusive breast feeding was a significant risk factor in our study (Table 2). Hassan et al⁸ and Savitha et al⁵ had

similar observation. Socio economic class had no correlation with the development of pneumonia. Similar observation was seen in other studies done by Walia BNS et al⁹ and Victoria CG et al. whereas study by Biswas et al¹⁰ could find a significant correlation. The difference could be due to the fact that the latter study was conducted on children from the slums, living in extreme conditions. Regarding the influence of parental education, maternal education standard was found to be a risk factor, whereas paternal education did not have a significant association. This is in keeping with the observation made by Victoria CG et al¹¹ and Savitha et al⁵. This may be one of the reasons for the lower underfive mortality in high literacy regions like Kerala compared to other states in India. Internal pollution had significant association with the development of pneumonia in the present study. Sikolia et al¹² found that biomass fuels like firewood, cowdung and kerosene for cooking was a significant risk factor. A significant association was found between passive smoking alone among the indoor pollutants. Similar observation was seen in study by Broor et al⁴ and Dharmage et al¹³. In correlation with studies done by Savitha et al⁵, Sikolia et al¹³, Shah N et al¹⁴, we also found, overcrowding as a significant risk factor for the development of pneumonia under five years. External factors of pollution like construction works, heavy traffic etc was also found to be significantly associated with development of pneumonia in our study. This particular factor was not studied by anyone else before. Urbanization and exposure to motor vehicle exhaust is one of the major risk factor now. Kachcha housing pattern was found to be a risk factor which is also seen in the study by Broor et al⁴. Day care attendance was found as a risk factor by Victoria CG et al¹¹ as is the finding in the present study. Presence of PEM as well as stunting was found closely associated with development of pneumonia which is supported by other studies by Broor et al⁴, Savitha et al⁵, Dharmage SC et al¹³ and Ballard TJ et al¹⁵. The risk factors for development of severe forms of pneumonia found in our study like inadequate breast feeding practices, malnutrition were also found significant in study done by Jackson S et al¹⁶, but LBW, indoor air pollution and overcrowding also were found to be significant risk factors for the development of severe pneumonia in the latter study. In our study, even though these increased the overall chance of development of pneumonia, did not increase the likelihood of severe pneumonia.

Conclusion

From the study we have concluded that most significant risk factors associated with the development of pneumonia in underfive children were low birth weight, complete lack of breast feeding, lack of exclusive breast feeding, presence of indoor pollutants and day care attendance. High risk factors for the development of severe and very severe pneumonia were inadequate breast feeding, low maternal education, kachcha house, PEM and stunting. Most of the children with pneumonia belong to resource poor

countries like ours, where sophisticated treatment facilities are not available or not affordable for many. In this setting, it is very important to prevent pneumonia by taking care of the modifiable epidemiological risk factors which are not very expensive or technically demanding and which can be applied to a bigger target population. Improvement in the living environment by reducing air pollution, improvement in the exclusive breast feeding practices and female literacy are a few among them.

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ORIGINAL ARTICLE

The incidence and risk factors in Ectopic Pregnancy – A retrospective study

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Abstract

Background: The incidence of ectopic pregnancy increased significantly in the past century. The most recent estimate by CDC is 2% of reported pregnancies. The increase may represent an increase in detection and diagnosis. Ectopic pregnancy (EP), is a major cause of maternal morbidity and mortality in the first trimester. It has also been seen that with the advent of Assisted Reproductive Technology (ART), the incidence of ectopic pregnancy has shown a rising trend.

Objectives : The objective of the study was to find the incidence of ectopic pregnancy in during a one year period in a tertiary care hospital in Central Kerala and to assess the risk factors. **Results :** There were total 851 pregnancies during the period of study. 24 (2.8%) cases were diagnosed as ectopic pregnancy. Thus, incidence of ectopic pregnancy in our hospital during the study period was 28.2 per 1000. 29.16% of women with ectopic pregnancy belonged to 31-35yr age group. Pelvic inflammatory disease is the commonest risk factor, 29.16% (7/24). Previous CS and previous abortion also poses the same percentage of risk to our study group (29.16%) followed by previous ectopic pregnancy 12.5%.

Conclusion: The study shows that the incidence of ectopic pregnancy is about 2 – 3 % of all pregnancies. Pelvic inflammatory disease stands out as the single major risk factor. Health education prevention of sexually transmitted diseases and their management will have a greater impact in reducing the incidence of Ectopic pregnancy.

Key Words: Ectopic pregnancy, risk factors, incidence

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Introduction

More than 95% of ectopic pregnancies occur in the fallopian tube. The other sites include ovaries, cervix, caesarean scar, broad ligament and abdominal cavity.^[8] Combined intra-uterine and extra-uterine pregnancy (heterotopic pregnancy) though rare in spontaneous pregnancies (1 in 3000-4000), has been recorded in up to 3% of pregnancies from assisted reproduction.

Several factors have been shown to increase the risk of ectopic pregnancy. These risk factors share a common mechanism of action – namely interference with the ciliary functions of fallopian tube.^[9,10] It has been observed that pelvic inflammatory disease is the most common risk factor for ectopic pregnancy and early treatment of the disease does not necessarily prevent

tubal damage.^[9] The other reported aetiological factors include previous ectopic pregnancy, endometriosis, previous tubal surgery, infertility and infertility treatments.^[3] Previous caesarean sections, tubal spasm, congenital defects of the fallopian and psychological and emotional factors have also been implicated.^[3,11]

Early diagnosis using a combination of high index of clinical suspicion, trans vaginal sonography and hormonal estimation has led to a timely intervention and prevention of complications of ectopic pregnancy. Once a definitive diagnosis of ectopic pregnancy is made, the patient may be either treated expectantly or with surgical or medical management. Medical management apart from avoiding the inherent morbidity of anesthesia and surgery is also cost-effective and offers the success rates comparable to surgical management, with no loss in future potential fertility.^[3]

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Study Design

A prospective study was conducted in the department of obstetrics and gynaecology during 1st of January to 31st December 2012, at Pushpagiri Institute of Medical Science and Research Center, Tiruvalla.

All patients coming to the emergency department with amenorrhoea, spotting per vagina and abdominal pain. detailed history was taken regarding menstrual cycles, past obstetric history, past history of pelvic inflammatory disease or endometriosis ,surgeries and previous ectopic pregnancy. Then subjected to clinical examination followed by Urine pregnancy test, Ultrasonography pelvis and abdomen and serum beta HCG .They were admitted and followed up during the course of stay at hospital .

Results

There were total 851 pregnancies during the period of study. 24 (2.8%) cases were diagnosed as ectopic pregnancy. Thus, incidence of ectopic pregnancy in our hospital during the study period was 28.2 per 1000. Recurrent ectopic pregnancy occurred in 12.5%. It was observed that in women with ectopic pregnancy 66% had previous surgery, this could have been probably due to adhesions. The results are tabulated in the following tables. Table 1 , Table 2 and Table 3 showing the age wise, parity wise distribution and risk factors involved in ectopic pregnancies. $X^2 = 43.98$; $p < 0.0001$; Statistically significant.

Table 1: Age wise distribution

Age in years	Ectopic pregnancy	Pregnancy
<25 yrs	5	164
26 - 30	6	413
31 - 35	7	204
36 - 40	2	58
>40 yrs	4	12
Total	24	851

29.16% of women with ectopic pregnancy belonged to 31-35yr age group .

Table 2: Parity wise distribution

Parity	No of ectopic pregnancy
Primi	9
Multi	15

Out of 24 ectopic pregnancies ,62.5% were multi gravida, and they constituted to 3.56 per live birth during that period.

Table 3: Risk factors

Past obstetric history	No of ectopic pregnancy (frequency)	Percentage
Previous CS	7	29.1
Previous vaginal delivery	5	20.8
Previous ectopic managed surgically (salpingectomy)	2	8.3
Previous ectopic managed medically (methotrexate)	1	4.1
Previous spontaneous abortion	6	25
Previous MTP (D & E)	1	4.1
Post sterilization	2	8.3
Failed contraceptive (OCP)	1	4.1
Pelvic inflammatory disease	7	29.16
Endometriosis	2	8.34

Pelvic inflammatory disease is the commonest risk factor, 29.16% (7/24). Previous CS and previous abortion also poses the same percentage of risk to our study group (29.16%) followed by previous ectopic pregnancy 12.5% (3/24).

Figure 1 shows that 50% of patients with ectopic pregnancy was found to have undergone ovulation induction with clomiphene citrate

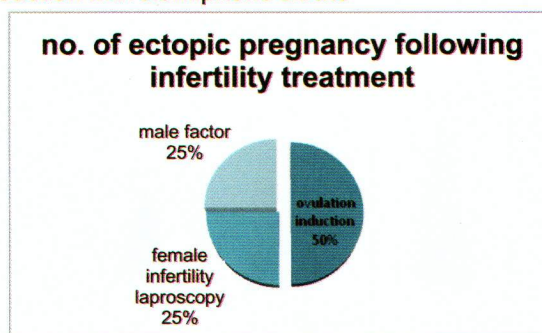


Figure 2 shows 66% patients had previous history of surgery, 5 (20.8%) had history of previous tubal surgery

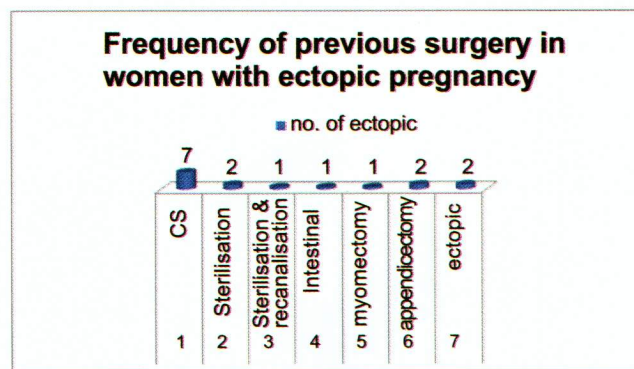


Table 4 shows the types of treatment. Majority, 66% (16/24) had partial salpingectomy. However, 25% managed medically, 4.1% (1/24) of cases were successfully managed medically with methotrexate therapy following early diagnosis with transvaginal ultrasound and beta human chorionic gonadotrophin (hCG) assay. The successful treatment was defined as decrease of beta hCG level more than 15% between days four and seven of methotrexate injection without any need for further intervention.

Table 4 Mode of Treatment

Mode of treatment	Frequency of ectopic	Percentage
Emergency laparotomy	16	66
Successful medical management with methotrexate	1	4.16
Failed medical management that lead to laparotomy	5	20.8
Conservative management	2	8.33

Figure 3 shows that ectopic pregnancies were diagnosed only after rupture in 45.84% (11/24) of cases .

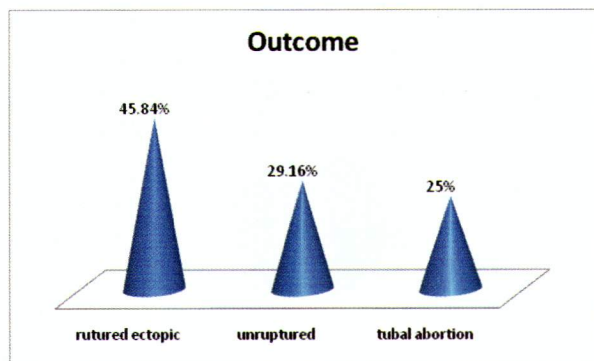
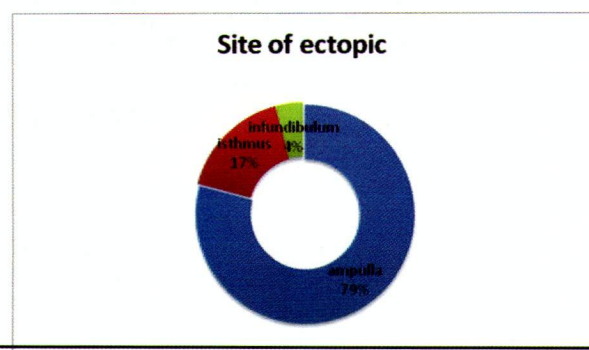


Figure 4 shows intraoperatively, out of the 24 of the tubal ectopic pregnancies, 79% occurred in the ampulla, 17% in the isthmus while 4% in the infundibulum



Discussion

Much has been discussed about the risk factors for the occurrence of ectopic pregnancy, such as history of prior ectopic pregnancy, previous tubal surgery, pelvic inflammatory disease, endometriosis and others [5, 10, 11]. The WHO estimates that 4% of all maternal deaths occurring in developed countries and 0.5% in developing settings are due to ectopic pregnancy [9, 12].

The conditions of severe maternal morbidity related to ectopic pregnancy are associated with tubal rupture, rapid clinical deterioration due to major intra-abdominal bleeding, and posterior progression to hypovolemic shock, requiring blood transfusion [3, 10, 11].

In the study by AO Igwegbe et al 1 age of women ranged from 24 to 43 years with mean age of 30.1 (0.7) years. Seventy eight of the 93 patients (83.9%) were less than 35 years old. The peak age was 31-35 years in our study .

E le je G et al there were a total 98 cases of ectopic pregnancies out of 8,811 deliveries and 1884 gynecological admissions, giving an incidence of 0.9% and 5.2% of all gynecological admissions. The mean age of the patients was 30.1 (0.7) years while the mean gestational age at presentations was 7.4 weeks.

It was noted that pelvic inflammatory disease was the commonest risk factor in our study, 29.16% (7/24). Previous CS and previous abortion also poses the same percentage of risk to our study group (29.16%) followed by previous ectopic pregnancy 12.5% (3/24).AO Igwegbe et al noted that previous induced abortion 37.5% (36/93) was the commonest associated risk factor, followed by pelvic infections, 35.5% (33/93). The recurrence rate was 6.5% (6/93) in their study at Nigeria. Recurrent ectopic pregnancy occurred in 12.5% in our study. It was observed that in our study, women with ectopic pregnancy 66% had previous surgery.

Eleje G et al ,Up to 88.2% (82/93) had salpingectomy while only 2.5% (2/93) were successfully managed medically with methotrexate therapy following diagnosis with transvaginal ultrasound Missed diagnosis of ectopic pregnancy occurred in 16.1% (15/93). There was no maternal death in our study, 25% were managed medically out of which 4.1% (1/24) of cases were successful while the rest failed to respond. Salpingectomy remained the commonest surgical procedure for the management of ectopic pregnancy in our center .[19,20]. Conservative surgery is reserved for those with less tubal damage and contralateral tubal diseases, especially if they are nulliparous.[30,31] A similar finding was reported by Eze *et al.*, in Abakaliki, Nigeria.[31].

Conclusion

Ectopic pregnancy has remained an important gynecological condition in our center. The most common identifiable risk factor was induced abortion. Prevention should be aimed at health education and liberal use of contraceptives. Efforts should also be directed at prevention and adequate treatment of pelvic inflammatory diseases and sexually transmitted infections (STIs). Early transvaginal ultrasound should be offered to all women in the first trimester for early diagnosis and appropriate treatment.

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ORIGINAL ARTICLE

Profile Of Seizure Disorder Presenting In Tertiary Care Hospital

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Abstract

The present descriptive prospective study was carried to note the profile of seizure disorder as we observe that till date epilepsy is labeled as caused due to unknown origin with the advent of modern radiological and genetic studies the cause for seizures is tried to solve the present situation. In the present study 50 seizure cases were evaluated where we observed that it was commonly presented in second decade of life followed by elderly age group with male predominance. We noted GTC seizures (84%) followed by simple partial (6%), partial with secondary generalization (6%) and complex partial (4%) being the least. Commonest cause of seizure was discontinuation of anti-epileptic drug (28%), vascular origin (20%) with space occupying lesion (16%), other causes are infective origin (14%), eclampsia (12%), 2% of alcohol withdrawal and hepatic encephalopathy cases each. 20% cases showed abnormal EEG findings and 46% showed positive finding in CT/MRI finding which helped in diagnosing the causative agent

Keywords: Seizures, Profile, Prospective

Introduction

In the present context epileptic seizures are the most common serious neurological problem worldwide, affecting approximately 40-100 million persons¹. It is estimated in India the burden of epilepsy is around 55 lakh individuals, 3-5% of population has a seizure in their life time and 0.5 - 1% of the population is reported to have active epilepsy². Seizure disorder may be defined as intermittent derangement of nervous system due to an excessive and disorderly discharge of cerebral neurons on skeletal muscles, the discharge may result in almost instantaneous loss of consciousness, alteration of perception or impairment of psychic function, convulsive movements, disturbance of sensation or combination thereof.

Thus seizure may occur during the course of many medical illnesses always indicating that cerebral cortex being affected by disease either primarily or secondarily which leads to abnormal electrical discharge in brain while epilepsy is the tendency to have seizure. Approximately 60% of all epilepsies are cryptogenic and incidence of

epilepsy/seizure in any brain pathology is very high. Cerebrovascular disorders are one of the common causes in adults whereas perinatal insults are more common cause in children. The etiology of seizure is multifactorial in any given individual and is best thought of as an interaction between genetically determined seizure threshold, underlying predisposing pathologies or metabolic derangements and acute precipitation factors².

A study of clinical profile of seizure disorder and its causative agent provides an important clue in management of the disorder and planning of the treatment. The paucity of literature in this part of India regarding the evaluation of seizure disorders in adult considering various etiologies, the present study was designed to evaluate the patients presenting with seizure disorder.

Methodology

A descriptive and prospective study was designed where 50 patients with history of seizures were included in the study attending the department of General Medicine during Nov 2009 to Dec 2010 in PIMS & RC, Thiruvalla, patients less than 12 years and

seizures with history of head injury were excluded from the study, the patients were evaluated by a detailed clinical examination involving the nature of seizure duration characteristics, past history of seizures, associated metabolic abnormalities and special preference to diet history was taken which was followed by blood, radiological and EEG examinations, in selected cases for diagnosis CSF examination was done.

Observation

Out of 50 patients studied 18 cases were female and 32 male, 12 years was minimum age of case reported and 75 years the maximum with mean age group around 44 years,. Majority of cases with seizure reported were in the age group of 21-30 years (28%) as shown in table no.1

Table 1 - Age and sex distribution of cases

Age group	Male	Female	Total
10 - 20	3(6%)	4(8%)	7(14%)
21 - 30	6(12%)	8(16%)	14(28%)
31 - 40	5(10%)	-	5(10%)
41 - 50	4(8%)	3(6%)	7(14%)
51 - 60	4(8%)	2(4%)	6(12%)
>60 Yrs	10(20%)	1(2%)	11(22%)
	32(64%)	18(36%)	50(100%)

General Physical Examination

Clinical presentation of cases are shown in Table no.2 as noted 84%(42) cases presented with generalized tonic clonic seizures and simple partial, complex partial and partial with secondary generalization less than 3% each.

Table 2 - Clinical presentation of seizure in the cases

Presenting type of seizure	No of Cases	Percentage
Generalized tonic clonic (GTC)	42	84
Simple partial	3	6
Complex partial	2	4
Partial with secondary generation	3	6
	50	100

In table no.3 representation of presenting seizure with neurological deficits involving motor, sensory, level of consciousness and involvement of cranial nerves, we observed that generalized tonic clonic seizure was mainly associated with altered consciousness and others as depicted in table no.3

Table 3 - Seizure associated with neurological defects

Presenting type of seizure	Cases	Associated neurological defects			
		Motor symptoms	Sensory	Altered consciousness	Cranial nerves
Generalized tonic clonic (GTC)	42	4	2	42	1
Simple partial	3	1	-	-	-
Complex partial	2	1	1	2	-
Partial with secondary generalization	3	2	-	2	1

Table No.4 Associated clinical symptoms with seizures

Associated clinical symptoms	Presenting type of seizure				Total
	GTC	Simple Partial	Complex Partial	Partial with secondary generalization	
Fever	10	-	-	-	10(5%)
Headache	28	2	3	-	33(16.5%)
Vomiting	12	-	1	-	13(6.5%)
Frothing	38	-	2	3	43(21.5%)
Aura	10	-	-	-	10(5%)
Tongue bite	20	-	1	-	21(10.5%)
Urinary / Fecal incontinence	17	-	1	2	20(10%)
Post-ictal phase	29	1	3	2	35(17.5%)

Table No. 5 Profile of General Physical examination and Lab investigations in seizure patients

General Physical Examination	No. of cases	Lab Investigations	No. of cases
Fever	10	Haemoglobin(<10gm%)	2
Hypertension	2	Leucocytosis	17
Icterus	2	Hyponatremia	4
Pallor	2	Hypoglycemia	1
Edema	1	Peripheral smear for MP positive	2
Bleeding tendencies	1	Elevated liver enzymes	2
		Thrombocytopenia	2

The most common presenting clinical symptom with seizures was post-ictal phase and frothing which was followed by headache, tongue bite, urinary or fecal incontinence and less number of cases presented with vomiting, aura or fever as the complaints associated with seizures

Table No.6 Classification of Seizure patients based on CT/MRI findings

CT/MRI finding	No. of cases
Cerebrovascular accidents	10
Thrombotic	8
Hemorrhagic	2
Arteriovenous malformation Cavernoma	1
Gliosis	3
Neurocysticercosis	3
Tuberculoma	4
Oligodendroglioma	1
Meningioma	1
Normal	22

Table 7 CSF examination findings of patients with seizures

Total Count	WBC	Chloride	Glucose	Protein	Diagnosis
250	25	120	30	222	Tuberculosis
20	10	-	56	56	Pyogenic
80	20	-	10	115	Pyogenic
24	6	-	56	58	Pyogenic
2	-	128	68	27	Viral

CSF examination was done for selected cases indicated for CSF examination where one each case of viral and tuberculoma was reported and three cases were pyogenic in origin

Table 8 EEG findings in Seizure patients

EEG finding	No. of cases
Abnormal EEG waves	10
Spikes	3
Spikes & Waves	6
Slowing	1
Normal EEG waves	6

Out of 50 patients with seizures only 16 patients were subjected for EEG recording where diagnosis was not established and out of them only 10 cases showed abnormal EEG pattern

As shown in Table no.9 observing the various etiology for the cause of seizures under metabolic origin hyponatremia and hypoglycemia were 6% of cases. The majority of cases reported were with past history of epilepsy on antiepileptic drug as a result of drug withdrawal 14(28%)

Table 9 Etiology of seizures

Etiology	Presenting type of seizure				Total
	GTC	Simple Partial	Complex Partial	Partial with secondary generalization	
Hyponatremia	2	-	-	-	2(4%)
Hypoglycemia	1	-	-	-	1(2%)
Infective Vira Pyogenic Malaria	2 3 2	- - -	- - -	- - -	7(14%)
Vascular Stroke AV malformation	5 -	1 -	1 1	2 -	10(20%)
Space Occupying Lesion Neurocysticercosis Tuberculoma Oligodendroglioma Meningioma	3 2 1 1	- 1 - -	- - - -	- - - -	8(16%)
Hepatic encephalopathy	1	-	-	-	1(2%)
Alcohol withdrawal	1	-	-	-	1(2%)
Eclampsia	6	-	-	-	6(12%)
Epilepsy(due to anti-epileptic drug withdrawal)	12	1	1	-	14(28%)

Discussion

In industrialized countries epilepsy is commonly found in extremes of age spectrum, the peak being in elderly group but this is not the case in developing countries where the highest peak of seizure disorder is found in the age group of 10-20 years³. In contrast our study had increased number of cases in the age group of 21-30 years of age along with this following of increased number of cases in elderly age group. Our study is similar to many other studies which showed the condition prevalent in males compared to females likewise in our study males (64%) and females (36%) were reported.

The commonest type of presentation was generalized tonic-clonic (84%) type of seizures followed by simple partial type (6%), partial secondary generalization (6%) and complex partial type (4%) is in agreement with M Gattani et al⁴. study reported GTC (64.7%), focal onset with secondary generalization (19.8%) and completely focal (15.5%).

The clinical presentation of cases were 10 with fever, 28 with post ictal headache and 38 patients with frothing, 10 cases with aura and 20 cases with tongue bite, urinary incontinence in 17 patients. According to BM vanderSlujiset al.⁵ presented that transient loss of consciousness accompanied by limb jerking can occur in both generalized epileptic seizures and in syncope. Urinary incontinence is not a helpful sign as this occurs in 17% in GCT seizures and 26% in syncope. The presence of tongue bite strongly suggests epilepsy (occurs in 41% of GCT seizures), although occasionally observed in syncope (2-6%), the site of laceration is .

typically lateral in epilepsy, but at the tip of tongue in syncope.

15 patients presented with history of epilepsy on anti epileptic drug but discontinued as one of the cause for epilepsy, four hypertensive patients withdrawing their antihypertensive medications were presented with seizures due to hypertensive encephalopathy, two patients with type II diabetes mellitus presented with seizures due to hypoglycemia, one case was due to alcoholic liver cirrhosis and one case of old stroke presented with seizure was due to scarepilepsy.

Cerebrovascular accidents in form of thrombotic stroke were observed in eight cases and two with hemorrhagic stroke, one each case of cavernoma, oligodendroglioma and meningioma and three cases each of tuberculoma, gliosis and neurocysticercosis. EEG should be considered as neuro-diagnostic evaluation with an apparent unprovoked first seizure along with CT and MRI imaging.

Lab tests like serum electrolytes, glucose levels, CSF analysis and toxicology screening may be helpful as determined by the specific clinical circumstances based on history, physical and neurological examination but due to insufficient data to support or refute recommending any of these tests for routine evaluation of adults presenting with an apparent first unprovoked seizure⁶.

Modern neuro-imaging technology now allows non-invasive diagnostic approach to a wide spectrum of brain lesions which is causative agent for seizure. MRI revolutionized the management of epileptic disorders. According to a study of 31 cases of seizures 26 cases were radiological abnormal of which 16 cases were ring-enhancing lesion tuberculomas and neurocysticercosis in 7 cases and 2 cases of seizures no definite causative agent identified⁷.

More than 90% of patients with solitary cysticercal granuloma (SCG) present with seizures, the risk of seizure recurrence in patients with SCG is related to persistence of brain lesion. Long term follow-up study has shown that seizures associated with SCG have good prognosis and anti-epileptic drug can be safely be withdrawn with the resolution CT lesion⁸.

There is considerable variability in causes and risk factors for seizures in elderly, the most frequently reported risk being cerebrovascular diseases (30-70%), tumors metastatic or aggressive gliomas are less frequent (10-15%). Metabolic disorders, toxic causes and cerebral hypoxia secondary to various causes of syncope accounts for 10% of all other seizures. There is limited data of etiologies of seizures in Asia and patients with late onset of seizures either will have past history of cerebrovascular accident or head injury as presumed etiology⁹.

Conclusion

In the present study although the seizure cases were reported in all age groups it was more common in second decade of life and elderly individuals with male preponderance, among the cases GTC seizures were more common and known case of epileptics discontinuation of antiepileptic drug was high. It is possible that various other unknown factors are responsible for epilepsy. This provides a scope for further research in identification of causative agent and early identification of causative agent helps in better management of the seizure, however limitation of this study is small number of patients which may have not provided the exact presence of problem in society.

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❖ CASE SERIES ARTICLE

Unusuals in Uterine Pathology

Part III: An unusual case of Glassy cell carcinoma presenting as a cervical fibroid

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Abstract

In the third part of this series article, we present the case of a forty six year old female who came to the out patient department complaining of menorrhagia. Ultrasound examination showed uterine enlargement with multiple fibroids including a large cervical fibroid involving the posterior lip. Peroperatively, the cervical lesion was found to be adherent to the adjacent structures and had to be removed piecemeal. Histopathological examination showed a poorly differentiated adenosquamous carcinoma (Glassy cell carcinoma) of the cervix.

Key Words Cervical neoplasm, Glassy cell carcinoma

Introduction

Glassy cell carcinoma is a distinct and rare type of poorly differentiated adenosquamous carcinoma occurring almost exclusively in the cervix. It comprises only 1-2% of all cervical carcinomas and has special clinical significance because of its tendency to occur in a younger age group, its association with pregnancy, reportedly poor prognosis and poor response to therapy.

Case Report

A 46 year old lady presented with a complaint of severe menorrhagia of sudden onset. She was evaluated clinically and was found to have an enlarged uterus of 10 weeks size with per vaginum examination revealing a cervical fibroid. Ultrasound examination showed an enlarged uterus with multiple small intramural fibroids and a large cervical fibroid measuring 4x4 cms, involving the posterior lip. Her routine blood examination showed mildly reduced hemoglobin and her biochemical parameters were within normal limits.

Pathology

A total hysterectomy with bilateral salpingo-oophorectomy was performed with piecemeal removal of

the cervical lesion as it was found to be adherent to adjacent structures. Pathological examination showed enlarged uterus with a large mass protruding through the cervical os (Fig.1a) and merging with one lip of the cervix having an irregular and ulcerated surface, cut surface of which was white, soft in consistency with a granular appearance (Fig.1b). Both tubes and ovaries were unremarkable.



Fig. 1a. Enlarged cervix with mass protruding through the os



Fig 1b. Mass with irregular and ulcerated surface and whitish granular cut surface.

Microscopic examination of the cervical mass showed an infiltrating neoplasm composed of cells arranged in sheets, groups and focal glandular pattern (Fig. 2a). Individual neoplastic cells were large, polygonal cells with pleomorphic vesicular nuclei showing prominent nucleoli and moderate eosinophilic cytoplasm. Cell groups in areas showed clearing of cytoplasm (Fig.2b) with well defined cell borders showing PAS positivity. Many mitotic figures were noted and tumor emboli were seen. Intervening stroma showed a mixed inflammatory infiltrate composed predominantly of eosinophils.

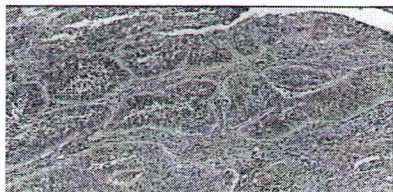


Fig 2a. Neoplastic cells in nests and glandular pattern with eosinophilic stromal infiltrate (10x)

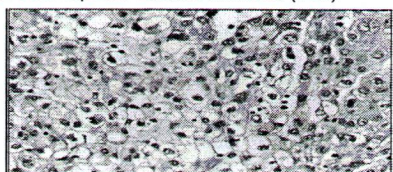


Fig 2b. Glassy cells (40x)

A final diagnosis of poorly differentiated adenosquamous carcinoma cervix- Glassy cell variant was given.

Discussion

Adenosquamous carcinomas of cervix are defined as tumors exhibiting recognizable squamous and glandular elements on H&E examination. In addition to the conventional type, it has two histological variants: glassy cell carcinoma and clear cell adenosquamous carcinoma³.

Glassy cell carcinoma is a poorly differentiated rare variant of adeno squamous carcinoma and accounts for only 1-2% of all cervical carcinomas^{5,8,13}. Although this tumor can occur over a wide age range it appears to occur in a younger age group than cervical adenocarcinoma in general^{2,4}. The usual presentation is with vaginal bleeding and on examination a large, bulky fungating mass is seen.

Histologically, these tumors are characterised by diffuse sheets and nests of large cells with abundant eosinophilic to granular cytoplasm imparting a ground glass appearance, large round to oval nuclei with prominent nucleoli, distinct cell borders, numerous mitoses^{3,11} and a prominent inflammatory stromal infiltrate consisting predominantly of eosinophils, plasma cells and sometimes neutrophils, often infiltrating nests of neoplastic cells^{1,2,7}.

Because of its poorly differentiated nature many tumors may not show obvious squamous and glandular differentiation on microscopy but the biphasic

appearance can be appreciated by electron microscopy³. To qualify as a glassy cell carcinoma, the glassy cell pattern should constitute at least one third of the tumour^{5,6}.

The prominent eosinophilic infiltrate in the stroma aids in differentiating these tumors from non keratinising squamous cell carcinomas⁸. These tumors show no preinvasive lesion⁹ unlike other cervical tumors and are negative for estrogen and progesterone receptors¹⁰.

The anatomic extent of the disease is important to determine the prognosis as surgical staging is often higher than clinical staging. Extrapelvic spread includes metastases to the lung, liver, spleen and bone marrow. Risk factors for recurrence are lymphatic invasion, deep stromal invasion and tumour size >3 cms¹². Overall, patients with glassy cell carcinoma seem to have a poor prognosis^{2,4,7} especially because of factors like rapid growth, metastatic disease at the time of diagnosis and relative resistance to conventional treatment modalities including surgery, radiotherapy, and chemotherapy, however, exact survival data is limited due to the rarity of this tumor type³.

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★ CASE REPORT

Leydig cell tumour in a child-Organ sparing surgery

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Abstract

Leydig tumours are rare testicular neoplasms in childhood and are almost always benign. We are reporting a case of four year old boy with non palpable testicular mass in left testis with features of isosexual precocious puberty. Organ sparing surgery was done avoiding orchidectomy with the help of intraoperative ultrasound and frozen section biopsy. Testis sparing surgeries are very safe and effective in these types of lesions and it gives great functional, cosmetic and psychological advantage.

Key words: Leydig cell tumour, isosexual precocious puberty, testis sparing surgery

Introduction

Sex cord stromal tumours are rare in children. Leydig cell tumours are the most common neoplasms among the stromal tumours; Seen in about 1-4% of testicular neoplasms in the boys⁽¹⁾. Malignant variants are seen only after puberty and seen mainly in older age groups^(6,9). There are only very few case reports below five years of age.^(1,2,3)

Isosexual precocious puberty is the common manifestation due to elevated sex hormone levels in the pre pubertal age group. High frequency ultrasonography can pick up even very small testicular lesions. Excision or enucleation of the lesion with frozen section biopsy and testicular sparing surgery is the recommended treatment option.

The authors are reporting this rare case of Leydig cell tumour in a four year old boy.

Case Report

Four year old boy was brought to the endocrinology department, when the mother noticed significant enlargement in the size of his penis with thick black pubic hairs over a period of two months (Fig I). Physical examination showed normal sized testicles and no palpable masses. Testosterone levels were significantly

elevated, (1.69 ng/ml) that was more than four times the expected upper limit values in the pre pubertal boys (normal : 0-0.43 ng/ml). Scrotal ultrasound showed a well defined mass lesion in the left testicle at the upper pole. The size of the mass was 6 mm x 4 mm with increased vascularity (Fig III). MRI evaluation confirmed the presence of the mass. The skeletal survey was normal.

He was diagnosed to have a hormone producing testicular tumour most likely benign Leydig cell tumour as malignant variants are not seen in small children.^(6,9) He was taken up for testis sparing surgery through an inguinal exploration. Mass was located with intra operative high frequency ultrasound and it was enucleated (Fig II). Frozen section showed benign Leydig cell tumour which was later confirmed by definite histopathological examination (Fig IV).

Testosterone levels were reviewed at 2 weeks post operative period and later at 3 months showed normal pre pubertal levels. Secondary sexual characteristics have shown regression during this period.

Discussion

Testicular stromal tumours are uncommon in pediatric age group. Leydig cell tumours are suspected when a child presents with isosexual precocious puberty. In the present era high frequency ultrasound

can pick up non palpable lesions. Benign lesions can be easily removed by sparing the testis and confirm its benign nature by frozen section biopsy thus avoiding orchidectomy. Intra operative ultrasound may be used as a tool for the precise localization of the lesion. Testis sparing is very important in cases of bilateral lesions.^(7,8) Testis sparing surgeries are very safe and effective in these type of lesions and it gives great functional , cosmetic and psychological advantage.^(4,5)



Fig I - Isosexual precocious puberty, large sized penis and pubic hairs

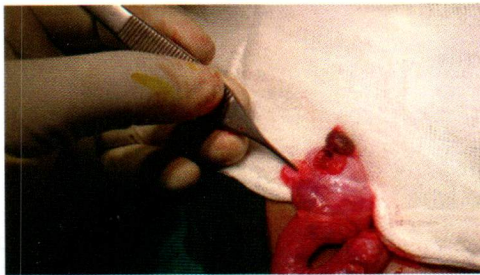


Fig II - Small tumour mass



Fig III - Ultrasound and MRI pictures

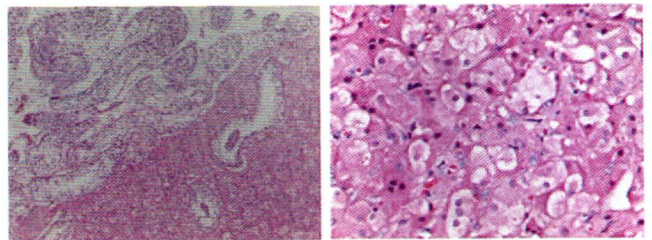


Fig IV - HPE Leydig cell tumour

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DIROFILARIASIS: A compilation of two Cases

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Abstract

Human dirofilariasis is a world wide zoonotic infection most commonly caused by the species *Dirofilaria*. Cases are being reported from Kerala especially the southern part, where there is probably a focus of human infection and also being geographically closer to Srilanka where *Dirofilaria* is endemic. Among the documented cases of human *Dirofilaria* reported in India, majority of patients presented with ocular & subcutaneous lesions. We report two cases of *Dirofilaria*—one case presenting as a subcutaneous lesion and the other case presenting as a periorbital lesion. This also emphasises the importance of considering this entity in the differential diagnosis of patients presenting with similar lesions.

Keywords: *Dirofilaria*, Zoonotic

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Introduction

Dirofilaria is a genus of roundworm [nematodes]. It is derived from the Latin word "dirus" [fearful or ominous] and "filum" [thread].

The genus *Dirofilaria* includes various species like *D.repens*, *D.immitis*, *D.tenuis*, *D.ursi* etc. These are natural parasites of dogs, cats, foxes and wild mammals^{1,2}. *D.repens* is commonly found in the subcutaneous tissues of dogs while *D.immitis* is found in the right ventricle and pulmonary artery of dogs¹.

The important vectors for this parasite are *Culex*, *Aedes* & *Anopheles* mosquitoes. During a blood meal from an infected host, the mosquitoes take up the microfilaria (L1) which develops into the infective third stage larva (L3) in the malpighian tubules and then migrates to the proboscis. Infection gets transmitted when a potential vector bites dogs or humans during a subsequent blood meal. Most of the documented cases of human dirofilariasis reported in India presented with ocular infections^{3,4,5} but very few subcutaneous dirofilariasis^{6,7} have been reported.

Case I

A 40 year old female presented with a subcutaneous nodule over the left shoulder (m) 12x7mm. USG showed a linear echogenic area within.

Routine blood investigations were within normal limits. The patient was sent for Fine needle aspiration cytology (FNAC). On aspiration of the lesion, scanty yellow coloured fluid was aspirated and at the tip of the needle, an elongated thread like structure was obtained which was sent for histopathological examination.

Morphology

The worm was thin, cylindrical and measured 12 cm in length. Head and tail ends could not be differentiated [Fig.1]. Wet mount of the worm showed a nematode with a thick cuticle [Fig 2]



Fig.1 Elongated thread like worm (m) around 12 cm

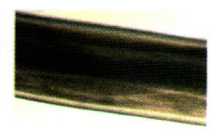


Fig.2 Wet mount showing thick cuticle of worm

Histological sections of the worm showed a thick cuticle and had prominent longitudinal ridges with transverse striations and two internal body cavities. [Fig3]



Fig.3 Thick cuticle and two internal body cavities

Based on the morphological and histological features, the worm was identified as an adult parasite of *Dirofilaria*.

Case II

A 46 year old female presented with a lesion near the medial canthus of right eye which was diagnosed clinically as dermoid cyst. The lesion was excised and sent for histopathological examination.

Morphology

Grossly, the lesion was a single nodular mass (m) 0.7 cm in diameter and appeared grey-white on cut section. Microscopy showed crosssections of a parasite with thick cuticle and marked inflammatory reaction in the surrounding tissue, composed of lymphocytes, eosinophils, macrophages and neutrophils. Bundles of skeletal muscle fibres, fibrocollagenous tissue and blood vessels of varying caliber with marked perivascular inflammatory cell infiltration was noted. The diagnosis of a parasitic granuloma possibly *Dirofilaria* was given. [Fig4 a, b]



Fig4a: Cut section of the worm surrounded by inflammatory reaction (H&E 10X)

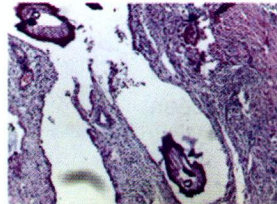


Fig4b. Parasitic granuloma (H&E 40X)

Discussion:

Human dirofilariasis have been reported widely throughout Asia, Europe and Africa. Reports of this infection from India are limited³. The first case of human ocular dirofilariasis was reported from Kerala in June, 1976⁸ and of subcutaneous dirofilariasis from Southern Kerala in June, 2004⁹. Kerala is considered an endemic area for dirofilariasis¹

*D.repens*¹ is the most common causative agent world wide while *D.immitis*¹⁰ is also recorded as a causative agent from India.

D.repens is identified by the presence of external longitudinal cuticular ridges and transverse striations along with two internal body cavities. Other dirofilaria species also show similar morphology and exact identification of the species may be possible only after studying the fully matured worms. However *D.immitis* can be differentiated from *D.repens* by the absence of longitudinal ridges and transverse striations^{9,11}.

Human Pulmonary Dirofilariasis (HPD) is most commonly caused by *D.immitis*¹². Patients can present with a coin lesion on chest X-Ray, which can be misdiagnosed as malignancy^{2,12}.

Subcutaneous dirofilariasis is most commonly caused by *D.repens* in Asia⁹. Surgical removal of the worm is the treatment of choice. There is no need for antifilarial treatment as microfilaremia is extremely

rare^{1,9}. Only one case of circulating microfilaremia in humans has been reported in the medical literature¹³.

Many cases of human dirofilariasis are most probably under reported because many of them remain undiagnosed or unpublished¹¹. Dirofilariasis should be considered a differential diagnosis for orbital and subcutaneous lesions¹⁴.

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❖ CASE REPORT

Thrombocytopenia and absent radius syndrome (TAR) with other anomalies

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Abstract

Thrombocytopenia and absent radius syndrome (TAR) is an autosomal recessive genetic disorder characterized by thrombocytopenia, defects of upper limb and other anomalies such cardiac and renal malformations. We report the case of a baby boy with thrombocytopenia and absent radii syndrome with intracranial hemorrhage and congenital heart disease. This report describes an association of thrombocytopenia and absent radii syndrome with cardiac anomalies, other upper limb anomalies and intracranial hemorrhage. This case report highlights TAR syndrome has got many associations.

Keywords: Thrombocytopenia, Absent radius, Intracranial hemorrhage, Autosomal recessive, Baby boy

Introduction

Thrombocytopenia and absent radius syndrome (TAR) is a rare genetic disorder which is inherited as an autosomal recessive trait. This disorder is characterized by low levels of platelets in blood (thrombocytopenia) resulting in potentially severe bleeding episodes primarily during infancy. Other characteristic findings include bilateral radial aplasia. Other abnormalities may also be present such as defects of hands, structural malfunctions of the heart and kidneys.

dropped to 45000. Baby was on regular follow up clinically and hematologically.



Fig.1 TAR syndrome baby

Discussion

Thrombocytopenia and absent radius (TAR) has been recognised as a relatively common congenital anomaly syndrome characterised by hypomegakaryocytic thrombocytopenia (less than 100 000 platelets per mm^3) and bilateral absence of the radius with an autosomal recessive pattern of inheritance. Initially the condition was considered to be a form of Fanconi's anaemia; however, by 1969 a total of 40 cases had been reported and it could be distinguished as a specific entity with a quite different natural history from Fanconi's anaemia¹. Subsequently, more than a hundred cases have been published from all over the world representing a broad spectrum of ethnic groups.

The clinical features of TAR include haematological abnormalities (of platelets, white cells, and possibly

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Case Report

This was a Term SGA baby boy born by Normal vaginal delivery .The baby was noticed to have shortened forearm and petechia all over the body soon after birth.The baby was also having prominent fore head, low set posteriorly placed ears, bilateral hypoplastic thumb,little finger was clinodactyli. There was also an ejection systolic murmur over left sternal border. X rays of upperlimbs taken showed bilateral absent radii and ulna. Platelet count initially was 30000 and repeated on day 2 was 20000.MRI brain taken showed evidence of Intracranial hemorrhage and ECHO done showed Ostium secundum ASD. Platelet transfusion was given and repeat platelet count was within normal limits. Repeat platelet after 3 days again

red cells), skeletal abnormalities (primarily of both arms and legs), cardiac abnormalities (particularly tetralogy of Fallot and atrial septal defects), and cow's milk allergy or intolerance (leading to gastrointestinal disturbance in the first few years of life).

In contrast to other conditions with absence of the radius, the thumb is always present and relatively functional in TAR. If the thumbs are absent, other diagnoses must be considered. The only other condition in which bilateral absence of the radius and the presence of thumbs has been seen is in some cases of Roberts' syndrome². The hands in TAR cannot really be considered normal in that there is limited extension of fingers, radial deviation of the hand, and hypoplasia of the carpal and phalangeal bones. The ulna is abnormal in TAR. It is somewhat shortened and malformed in all cases but is absent bilaterally in about 20% of cases and unilaterally in 10% of cases. The humerus is abnormal in at least half of the cases and absent bilaterally in 5 to 10% of cases. In this situation, the five fingered hand arises from the shoulder. About 15% of cases are asymmetrical in that one arm is much shorter than the other. Hypoplasia of muscles and soft tissue in the arm and shoulder may also occur. Typically, the hand is radially deviated and becomes more so with age. This probably occurs because of the abnormal attachment of the muscles which usually attach to the radius; they are attached to the lateral carpals and with contraction pull the wrist over radially³. Although not initially described, the legs are involved in about 50% of cases of TAR. Involvement includes dislocation of the hips, subluxation of the knees, coxavalga, dislocation of the patella, femoral and tibial torsion, abnormal tibiofibular joint, ankylosis of the knee, small feet, and various foot deformities with abnormal toe placement (*scrambling of the toes*).¹ It would appear from the cases which have been described that severity of upper limb involvement correlates with severity of lower limb involvement, that is, the shorter the upper arms, the more likely that the knees and legs will be involved.



Fig:2 X RAY upper limb

Mental retardation has been reported but it appears in all cases to be related to intracranial bleeding and not due to a basic structural CNS abnormality. Similarly, glaucoma has been reported and, again, this appears to be related to intraocular bleeding.

Letestu et al⁴ found that the colony forming unit megakaryocyte number was reduced in bone marrow and that a proportion of megakaryocytes were unable to complete terminal differentiation, suggesting that the defect lies in the early stages of megakaryocyte differentiation⁴. Significant symptomatic bleeding may occur during the first two years of life. Infants during that period need to be monitored carefully, because viral, particularly gastrointestinal, illnesses seem to precipitate episodes of thrombocytopenia. Strenuous support for the thrombocytopenia should be provided in the first year. It may be wise to avoid excessive social contacts during the first two years of life to avoid exposure to more viruses than necessary. Gradually over childhood the number of platelets increase and by adulthood are usually near normal levels most of the time. Women with TAR often have menorrhagia.

Many TAR children require platelet transfusions. If possible, they should be given from one donor to try to avoid developing platelet antibodies. Surgery for most orthopaedic problems can be put off until the child is larger and in less danger of severe thrombocytopenia. The only surgery which may be absolutely necessary in the first few years of life would be cardiac surgery and this has been managed in several patients by platelet transfusions. If severe intracranial bleeding occurs, it is almost always before one year of age and may be associated with later mental retardation¹. However, delayed motor development is common in TAR because of both the hand and wrist anomalies and the generally short limbs.

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✪ CASE REPORT

An interesting case report of postictal mania associated with temporal lobe epilepsy

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Abstract

Various postictal phenomenon such as behavioural changes, Todd's paresis, amnesia, aphasia etc. are common accompaniments of epilepsy. Postictal mania is characterised by abnormally elated or euphoric mood with distractibility during the episodes. The subjects tend to show hyperactivity, pressured speech, decreased need for sleep, flight of ideas, grandiosity and hyper-religiosity congruent with mood. It is a rare entity that stands apart from the often reported postictal psychosis. Here we report a case of postictal mania in a 26 year old nurse that eventually lead to not only his but the entire family's religious conversion.

Keywords: postictal mania , religious conversion

Introduction

Various postictal phenomenon such as behavioural changes, Todd's paresis, amnesia, aphasia etc. are common accompaniments of epilepsy^[1]. These phenomenon are more common after focal epilepsies, although these have also been described with generalised epileptic syndromes^[2]. Prolonged behavioural changes as postictal phenomenon have been described by various authors especially associated with frontal and temporal lobe seizures.

Postictal mania is characterised by abnormally elated or euphoric mood with distractibility during the episodes. They tend to show hyperactivity, pressured speech, decreased need for sleep, flight of ideas, grandiosity and hyper-religiosity congruent with mood^[3]. Here we report a case of temporal lobe epilepsy with prolonged postictal mania, which is a rare postictal phenomenon following a cluster of complex partial seizures. The event even caused religious conversion of the family.

Case History

A 26 year old male nurse, originally from a Hindu background with no family history of psychiatric illness or

neurological illness, was restrained and brought by relatives to the psychiatric emergency with complaints of behavioural changes of three days duration.

He had cluster of six episodes of seizures beginning 48 hours prior to the onset of behavioural changes. The seizure episode characteristically began with an aura of fear, a sensation of rotten smell and a feeling of discomfort rising from the abdomen with nausea. He had a vacant stare and repeatedly clapped his hands before letting out a short cry and falling to the ground. He made a low gurgling sound and his body became stiff. Each episode lasted for less than two minutes. On regaining consciousness after the seizures on the second day, he was drowsy, but was able to interact normally with relatives. On the third day he woke up late and by evening began to show behavioural changes. He started reading the bible excessively, singing hymns, preaching prolifically in the market, laying his hands upon people and exhorted people to get converted to Christian religion. He claimed to have special powers from God to heal the sick. He was forcing neighbours to donate their property for him to build a church. Attempts to curtail his wanderings by his parents proved futile. He even tried to

threaten them using an axe, for he believed them to be obstacles 'on his path charted by God'. The neighbours attempted to beat him up but his friends brought him for psychiatric treatment.

He had past history of multiple episodes of seizures beginning at 17 years of age, the semiology of which was similar to present episode. He was put on Phenytoin sodium 300mg per day after the first episode. But after 12 hours of cessation of the seizure, he showed irritability and similar degree of over-religiosity that lasted for about one week. He had recurrence of seizure two months later on drug default. He had two further episodes while on medications after intervals of five and eight years. During the postictal periods he had shown similar behavioural changes usually occurring after a lucid interval of 24 to 48 hours following the seizures episodes. He was a shy and soft spoken person working as a staff nurse during these episodes, but his behavioural changes during the postictal period surprised everyone and he was ousted from work ultimately.

The patient was started on Carbamazepine 400mg and Clobazam 0.5mg. Unable to find work as a nurse he was forced to travel to another state where he had to seek work as an auto mechanic. Three years later he had a recurrence when he discontinued his medications for a week. He also went missing from his work place. Ten days later he was found at railway station 600 km from his work place. He was exhausted and dehydrated with no memory of the preceding events. After this the entire family converted to Christianity as a last resort hoping that this would change his behaviour.

Clinical examination

He was right handed. The mental status examination showed increased psychomotor activity, speech output with increased volume, tone, tempo, decreased reaction time and increased pressure of speech. Patient had delusions of grandiosity with euphoric mood. His attention, concentration and judgement were impaired with absent insight. The symptoms fulfilled the ICD-10 diagnostic criteria for mania episode (F30) but since there was an organic etiology, it was categorised as organic mood (Affective) disorder (F06.3). There was no K-F ring. His neurological and systemic examination were otherwise normal.

Investigations

His routine biochemistry including calcium, phosphorous, blood sugar, liver and renal functions and electrolytes were normal. His thyroid function tests, serum copper, ceruloplasmin and urinary porphobilinogens were within normal limits. EEG done showed right anterior temporal dysfunction. MRI brain was normal.

Outcome and follow-up

The anti-epileptic medications were optimised. The patient was put on Carbamazepine 600mg per day and Clobazam 5mg per day. He required physical and pharmacological restraint for the initial two days following admission. He was initially given intra-venous Haloperidol following which he was maintained on Olanzapine 10 mg per day. By third day the euphoric symptoms partially settled and patient entered a hypomanic phase. He continued to preach and pray for other patients by laying his hands on their head, he was seen to wake up early and was reading the bible, often quoting excerpts from the book during ward rounds. Behavioural symptoms abated by the tenth day. A detailed discussion was held with the care givers regarding the nature of the illness and the need to remain compliant to medication was stressed. At the time of discharge his behaviour was normal except for the ideas of grandiosity, this also subsided within one month. Olanzapine was gradually tapered and stopped over a period of two months. The patient at one year after the admission continues to be compliant on medication. He is attending computer application classes, is maintain good interpersonal and social conduct. He has had no recurrences to date.

Discussion

Postictal psychosis accounts for approximately a quarter of psychotic episodes in patients with epilepsy. The clinical features of postictal psychosis are varied and includes behavioural alterations such as delusions, hallucinations, illusions, mood disturbances, and disinhibited sexual behaviour^[4,5]. Many authors however consider postictal mania as a distinct entity separate from postictal psychosis^[6,3].

Postictal mania is characterised by abnormally elated, expansive mood and euphoric mood with distractibility during the episodes. Patients with postictal mania tend to show hyperactivity, pressured speech, decreased need for sleep, flight of ideas, grandiosity and hyper-religiosity congruent with mood. It has been described in focal epilepsies involving frontal lobe or temporal lobe^[3]. The literature on postictal mania has been limited to case reports and a study by Nishida et al^[3,7] comparing clinical features, epileptogenic zone and brain functional changes between postictal mania and postictal psychosis. Religious conversions have been reported previously in patients with postictal period^[8].

The symptoms exhibited by our patient included elated and expansive mood, hyper-religiosity, grandiose delusions, reduced need for sleep, pressure of speech and flight of ideas. Our patient fulfilled the criteria for Manic episode (F30) as per ICD-10^[9]. However the key feature observed in him was marked hyper-religiosity that led to not only his religious conversion but of his entire family.

The manic episode has four phases : a lucid interval, manic phase, hypo manic phase, and recovery phase^[10]. Our patient had all these distinct phases. His lucid interval lasts between 12 to 24 hours. The manic phase was interrupted by medications but lasts at least for 10 days, the hypomanic phase that followed subsided in a month. In our patient EEG showed epileptiform activity in the anterior temporal region and semilog was suggestive of medial temporal lobe dysfunction.

Postictal mania and postictal psychosis have not figured in any standardised classification systems of psychiatric disorders. A close differential for postictal mania is postictal psychosis. The postictal psychosis is diagnosed using the Logsdail and Toone's Diagnostic criteria for postictal psychosis^[6]. A characteristic lucid interval exists between the seizures and the development of postictal psychosis and postictal manic symptoms.^[4,6,11] The duration of the episode tends to be significantly longer in postictal mania compared to post-ictal psychosis. Neuroleptic control is needed for the control of postictal manic symptoms . The frontal lobe prefrontal circuits have initiative and inhibitory activity of volition and emotion and the medial part of the temporal lobe including the limbic system are associated with emotion^[12] and postictal mania is related to these cerebral structures.

To conclude postictal mania is a rare and distinct entity from postictal psychosis. The recognition of this phenomenon is important as if left untreated it can cause severe psychological and social disruption as highlighted in our case.

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❖ CASE REPORT

Anaesthesia in Scoliosis – A compilation of two cases

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Abstract

Scoliosis is a complex deformity of spine and anaesthetic management can be challenging since it involves various secondary systems like respiratory, cardiovascular and neurological. We report two such cases of scoliosis patients who underwent different surgeries and were managed successfully.

Introduction

Scoliosis, due to various etiology, leads to respiratory involvement characterized by restrictive lung disease, ventilation-perfusion mismatch and hypoxemia. Cardiovascular involvement is usually in the form of raised right heart pressures, mitral valve prolapse or congenital heart disease.^[1]

Case Report

Case 1: A 58 year old male patient with a past history of treated pulmonary TB, with thoracolumbar kyphoscoliosis with convexity towards left side was posted for removal of cancellous screw left hip. On examination clubbing was present, trachea was shifted to right side, there was decreased air entry on left side, left shoulder was at higher level than right, there was gross wasting of the limb muscles. Routine blood investigations were within normal limits and chest Xray showed kyphoscoliosis with right sided upper lobe fibrotic changes. PFT was suggestive of restrictive disease, while ECG and ECHO were insignificant. Patient was premedicated with Ondansetron 4mg and midazolam 1mg. Preinduction monitors such as noninvasive blood pressure cuff, pulse oximeter and ECG were applied. Pulse rate was 85/min. and blood pressure was 130/80 mm Hg initially. He was given 100% O₂ with a face mask at 5l/min. Subarachnoid block of 0.5% bupivacaine (H) 3ml was administered with patient in sitting position and a 25 G Quincke Spinal

needle. Adequate depth of anaesthesia was obtained. Ample care was taken for proper positioning of the patient with pillows. The surgery lasted for one and half hours during which the vitals remained maintained. The patient had a totally uneventful postoperative period.

Case 2: A 41 year old male patient with thoracolumbar kyphoscoliosis for left supraclavicular sarcoma excision and multiple neurofibroma excision on right side of face. On examination there was no clubbing or cyanosis, trachea appeared central, there was gross wasting of the limb muscles. Routine blood investigations were within normal limits as was the serum electrolytes. Chest Xray showed kyphoscoliosis. PFT was suggestive of restrictive disease, while ECG and ECHO were insignificant. Patient was premedicated with Ondansetron 4mg and midazolam 1mg. Preinduction monitors such as noninvasive blood pressure cuff, pulse oximeter and ECG monitoring were applied. Pulse rate was 70/min. and blood pressure was 130/70 mm Hg and SPO₂ was 94% initially. He was preoxygenated with 100% O₂ with a face mask at 5l/min. Analgesia was administered with fentanyl 50 mcg. Anaesthesia was induced with propofol 100mg after administration of 60mg of 2% lignocaine. Endotracheal intubation was carried out with 8.5mm ID COETT after administration of 50mg Succinyl choline. IPPV was maintained with O₂+N₂O+ Sevoflurane (1%), and muscle relaxation with Vecuronium. The surgery lasted for around 2 and 1/2

hours. Intraoperatively the patients vitals were stable, at the end of the procedure the neuromuscular blockade was reversed with Neostigmine 2.5mg and glycopyrolate 0.4mg . Once the patient was fully awake and breathing adequately and spontaneously he was extubated in the postoperative recovery room. The postoperative period was quite uneventful and patient was discharged on 4th postoperative day.

Discussion

Scoliosis is a complex deformity of the spine resulting in lateral curvature and rotation of the vertebrae as well as a deformity of the rib cage . The incidence of scoliosis in the general population is approximately 0.3-15.3%. However the prevalence is less than 3% for curves more than 10° and less than 0.3% for curves more than 30 degree . It is more common in adolescents and has a female to male ratio of about 3:1.[2]

The initial classification was given by Schulthess W . He classified scoliosis by the region involved.[2]

1. Cervico thoracic
2. Thoracic
3. Thoracolumbar
4. Lumbar
5. Combined double primary

The etiologic classification was introduced by the Terminology Committee of the Scoliosis Research Society in 1969 , that is 75 -90% of cases of scoliosis are of the idiopathic type, out of which the adolescent type is most common. Remaining 10 - 25% cases belong to various other etiologies[3]

Surgical correction of scoliosis is performed when Cobb's angle exceeds 50° in thoracic and 40° in lumbar region as these patients are associated with restrictive pulmonary dysfunction. However, patients having a varied Cobb's angle may present to surgical department for various non-spine corrective surgeries.

The preoperative assessment of these patients should pay special attention to [4],[5],[6]

- Etiology (earlier onset has poorer prognosis because of poor development of the lungs).
- The region of curvature (cervical--difficult airway, thoracolumbar-- cardiorespiratory dysfunction)
- The cobb's angle (> 10° abnormal, > 40° needs surgical correction, >60° cardiorespiratory compromise and >100° immediate ventilation needed)
- Any associated congenital anomalies
- Cardiorespiratory compromise (Preoperative SpO₂, ABG analysis--assess for anemia and hypoxemia, PFT--restrictive pattern with decreased VC and FRC--, ECG and ECHO for assessing pulmonary artery hypertension)

Anaesthetic concerns for providing general anaesthesia to patients with scoliosis are increased sensitivity to sedative drugs, prolonged effect of non-depolarizing neuromuscular blocking agents, dysfunctional autonomic nervous system, underdeveloped muscles of respiration making extubation difficult.[1]

Inappropriate sensory blockade during regional anaesthesia is a well-known phenomenon in scoliosis patients. The most probable mechanism for unilateral or asymmetric cephalad extension of sensory block could be due to altered distribution of local anaesthetic solution along the convexity of the scoliosis spine curves and therefore exposing a substantial difference in fixing of local anaesthesia to nerve roots on either side of vertebral column. It may also be due to the rotation of the spine.

The literature shows that there is no significant difference in the success rates of epidural and spinal anaesthesia (80% and 73% respectively) in uncorrected scoliosis patients. The most common causes attributed to block inadequacy in them were patchy (8%), asymmetric (8%) or unilateral analgesia (8%).[4],[5],[6]

Conclusions

Anaesthesia for scoliosis patients is often very challenging. A detailed pre-anaesthetic assessment and optimization of the respiratory and cardiovascular systems is imperative. Important intraoperative considerations are monitoring, temperature and fluid balance maintenance, and positioning. Post operative intensive care, respiratory care and pain therapy deserve special mention. Spinal anaesthesia could be safely given in scoliosis patients with less adverse effects . The outcome of general anaesthesia depends on the preoperative status of the patient, the site of injury and the duration of surgery.

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REVIEW ARTICLE

Laparoscopic Surgeries – Anaesthetic Implications

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Abstract

Laparoscopy from Ancient Greek word *lapara*, meaning "flank/side", and *skopein*, meaning "to see" is an operation performed in the abdomen or pelvis through small incisions (usually 0.5–1.5 cm) with the aid of a camera. It can either be used to inspect and diagnose a condition or to perform surgery. Laparoscopic techniques are highly advantageous compared to open procedures^{1,2}. Improved patient outcome being the most attractive feature.

However pneumoperitoneum and abnormal patient positions can result in many complications. Hence anaesthetic techniques for laparoscopic surgeries must be tailored accordingly.

Keywords: Laparoscopy, Anaesthesia, Surgery

Types

The different types of laparoscopic surgeries are:

- INTRA PERITONEAL
- EXTRA PERITONEAL
- GASLESS LAPAROSCOPY
- HAND ASSISTED LAPAROSCOPIC SURGERY
- Diaphragmatic hernia
- Peritonitis
- Large intraabdominal mass
- History of extensive surgery or adhesions
- Coagulopathy, hypovolemic shock
- Sickle cell disease (because sickle crisis may be precipitated by acidosis)

Benefits of laparoscopic surgery

One of the major benefits is the rapid recovery after extensive surgical procedures. Reasons for this are many: minimal bowel manipulation and very low occurrence of post operative ileus³.

Secondly, small laparoscopic incisions minimize the postoperative complications. Obese patients benefit vastly from laparoscopic procedures,

Patients with severe respiratory disease also benefit from laparoscopic approach and also those who are undergoing day care surgery.

Contraindications for laparoscopic surgery

- Raised ICP or space-occupying masses
- Severe cardiovascular or pulmonary disease
- Impending renal shutdown

Risks and effects of positoning and pneumoperitoneum on various organs

The risks associated with laparoscopic surgery may be classified as patient-specific, pertaining to the surgical procedur, related to patient position, and finally the patho-physiological consequences of pneumoperitoneum

Surgical risks

Blind insertion of sharp laparoscopic instruments into the body cavity, can cause damage to internal organs. Venous tamponade may occur with pneumoperitoneum thereby resulting in delayed diagnosis.

Venous gas embolism is a serious complication and can even cause death of patient. It usually occurs as gas insufflation is initiated⁴. The severity depends on multiple factors such as volume and speed of gas administration, position of patient, and laparoscopic approach.

Common patient positions include steep Trendelenburg or reverse Trendelenburg positions with considerable physiological consequences. Strict attention must be paid to prevent nerve injury, padding of pressure points and protection of eyes throughout the procedure.

Increased risk of cerebral as well as upper airway oedema include other anticipated complications. Decreased functional residual capacity, ventilation and perfusion (V/Q) mismatch and endobronchial migration of endotracheal tube are also commonly seen.

Reverse Trendelenburg position, can cause myocardial as well as cerebral ischaemia. At maximum risk are the geriatric group, volume depleted patients, and those with pre-existing cardiac and cerebral insufficiencies.

Patho physiology of pneumoperitoneum

Laparoscopic surgery requires a pneumoperitoneum to be created artificially using insufflated carbon dioxide to enhance the visualization. As the size of the abdomen increases, intra-abdominal pressure (IAP) rises. Very high IAP will compromise the patient safety, particularly in those with multiple comorbidities.

Cardiovascular effects

With raised IAP, systemic vascular resistance (SVR) increases. Release of chemicals such as vasopressin and activation of the renin-angiotensin-aldosterone axis⁵. Arterial pressure falls, particularly if the patient is hypovolaemic

Respiratory effects

Respiratory changes are attributed to raised IAP and Trendelenburg positioning. Decrease in pulmonary compliance, together with reduced will result in pulmonary atelectasis, ventilation perfusion mismatch and hypoxaemia.^{6,7} Increase in PCO₂ during surgery adds insult to injury.

Splanchnic effects

Blood flow to the kidney and liver decreases during laparoscopy. This should be taken into consideration during patient selection for laparoscopy.

Neurological effects

An elevated IAP increases intra-cerebral pressure (ICP). This might account for the temporary neurological abnormalities that are seen in patients during recovery.

Pneumoperitoneum

Factors that dictate the suitability of a gas for creating pneumoperitoneum include the type of anaesthesia, compatibility, safety, method of delivery, cost effectiveness and non-combustibility. Commonly used gases are carbon dioxide (CO₂), air, oxygen,

nitrous oxide (N₂O), argon, helium and mixtures of these gases.

CO₂ is the gas of choice by most surgeons. CO₂ is highly soluble in blood⁸. Incidence of embolism is minimum with CO₂.

Gas insufflations is done initially at 2-3l/min and later on the gas flow is decreased to 200-300ml/min and IAP is maintained at 14-20 mm Hg.

Conduct of anaesthesia

Thorough preanaesthetic evaluation is done for all patients undergoing surgery with special emphasis on optimisation of preexisting medical conditions.

Intraoperative management Airway

The most preferred and safest airway management technique involves endotracheal intubation and positive pressure ventilation⁹. Advantages include prevention of aspiration and optimal ventilator control. Laryngeal mask airway (LMA) is gaining popularity as a means to secure the airway in laproscopic surgeries^{10,11}

Ventilation

Both pneumoperitoneum and steep Trendelenburg position bring about an inhibitory effect on ventilation during laparoscopic surgery. The use of pressure-controlled modes increases the peak flows, brings down airway peak pressures, and improves oxygenation. The addition of PEEP may cause further decrease in blood pressure.

Analgesia

Optimal analgesia is a prerequisite for any surgery and laparoscopy is no exception. Options include parenteral opioids and various regional techniques such as subarachnoid, extradural, and other newer modalities^{12,13}.

Antiemetics

One of the commonest side effects of laparoscopic surgery is postoperative nausea and vomiting¹⁴ and this can prolong the duration of hospital stay. Therefore, prevention is of paramount importance, particularly in high risk patients. Drugs with vastly different mechanisms of action such as granisetron, metaclopramide, and dexamethasone are commonly used. Along with that preventive measures are also maintained.

Monitoring

The main monitoring modalities include endtidal carbon dioxide and oxygen saturation monitoring. Supportive modalities include airway pressures, exhaled tidal volumes, and dynamic flow-volume loops.

Invasive arterial monitoring is preferred in patients with cardiovascular co-morbidities and those undergoing major procedures. Central venous pressure may be misleading. Monitoring for gas embolism is also very important.

Postoperative management

Prolonged post operative pain and discomfort should alert the physician towards complications. High index of suspicion can avoid many adverse effects. Referred pain is common after laparoscopy and should be managed appropriately.

Supplemental oxygen should be given to patients while in post anaesthesia care unit¹⁵.

Conclusion

Over the years laparoscopy has evolved as one of the most promising surgical techniques. Risk versus benefit ratio tips heavily towards benefit as far as laparoscopy is concerned. Balanced anaesthesia and deeper knowledge of pathophysiological ramifications of laparoscopy plays an important role in patient safety during laparoscopy.

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CORRIGENDUM

In the previous issue of Pushpagiri Medical Journal Vol 5 No 2

The article authored by Jayasree et al contains the following error On page number: 102 - 105

1. The author sequence should be read as (in the following order)

Jayasree P, Doye George, Tharyan Tharyan Seema Oommen, S Sushamabai, TU Sukumaran

2. Some figures given in Table no. 6 (page 104) is incorrect. The corrected table is as given below

Site	Adults (n=34)	%	Paediatric (n=5)	%
Pulmonary	21	61.8	2	40
Pleural effusion	5	14.7	0	0
Lymph node	4	11.8	1	20
Meningitis	0	0	1	20
Spinal	2	5.9	0	0
Genitor urinary	1	2.9	0	0
Skin	1	2.9	0	0
Joint	0	0	1	20
Others	0	0	0	0

We deeply regret the above mentioned printing errors.

Editorial Team



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