



The Galle Medical Journal

Journal of the Galle Medical Association

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From the Editors,

The September issue of the Galle Medical Journal always coincides with the Annual Academic Sessions of the Galle Medical Association and it contains the abstracts of the oral and poster presentations selected for the sessions.

This year we have been able to issue both March and September issues on time and as Chief Editors we would like to extend our deep appreciation for the members served in the previous editorial board. Same time we would like to welcome the new editorial board selected for the next three years. The assistance of the editorial board and external reviewers is paramount to maintain the quality and relevance of the journal. Further, we would like to thank all researchers who selected GMJ to submit their work and we seek your continued support.

*Sarath Lekamwasam
Chandrani Liyanage
Editors / GMJ*

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GALLE MEDICAL JOURNAL; INSTRUCTIONS TO AUTHORS

The Galle Medical Journal is published by the Galle Medical Association. The *journal* is published biannually, March and September and the submissions are accepted throughout the year. The aims of the Journal are to foster co-operation among the medical fraternity and to be a forum to make literary contributions, share experiences encountered in medical practice, update their knowledge and have debates on topics related to all aspects of medicine. Also, we attempt to cater to the educational needs especially of the postgraduate trainees. The *Journal* publishes original articles, reviews, leading articles and case reports. When an article is reviewed for publication we expect that the work it reports has not been published, submitted simultaneously to another journal or accepted for publication elsewhere. All manuscripts will be reviewed anonymously before acceptance.

Manuscripts must be submitted with the text type written in 12-point Times New Roman font double spaced. Text and all illustrative material should be submitted in two hard copies and the electronic version in Microsoft Word document format. In order to avoid delay we require authors to comply with the following requirements. All manuscripts should accompany a covering letter indicating the number of words in the manuscript, institution where ethical clearance was granted, conflict of interests and contact details of the corresponding author.

Types of contributions:

Review articles and Leading articles: We encourage submission of review or leading articles which are less than 3000 words in length and address topics of current interest. They should be supported by no more than 20 references. Submissions may be subjected to external review before acceptance.

Original articles: Should normally be in the format of introduction, methods, results and discussion. Each manuscript must have a structured abstract of 200 words. The text should be limited to 3000 words and maximum of 5 tables/figures taken together with no more than 15 references. Lengthy manuscripts are likely to be returned for shortening. The discussion in particular should be clear, concise and should be limited to matters arising directly from the results. Avoid discursive speculation.

Case Reports: These should not exceed 750 words and 5 references; no abstract is required. Case report should be informative and devoid of irrelevant details.

References:

These should conform to the Vancouver style. The reference in the text should be numbered consecutively in Arabic numerals in parentheses in the same line of the text in the order in which they appear. The first five authors should be listed and if there are more than five, then the first three should be listed followed by et al. Examples are given below:

1. Kumar A, Patton DJ, Friedrich MG. The emerging clinical role of cardiovascular magnetic resonance imaging. *Canadian Journal of Cardiology* 2010; **26**(6): 313-22.
2. Calenoff L, Rogers L. Esophageal complication of surgery and lifesaving procedures. In: Meyers M, Ghahremani G, eds. *Iatrogenic Gastrointestinal Complications*. New York: Springer, 1981: 23-63.

Units/Abbreviations

Authors should follow the SI system of units (except for blood pressure which is expressed in mmHg). Authors should use abbreviations sparingly and they should be used consistently throughout the text.

Manuscripts that do not conform to these requirements will be returned for necessary modifications.

Manuscripts should be addressed to Chief Editors, Galle Medical Association, Teaching Hospital, Karapitiya.

A retinal change that can mimic many conditions in a young patient with PUO

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Case history

A 40-year old male developed a persistent febrile illness of unknown aetiology for three weeks of duration with severe sore throat, headache, blurring of vision, myalgia, multiple large joint pain and swelling including both knees, ankles and shoulders. His medical and family histories were unremarkable. On examination he was febrile (39.8°C) and there were cervical lymphadenopathy and mild hepatosplenomegaly. He had no skin rash. Rest of the physical examination was unremarkable but the examination of optic fundi showed the following abnormality.



What is your diagnosis?

1. Infective endocarditis
2. Systemic lupus erythematosus
3. Adult-onset still's disease
4. Vasculitis
5. HIV
6. Haematological malignancy

Discussion

Laboratory test showed normochromic normocytic anaemia (Hb - 8.9mg/dl), neutrophil leucocytosis (24000/ μ l with 86% neutrophils), 404,000/ μ l platelet, ESR of 126mm, and CRP of 78mg/dL. Liver and renal function tests, serum calcium were within normal limits. Screening for TB, blood cultures and urinalysis were negative. 2D echocardiogram was normal while US scan abdomen and the CT imaging of chest and abdomen showed only mild hepatosplenomegaly. Retroviral studies, Rheumatoid factor, ANA, anti CCP, anti ds-DNA antibody, ANCA, hepatitis screening were all negative. Bone marrow biopsy and aspiration showed reactive marrow. Serum ferritin was 3089 ng/ml.

Unifying diagnosis: Adult-onset still's disease (ASOD) with Purtscher-like retinopathy

ASOD was diagnosed according to the Yamaguchi criteria consisted of fever, arthralgia, typical rash and leucocytosis as major criteria, and sore throat, lymphadenopathy and or splenomegaly, liver dysfunction in the absence of rheumatoid factor and ANA as minor criteria. ASOD is diagnosed when ≥ 5 criteria including ≥ 2 major criteria are present with a 96.2% sensitivity and 92.1% specificity. Laboratory data typically reveal marked hyperferritinaemia, anaemia, thrombocytosis and leucocytosis.

Purtscher's retinopathy is an occlusive microvasculopathy associated with cranial trauma or thoracic compression. When trauma is not the aetiology, it is called purtscher-like retinopathy. Purtscher-like retinopathy is a rare association of AOSD. He was treated with indomethacin and steroids and showed a dramatic clinical response. After one week of treatment his serum ferritin was 708 ng/mL and the retinal exudates showed an improvement.

Pharyngo-Cutaneous fistula following drainage of a parapharyngeal abscess; a rare and challenging complication of tonsillitis

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Bacterial Tonsillitis, if prolonged or poorly controlled is known to give rise to potentially serious complications such as Quincy's abscess, Ludwig's angina, retropharyngeal abscess and parapharyngeal abscess. We discuss a rare complication, a pharyngo-cutaneous fistula which resulted from parapharyngeal abscess complicating tonsillitis and its successful management.

Case history

A 50-year-old Army Officer with history of diabetes was treated for follicular tonsillitis as an outpatient at a Base Hospital with oral co-amoxyclav for one week. He was feeling systemically unwell and blood sugar control while on usual oral hypoglycaemics was poor. His condition gradually deteriorated and voice changed markedly. He became extremely unwell with dysphagia, odynophagia, trismus and high fever. The patient was admitted to a private hospital in Galle and ultrasonography detected a left parapharyngeal abscess. His White Cell count was $17100/\text{mm}^3$ with 78% neutrophils. The drainage of the abscess was done promptly with an incision made along the anterior boarder of the middle third of the sternomastoid, under general anesthesia. This drained a large amount of pus which eventually grew *Streptococcus pyogenis*.

General condition of the patient improved after the surgery and his blood sugar was controlled with insulin. He was treated with a combination of broad spectrum intravenous antibiotics. However, three days later patient noticed a discharge coming through the previous surgical wound soon after he took liquids. Examination under anesthesia showed

the area of left tonsil and larynx inflamed and nodular, casting the doubt of a pharyngeal carcinoma. There was a fistula of about 10mm opening to the posterior part of the tonsillar fossa. Biopsy taken from the lesion, however, did not reveal the presence of any malignancy.

Patient was kept on nasogastric feeds for further 5 days. Fistula drainage was persist with the discharge of pus and saliva along the fistula tract, the wall of which included carotid sheath. The risk of a 'Carotid Blowout' and the possibility of other complications such as internal jugular vein thrombosis were considered and surgeons decided to accelerate the healing of the fistula. Feeding gastrostomy was done to bypass the troubled area. CT scan confirmed the absence of any residual collection. Nasogastric tube was removed to minimize irritation and bleeding around the internal opening. Drainage was minimal five days after gastrostomy but it took another 14 days for the wound to heal completely. Barium swallow on day 20 post-gastrostomy confirmed sealing of the fistula tract. Oral fluids were recommenced, gastrostomy tube was removed and patient was discharged three days later to his normal life following a total hospital stay of 30 days. Patient was back to his normal life 4 weeks after discharge.

Discussion

Parapharyngeal space is bound by constrictors, carotid sheath and small muscles of the neck. Infections of this space with abscess formation usually occur following tonsillitis or pharyngitis. Parapharyngeal abscess is the second most common deep neck abscess after peritonsillar abscess (1).

It is much more common in children although adults who are immunocompromised due to conditions such as diabetes too may suffer (2). They present with swinging fever, sore throat, dysphagia, odynophagia, change in voice and patients are generally very unwell. Trismus and drooling is not uncommon. Aggressive approach is demanded as the condition is potentially fatal via many mechanisms ranging from upper airway obstruction, mediastinitis, “carotid blowout”, internal jugular vein thrombosis and septic embolization (3).

Diagnosis is generally made with clinical findings supported by imaging. Ultrasound scan is valuable but CT scan can be considered the Gold Standard (3).

Smaller abscesses can be managed by intravenous antibiotics alone (2) or with added steroids and fine needle aspiration (3,1). Due to the prevalence of streptococci and staphylococci in pathogenesis preferred firstline antibiotics are amoxicillin and clavulonic acid combinations (3). Significant proportion needs surgical drainage (1,3). Techniques include intra-oral incision and external incision (4). Average hospital stay has been in the region of 12 days following surgical intervention and 8 days after conservative management (2).

Our patient developed oropharyngo-cutaneous fistula, an extremely rare complication of tonsillitis. The delayed presentation, inadequate treatment and poorly controlled diabetes mellitus were likely contributing factors. Early aggressive approach to the management of diabetes and intravenous antibiotics may probably have averted the situation. Pharyngocutaneous fistulae are more common due to malignancies of the region and subsequent surgical procedures such as laryngectomy facilitated by radiotherapy scarred tissues. Authors were unable to find a case of pharyngocutaneous fistula following a parapharyngeal abscess in the literature review. Clinical examination, high WBC count and USS were sufficient for the diagnosis. Although parapharyngeal abscess was managed promptly with incision and drainage, irritation by subsequent nasogastric tube may have contributed to fistula formation making internal wall to break down. After identifying the internal opening under anaesthesia, this unexpected and dangerous complication was dealt by early feeding gastrostomy abandoning the widely used option of conservative measures including nasogastric feeding (5).

This intermediate procedure contributed to early recovery of the patient while minimizing the risk of fatal complications. It also avoided the need for advanced surgical options such as flaps (5). Another intermediate option would have been to introduce parenteral nutrition instead of feeding gastrostomy but it has its own share of inherent complications. Total hospital stay was prolonged to 30 days but it was unavoidable for this rare complication. Early gastric or jejunal stoma has a value in settling many infective and inflammatory complications of upper gastrointestinal tract and avoiding life threatening complications.

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A case of Systemic Lupus Erythematosus in a male presenting as chronic headache

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Introduction

Systemic Lupus Erythematosus (SLE) is a chronic inflammatory disease that follows a relapsing and remitting course. More than 90% of cases of SLE occur in women and signs and symptoms mostly are of dermatological, musculoskeletal and haematology related. The prevalence of headache in SLE is about 25% (1). We report a middle age male presented with chronic headache, later detected to have SLE.

Case report

A 44-year-old male was admitted with chronic headache and cough for four months duration. The headache was generalized and persisted throughout the day and it wasn't associated with fever, photophobia and visual impairment or vomiting. The cough was nonproductive initially but towards the latter part of illness he had mild haemoptysis. There was no history of significant loss of weight or appetite. He also complained of dark pigmentation of face when exposed to sunlight. Later he had daily fever without any obvious focus of infection.

On physical examination he was pale and found to have left posterior cervical lymphadenopathy and subtle evidence of a malar rash. Neurological examination was normal except the soft exudate found in the right fundus. He had no papilloedema and the rest of the physical examination was normal.

His ESR was 105 mm in the first hour and CRP was 2.4g/L. Full blood count revealed anaemia (Haemoglobin 8.8 g/dL) and thrombocytopenia (52×10^9). Blood picture revealed normochromic normocytic anemia with thrombocytopenia. Direct

antibody test was negative and Retic count was normal. He had positive ANA with a titer of 1:1280 and positive dsDNA with a titer of 1 : 40. His contrast enhanced cranial CT was normal. Biopsies cervical lymph node showed necrotizing lymphadenitis.

The diagnosis of SLE was made due to the presence of following four criteria, namely

- 1) photosensitive rash
- 2) haematological abnormalities: anaemia and thrombocytopenia
- 3) positive ANA
- 4) positive dsDNA

and supportive evidence of SLE such as cytooid bodies and necrotizing lymphadenitis. He was started on prednisolone 45mg daily and his headache improved gradually following steroids and fever subsided.

Discussion

SLE is an autoimmune disease in which organs and cells undergo damage initially mediated by tissue-binding auto-antibodies and immune complexes (1). The disease is commonly seen in women (90%) in child bearing age. The presentation of illness can be constitutional, musculoskeletal, dermatologic, renal, neuropsychiatric, pulmonary, gastrointestinal, cardiac, hematologic manifestations (2,3). The diagnosis of SLE can be made in the presence of four out of eleven American College of Rheumatology (ACR) criteria (4).

Among patients with SLE headache is seen in 25% of affected (1). It is not specifically related to the disease severity and the presence of severe headache

is not indicative of cerebral lupus in the absence of psychosis or seizures (5). Migrainous-type headaches are commoner in patients with SLE than normal population (6). The other rare association of headache in patients with SLE is Idiopathic Intracranial Hypertension (IIH) (7).

Headache remains common and significant symptom among SLE patients, but headache as presenting symptom of it rare. We were able to confirm his condition due to the findings in the history and examination. Generally patients with chronic headaches are subjected to a focus history and limited examination. This case highlights the need of a detailed history and examination in all patients despite their complains. Apart from papilloedema which is routinely checked in patients with headache, other subtle changes in the retina and blood vessels also need to be examined.

The other differential diagnosis of chronic headache and high ESR includes temporal arteritis, but the younger age, absence of tender temporal arteries and with highly positive ANA and dsDNA were against this diagnosis. His fundus didn't show evidence of papilloedema and cranial CT also showed no evidence of a cranial pathology.

Conclusion

Headache is not an uncommon symptom in patients with SLE but some patients with SLE may have chronic headache as a presenting symptom. Detailed history and physical examination would indicate the presence of underlying multisystem diseases such as SLE.

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Different presentations of CADASIL; importance of a detailed history

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Introduction

Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) is a rare autosomal dominant arteriopathy characterized by migraine, mood disorders, progressive vascular dementia and recurrent subcortical infarcts. It is caused by mutations in NOTCH3 gene on chromosome 19q12. CADASIL is the most common heritable cause of stroke and vascular dementia in adults with equal sex distribution (1). We report a case of probable CADASIL presented with abnormal behavior.

Case report

A 33-year-old male admitted with recent change in behavior, aggressiveness and mood swings. There were no specific features to suggest a bipolar affective disorder or depression. He gave a history of migraine for six years which had been managed symptomatically.

During the previous year he had several transient cerebral ischaemic episodes and minor strokes. One month before admission he has had a similar behavioral change and EEG and Contrast CT Brain done then had been normal. Further questioning revealed slight impairment of his memory. There was no past history of optic neuritis. His mother was on treatment for adult-onset epilepsy since the age of 30 years.

His physical examination was unremarkable including optic fundi. He scored 22/30 on the Montreal Cognitive Assessment (MoCA) test (Normal $\geq 26/30$) while his mini mental state examination scored 28/30.

MRI of the brain showed T2 weighted hyperintensities on frontal, parietal, temporal and occipital lobes. Lesions were predominantly seen in the subcortical and deep white matter (Figure).

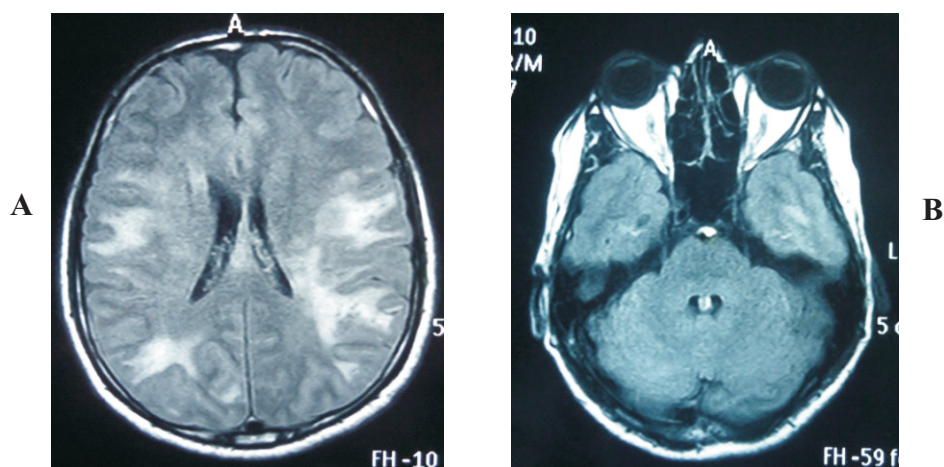


Figure: MRI Brain with FLAIR showing high signal intensity lesions in the periventricular and Subcortical deep white matter (A) High signal intensity lesions in the temporal poles

Routine haematological and biochemical tests were within the normal range and further investigations showed normal thyroid function tests, homocysteine levels, negative TPHA, ANA, and HIV antibody. Cerebral fluid analysis was normal with a negative result for oligoclonal bands.

We treated him with sodium valproate, folic acid, atorvastatin, propranolol and flunarizine. On discharge patient was apparently well and back to complete independent state.

Three months later he was readmitted with an episode of generalized tonic clonic seizure and receptive aphasia. Repeat MRI brain revealed left side temporo-parietal intra cranial haemorrhage in addition to the initial MRI findings. Later the patient improved with rehabilitation and conservative measures.

According to the symptomatology and spectrum of clinical presentation probable diagnosis of CADASIL was considered. Genetic studies required for confirmation of the diagnosis are currently not available in Sri Lanka.

Discussion

CADASIL was the probable diagnosis in our patient based on his clinical presentation of altered behavior, migraine, transient cerebral ischaemic episodes, cognitive deficits detected on the MoCA test and the suggestive findings in MRI brain.

CADASIL is essentially characterized by main symptoms of migraine with aura, sub cortical ischaemic events, mood disturbances, apathy and cognitive impairment. The clinical features vary in frequency with age and duration of disease. Typical clinical progression of CADASIL tends to occur sequentially; initially with migraine with aura around the age of 30 years and then transient ischaemic episodes, strokes and mood disorders between the ages of 40 - 60 years. Impairment of executive function is the earliest sign of cognitive impairment in CADASIL (2).

MRI is the investigation of choice. It demonstrates wide spread confluent T2 weighted white matter hyperintensities mainly on periventricular area of frontal and temporal lobes and subcortical deep white matter (3). Genetic analysis is the gold standard in diagnosis. Detection of NOTCH3 mutation or by identifying osmiophilic material within the lamina in

skin biopsy on electron microscopy aids in diagnosis of CADASIL. But absence of these findings does not necessarily exclude the disease. Genetic analysis was not done in our patient due to the unavailability of this facility in Sri Lanka (4,5).

NOTCH3 codes for transmembrane receptor protein located on the surface of vascular smooth muscle cells surrounding the arteries. Accumulation of pathologic NOTCH3 receptor protein in small and medium sized cerebral arteries is responsible for the pathogenesis and phenotypic presentation of CADASIL. It's a unique non-arteriosclerotic, non amyloid angiopathy involving small arteries and capillaries, which is largely limited to the brain (1).

There is no specific treatment currently available for CADASIL. Antiplatelet might slow down the disease and help to prevent strokes, but there is no proven benefit. Migraine is managed symptomatically but use of triptan is usually contraindicated due to increased risk of stroke. Administration of tPA following stroke in CADASIL is not advisable due to increased risk of microhaemorrhages (1). Several medications have been used to prevent migraine in patients who have frequent and or severe attacks. It includes sodium valproate, topiramate, gabapentin, propranolol and tricyclic antidepressants. Homocysteine levels are elevated in CADASIL and treatment with folic acid is reasonable (1).

We feel that clinicians may miss many cases of CADASIL if the condition is not suspected and necessary investigations are not performed. As a learning point, this case highlights the importance of obtaining a detailed history in young patients presenting with TIA or strokes. General tendency is to inquire about the conventional risk factors of vascular diseases but the history of migraine with aura and behavioral abnormalities in the past may indicate an alternative etiology. This can influence the management of these patients in two ways. In the acute management thrombolytic agents should be withheld if CADASIL is suspected based on the history. Furthermore, MRI should be chosen as the first imaging technique in suspected cases. This may show the changes typical of CADASIL and hence direct the further investigations and management in a different direction.

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From the Editors,

The September issue of the Galle Medical Journal always coincides with the Annual Academic Sessions of the Galle Medical Association and it contains the abstracts of the oral and poster presentations selected for the sessions.

This year we have been able to issue both March and September issues on time and as Chief Editors we would like to extend our deep appreciation for the members served in the previous editorial board. Same time we would like to welcome the new editorial board selected for the next three years. The assistance of the editorial board and external reviewers is paramount to maintain the quality and relevance of the journal. Further, we would like to thank all researchers who selected GMJ to submit their work and we seek your continued support.

*Sarath Lekamwasam
Chandrani Liyanage
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GALLE MEDICAL JOURNAL; INSTRUCTIONS TO AUTHORS

The Galle Medical Journal is published by the Galle Medical Association. The *journal* is published biannually, March and September and the submissions are accepted throughout the year. The aims of the Journal are to foster co-operation among the medical fraternity and to be a forum to make literary contributions, share experiences encountered in medical practice, update their knowledge and have debates on topics related to all aspects of medicine. Also, we attempt to cater to the educational needs especially of the postgraduate trainees. The *Journal* publishes original articles, reviews, leading articles and case reports. When an article is reviewed for publication we expect that the work it reports has not been published, submitted simultaneously to another journal or accepted for publication elsewhere. All manuscripts will be reviewed anonymously before acceptance.

Manuscripts must be submitted with the text type written in 12-point Times New Roman font double spaced. Text and all illustrative material should be submitted in two hard copies and the electronic version in Microsoft Word document format. In order to avoid delay we require authors to comply with the following requirements. All manuscripts should accompany a covering letter indicating the number of words in the manuscript, institution where ethical clearance was granted, conflict of interests and contact details of the corresponding author.

Types of contributions:

Review articles and Leading articles: We encourage submission of review or leading articles which are less than 3000 words in length and address topics of current interest. They should be supported by no more than 20 references. Submissions may be subjected to external review before acceptance.

Original articles: Should normally be in the format of introduction, methods, results and discussion. Each manuscript must have a structured abstract of 200 words. The text should be limited to 3000 words and maximum of 5 tables/figures taken together with no more than 15 references. Lengthy manuscripts are likely to be returned for shortening. The discussion in particular should be clear, concise and should be limited to matters arising directly from the results. Avoid discursive speculation.

Case Reports: These should not exceed 750 words and 5 references; no abstract is required. Case report should be informative and devoid of irrelevant details.

References:

These should conform to the Vancouver style. The reference in the text should be numbered consecutively in Arabic numerals in parentheses in the same line of the text in the order in which they appear. The first five authors should be listed and if there are more than five, then the first three should be listed followed by et al. Examples are given below:

1. Kumar A, Patton DJ, Friedrich MG. The emerging clinical role of cardiovascular magnetic resonance imaging. *Canadian Journal of Cardiology* 2010; **26**(6): 313-22.
2. Calenoff L, Rogers L. Esophageal complication of surgery and lifesaving procedures. In: Meyers M, Ghahremani G, eds. *Iatrogenic Gastrointestinal Complications*. New York: Springer, 1981: 23-63.

Units/Abbreviations

Authors should follow the SI system of units (except for blood pressure which is expressed in mmHg). Authors should use abbreviations sparingly and they should be used consistently throughout the text.

Manuscripts that do not conform to these requirements will be returned for necessary modifications.

Manuscripts should be addressed to Chief Editors, Galle Medical Association, Teaching Hospital, Karapitiya.

The ability of functional mobility tests to identify elderly with recurrent falls

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ABSTRACT

Introduction: Falls are common and often a devastating problem among elderly people causing a tremendous amount of morbidity, mortality and use of health care facilities. Prognostic tools are needed to identify elders with an increased risk of falling in order to take preventive actions. Frequently used tools include Timed Up and Go test (TUG), Five times Sit To Stand (5-STs) and Six Meter Walk Test (SMWT). The present study was performed to assess whether the TUG, 5-STs and SMWT were different between elderly fallers and non fallers, and to test their ability to discriminate them.

Methods: Study was carried out on hospital patients in a tertiary care hospital in the Southern province. Elderly patients attending medical clinics in this hospital were considered for the selection of study sample. Patients who self reported multiple falls within the previous 12 months were recruited as cases and age and sex matched patients without falls during last 12 months were recruited as controls.

Results: There is no significant difference between the mean durations of SMWT and 5-STs among fallers and non-fallers. However, mean duration for the test TUG was significantly higher among fallers compared to non-fallers. According to the ROC analysis, best TUG cut- off point to identify the fallers was 11.8 seconds which was associated with sensitivity of 80% and specificity of 60%.

Conclusion: Of the mobility tests examined, TUG provided the best discrimination between multiple fallers and non-fallers. Thus it can be used to identify the patients who are at risk of falls.

Introduction

Falls are common and often a serious problem among elderly people causing a considerable morbidity, mortality and use of health care facilities. A fall is usually defined as “an event which results in the person coming to rest inadvertently on the ground or other lower level, and other than as a consequence of the following: sustaining a violent blow, loss of consciousness, sudden onset paralysis, an epileptic seizure” (1). According to the previous studies, 28 - 35% of community dwelling older people over 64 years of age fall each year and those who are 70 years and older, approximately 32 - 42%

fall each year (2). The unintentional injuries are the fifth leading cause of death in older people (after cardiovascular disease, cancer, stroke and pulmonary disorders), and falls contribute to 2/3 of these deaths. In United States, about 3/4 of deaths due to falls occur in 13% of the population aged above 65. About 40% of this age group living at home, experience a fall at least once each year and about 1 in 40 of them needs to be hospitalized (3).

When falls are associated with fracture of the proximal femur they carry a high degree of morbidity and mortality. Even minor falls lead to loss of self confidence and low quality of life. This can also have

significant economic problems because of the cost of inpatient care and also loss of independence and the cost of residential care. Previous studies suggest that about 50% of patients who live independently before sustaining hip fracture are unable to do so afterwards. Nearly 5-12% of hip fracture patients discharged to post acute care facility are readmitted to hospital within six weeks. About 5-10% of patients die within one month, whilst around 20-30% dies within one year (4). In 1999, the total cost to the UK government for unintentional falls was almost one billion pounds (5).

Prognostic tools are needed to identify individual with an increased risk of falling in order to take preventive actions. Frequently used tools include Timed Up and Go test (TUG), Five times Sit To Stand (5-STs) and Six Meter Walk Test (SMWT). However, most of these tests have not been validated prospectively in large representative samples of elderly people, making their predictive accuracy uncertain (6,7).

The world is aging and in Sri Lanka as in other countries, rapidity of population aging continues. In 1991 elderly population (age 60 and over) was 1.4 million. But in 2021, projected number will be 4.0 million (8). Therefore, total cost for the management of falls and its related morbidity among elderly population would be high in near future. The objective of study was to assess whether the TUG, 5-STs and SMWT were different between elderly fallers and non fallers, and to test their ability to discriminate them.

By evaluating functional mobility tests in our population we will be able to identify the people who are at risk of falling and manage accordingly. Even though there are several studies done in other countries to evaluate functional mobility test among elderly population, not sufficient studies have been done in Sri Lanka (6,7,9).

Methods

This was a cross-sectional study involving clinic patients in a tertiary care hospital (Teaching hospital Karapitiya) in the Southern province. Elderly patients attending medical clinics in this hospital were considered for the selection of the study sample.

Cases were the elderly (age > 65 yrs) who had experienced multiple falls (two or more falls) during the previous 12 months. A fall was defined as any event that led to an unplanned, unexpected contact with a supporting surface. Patients with acute illness or injury which impaired their ability to walk or maintain balance were excluded. Controls of the study were selected from the same clinics. They were elders (age >65ys) who did not experience any falls within previous 12 months. After recruiting the participants were given a demonstration and explanation of each functional mobility test.

- 1) 5-Sit To Stand test (5-STs): Participants were asked to rise from a standard height (36cm) chair without arm rest, five times, as fast as possible with their arms folded. Performance was measured in seconds, as the time from the initial seated position to the final seated position after completing five stands.
- 2) Six Meter Walk Test (SMWT): Participants were asked to complete a six meter walk test measured in seconds along a corridor at their normal walking speed. A 2m approach and a further 2m beyond the measured 6m distance and ensured that walking speed is constant across the 6m.
- 3) Timed Up and Go test (TUG): was the timed performance of getting up from a chair, walking 3m, turning around and walking back to sit down again.

Descriptive statistical methods were used to describe the participants. Mean time taken to complete each test was compared between fallers and no- fallers. Receiver Operator curve was utilized to determine the cut-off values.

Results

Table 1 shows the socio-demographic factors of the study participants. Age and gender were similarly distributed among fallers and non-fallers since we selected age and sex matched non-fallers as controls.

Further, there is no significant difference of the distribution of selected vascular diseases among fallers and non-fallers (Table 2).

Table 1: Socio-demographic factors of study participants.

Variable	Fallers		Non-fallers	
Age	Mean 72.26 years SD 7.14 Range 65 years to 94 years		Mean 72.26 years SD 7.14 Range 65 years to 94 years	
Gender	Number	Percentage	Number	Percentage
Male	24	50%	24	50%
Marital Status	Number	Percentage	Number	Percentage
Married	40	46.5%	46	53.5%
Unmarried	7	63.6	4	36.4%
Separated	1	100%	0	0.0%

Table 2: Distribution of selected major vascular diseases among study participants.

Non communicable disease	Faller		Non Faller	
	Number	Percentage	Number	Percentage
Diabetes Mellitus	21	48.8%	22	51.2%
Ischemic heart disease	20	55.5%	16	44.5%
Stroke	10	62.5%	6	37.5%

Fallers spent more time in completing the TGU compared to non-fallers and this difference was significant (Table 3). The differences of other tests between the two groups were not statistically significant.

Table 3: Mean duration for each test by fallers and non-fallers.

The Test	Mean Duration in seconds		Difference
	Fallers	Non-Fallers	
SMWT (Six Meter Walk Test)	10.8	9.1	T statistic 1.4 P= 0.15
5 – STS (5-Sit To Stand test)	20.0	18.5	T statistic 1.09 P= 0.27
TUG (Timed Up and Go test)	16.0	12.3	T statistic 2.7 P= 0.008

Using the data, faller, non-faller status and the time taken to complete the test TUG, ROC curves were drawn by plotting the sensitivity against 1- specificity. The point where the curve turn to left was taken as the best cut off point. In this situation, specificity was also considered to minimize the false positives.

Table 4: Area under the ROC curve

Area	Std. error	Significance	95% CI
0.72	0.05	P<0.0001	Lower 0.62 Upper 0.82

Area under the curve is 0.722 and therefore this test (TUG) has a good ability to distinguish fallers from non-fallers.

Table 5: Selected Coordinates of the curve

Positive if greater than or equal	Sensitivity (%)	Specificity (%)
**11.8	80	60
12.0	78	62
12.2	76	64
12.6	74	66
13.0	72	66

According to the coordinates of the curve, best cut off point to identify the fallers was considered to be 11.8 seconds in the test TUG with the sensitivity of 80% and specificity of 60%.

Discussion

Falls prevention is an important part of health care of older population. An ability to identify older people who are at risk of future falls is essential for the preventive interventions among high risk individuals. This study assessed the relative ability of three functional mobility tests to predict elderly with recurrent falls.

Multiple fallers performed worse than non fallers in all three tests: TUG, SMWT and 5-STTS, when analyzed as continuous variables. However, TUG provided the best discrimination between multiple fallers and non fallers in a scientific analyze with p value of p=0.008. This finding is keeping with the recommendation of American and British geriatrics societies to use TUG as the screen test for fallers (10).

We found 11.8 seconds as the optimal cut point for discrimination between multiple fallers and non fallers in this population with 80% sensitivity and 60% specificity.

However, it is unlikely that any single functional mobility test will be shown to have excellent predictive value as it is known that the cause of falls are multifactorial with several unrelated to mobility. For example: poor vision, cognitive impairment and cardiovascular conditions lead to falls independent of mobility limitations.

Thus, the identification of a single mobility test for the accurate prediction of falls is a challenge and such test should be used only as initial screens for identifying older people in need of further assessment.

This study was conducted in a cross-sectional manner and it is a major limitation of this study. Ideal would have been to assess a group of elderly using all three tests and then follow them in a prospective manner. Recurrent fallers can be documented and data can be correlated to the baseline mobility data to identify the best test and the cut-off value. That would have given the best predictive value. Until such data is available the TUG test can be used as an inexpensive screening tool of recurrent falls among elderly in our clinical set ups.

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Health effects of pollution of operating theatre environment with halothane during anaesthesia; a comparative study

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ABSTRACT

Introduction: The possible adverse effects of long-term anaesthetic gas exposure on medical personnel working in operating theatres were analysed. The results of this study could be used to improve the gas scavenging techniques.

Methods: An analysis of data obtained from a questionnaire administered to 40 health care workers working in the theatre environment (exposed group) and another 40 working outside the theatre (unexposed group).

Results: Symptoms such as headache (30 subjects vs 5 subjects), dizziness (18 subjects vs no subjects), drowsiness (30 subjects vs no subjects), and irritability (5 subjects vs no subjects) were significantly higher among exposed compared to the unexposed group. The Chi-square analysis showed a P value less than 0.001 for the above symptoms.

Conclusions: There is a higher prevalence of symptoms related to nervous system among people exposed to theater environment. Scavenging anaesthetic gases becomes difficult when un-cuffed tubes and open circuit are widely used, such as in paediatric practice. This significantly exposes the theatre staff to anaesthetic gases. A low flow closed breathing circuit along with a scavenging system should be used at all times unless there is a reason not to do so.

Keywords: Pollution, scavenging, theatre environment

Introduction

Pollution of theatre environment with anaesthetic gases and vapour may cause significant adverse effects on the theatre staff, in particular on anaesthetists. This may contribute to a variety of effects ranging from tiredness and lack of concentration after work to recurrent miscarriages and elevated liver enzymes.

Scavenging of anaesthetic gases is a standard procedure in modern theatre facilities. However, even in a modern unit scavenging becomes difficult when un-cuffed tubes and open circuits are used as in paediatric surgery.

The objective of this research project was to determine whether staff members of the operating theatre have symptoms related to long-term anaesthetic gas exposure, such as fatigue, headache, dizziness, nausea, drowsiness, irritability and lack of agility, compared to the staff working outside the theatre environment.

Methods

The exposed group consisted of 40 doctors and nurses working in the theatre complex of Teaching hospital, Karapitiya and another 40 doctors and nurses working in the Surgical Intensive Care Unit,

Medical Intensive Care Unit, Paediatric Baby Unit or Neonatal Unit formed the unexposed group. For the exposed group, only the doctors and nurses who regularly worked for 6 to 8 hours a day in the operation theatre for more than one month were considered. Those who used alcohol more than 40 units per week and those who were on antidepressants or sedatives were excluded from the study. Data were collected using a structured data collection form given to the exposed and unexposed groups.

Results

The exposed group consisted on 15 males. Number of doctors was 34 and the rest (6) were nurses. Mean age of the group was 39ys. There were 10 males in

the unexposed group. Number of doctors in the unexposed groups was 10 while the rest (30) were nurses. Mean age of the group was 30ys (Table 1).

Of the 40 in the exposed group, 35 had worked for an average duration of 8 hours a day in the theatre environment. Thirty reported some adverse effects after work. The commonest was headache (30 subjects) and in 20 of them headache has lasted for 1 to 2 hours after work. However, of the 30 who complained of headache after work eight were known to suffer from migraine.

In the unexposed group consisted of 40 subjects, only five reported headache after work. None of them complained about any other adverse effects inquired (Table 2).

Table 1: Characteristics of the subjects in the exposed and unexposed groups

Variable	Exposed group	Unexposed group
Mean age (ys)	39	30
Number of males	15	10
Number of doctors	34	10
Number of nurses	6	30

Table 2: Prevalence of adverse effects among exposed and unexposed

Variable	Exposed group	Unexposed group	P value
Headache	30/40	5/40	< 0.001
Dizziness	18/40	0/40	< 0.001
Drowsiness	30/40	0/40	< 0.001
Irritability	5/40	0/40	0.021
Nausea	0	0	-
Fatigue	0	0	-

P compares the proportions between the two groups

The P values for the symptoms of headache, dizziness, and drowsiness were statistically significant.

Discussion

This study found a higher prevalence of symptoms related to nervous system among health care workers exposed to theater environment. Health care workers who also worked in a similar physical environment but not exposed to theater had a lower prevalence of these symptoms.

Carl Johan *et al* reported to the Scandinavian Journal of Work Environment the possible teratogenic effect of anaesthetic agents as shown by animal experiments. They also found a high incidence of pregnancy complications among female anaesthesiologists (1). The authors also observed that the method used for administering anaesthesia affects the exposure of the medical personnel involved. A face mask produced heavier exposure than administration via a tracheal tube. No re-breathing anaesthetic systems resulted in greater exposure. Also the exposure tended to be greater when the patient breathed spontaneously than when his respiration was controlled. The elimination of halothane was considerably lower. Low residual concentrations of anaesthetic agents were demonstrable in end-expired air for a long time in the studied group of theatre nurses (2).

Murrin has observed sporadic reports of varying ill-health (nausea, myalgia and headache) among personnel working in the theatre environment. By a process of elimination, he concludes that atmospheric pollution with volatile agents to be the most possible explanation for the reported ill-health (3). No one has yet postulated a safe limit of contamination of anaesthetic agents in the theatre environment. Murrin suggested that threshold limits are of little value because of the chronicity of exposure involved with theatre pollution (3). According to him considerable concentration occurs around the face mask through ill-fitting joints as well as diffusion through rubber. Contamination can also occur when patients are transferred from the anaesthetic room to the recovery (3).

According to many authors efficient venting of anaesthetic gases right at the source of leakage, generally results in very significant reduction in the concentration of air borne anaesthetics (2, 4-7).

Scavenging anaesthetic gases becomes difficult when un-cuffed tubes and open circuit are widely used, such as in paediatric practice. This significantly exposes the theatre staff to anaesthetic gases. A low flow closed breathing circuit along with the scavenging system should be used at all times unless there is a reason not to do so.

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Can we reduce failed instrumental delivery?

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ABSTRACT

Background: Second stage caesarean sections following failed instrumental delivery are in rising trend. Maternal and neonatal risks are significantly high following failed instrumental deliveries. Identification of contributing factors is important to modify the success rate of instrumental delivery. The objective of this study was to identify the potential contributing factors for failed instrumental delivery and to assess major maternal and neonatal morbidity associated with such deliveries.

Methods: This retrospective observational study was carried out in the Obstetric Department, St. Richard's Hospital, United Kingdom from 01st December 2011 to 30th April 2012. Data collection was carried out using proforma. Contributing factors were predetermined.

Results: Total number of births during particular period was 2825. There were 44 failed instrumental deliveries out of 275 trials. The overall rate of failed instrumental delivery was 16%. In 54.5% (24 of 44) of cases, consultant was not present physically at the time of delivery. Position of the head was not properly determined in 32% (14 of 44) of cases. Eighteen (41%) deliveries had been carried out by junior doctors (\leq ST₃). Thirty one (70%) of patients had attempted ventouse deliveries. Twenty five (58%) women had primary postpartum haemorrhage and 21% (9) of newborn babies had cord pH \leq 7.2.

Conclusion: Significant number of failed instrumental deliveries happened due to the lack of consultant involvement, involvement of junior medical staff, failure to determine position of head and more frequent use of ventouse rather than forceps. There were significant major neonatal and maternal morbidities. We recommend structured junior staff training on instrumental delivery with assessment of competencies. Consultant involvement and appropriate use of instruments are important to optimize success rate of instrumental delivery.

Key words: Failed instrumental delivery, Second stage caesarean section, Operative vaginal delivery

Introduction

Safe and effective management of second stage of labour presents a clinical challenge for labouring women and practitioners in obstetric care. There has been a disproportionate rise in caesarean sections performed in second stage of labour, specially following failed instrumental delivery in the last few years (1). Maternal and neonatal risks are significantly high after failed instrumental deliveries (2). Although second stage caesarean section is

appropriate in some instances, many could be prevented by necessary attendance of senior obstetric staff, comprehensive assessment of suitability of instrumental delivery and the use of appropriate instrument (3).

Despite much discussion on the increase in elective caesarean section rate over the past twenty years, little attention has been paid to the rise in second stage caesarean section rate (3). This study focused on factors which contribute to second stage

caesarean section rate following failed instrumental delivery. Our main objective was to identify potential contributing factors for failed instrumental delivery. Also we wished to determine major maternal and neonatal morbidity associated with such deliveries.

Methods

This study was carried out as a retrospective observational study in the Obstetric Department, St. Richard's Hospital, United Kingdom from 01st December 2011 to 30th April 2012. Ethical approval was obtained from the ethics and research committee of West Sussex NHS Trust. All eligible women were identified with the help of the Data Management Team of Women Health. All consecutive women delivered by caesarean section following failed trial of instrumental were recruited. Proforma was used to collect data from hospital notes. Potential contributing factors for failed instrumental delivery were predetermined.

Results

Total number of births was 2825. Number of caesarean sections performed was 887. Forty four women underwent caesarean section after failed trial of instrumental delivery out of 275 attempted. The overall rate of failed instrumental delivery was 16%.

Table 1: Demographic data

Category	Value
Mean age (range)	29 year (19 - 39)
Mean BMI (range)	26.4 kgm ⁻² (20 - 37)
Parity (P ₀)	86%
Period of gestation (range)	40 weeks (36 - 42)
Birth weight (range)	3.2 kg (2.8 - 4.2)

Of the 44 failed instrumental deliveries, in 24 (53%) cases, consultant was not present, physically, at the time of the delivery. However, all (44) cases has been informed to the relevant consultant.

Position of the head was not properly determined in 32% (14/44) women. Major two positions were DOP (41%) and OT (19%). Eighteen (42%) deliveries has been carried out by junior staff ($\leq ST_3$) while 15 (35%) deliveries has been done by consultants and the rest of deliveries (28%) (11) by SpR $> ST_3$. Ventouse has been attempted in 31 (71%) deliveries while 9 (20%) were forceps deliveries and 4 (9%) were sequential use of instruments. Twenty five (58%) women had primary postpartum haemorrhage while 04 had uterine angle extensions. Nine (21%) newborn babies had cord pH ≤ 7.2 .

Discussion

Rate of failed instrumental deliveries in our study was 16%, which is almost equal to the UK national average of 15% (4). Currently obstetric trainees perform most of trial of instrumental deliveries without consultant involvement. A recent UK study found that decisions made by consultant obstetric staff are important in determining whether a second stage caesarean section is the optimal method of delivery for women with delayed second stage of labour (5). However, in our study in majority of cases consultant was not present physically when the decision was made and almost half of deliveries were carried out by junior medical staff.

The Royal college of Obstetricians and Gynaecologists recommends the presence of consultant obstetrician whenever a caesarean section is performed in second stage of labour (1). Without enhancing junior doctor's experience the problem with second stage caesarean section after failed instrumental delivery will rise.

It is well known that failure rate with ventouse is more likely than forceps. In those births when instrumental delivery was attempted, an audit found failure rate of 35% for ventouse and 2% for forceps (1). In our study, in vast majority of deliveries the attempted method was ventouse.

Issues related to training of junior doctors are paramount important for safe and successful delivery. In addition to other prerequisites recommended by the RCOG, identification of position of the fetal head is vital for successful delivery (6). In our study in almost one third of cases, position of fetal head was not properly determined.

Caesarean section in the second stage of labour after failed instrumental is a difficult procedure. The common maternal complications are postpartum haemorrhage, sepsis, uterine tears. Neonatal morbidity such as birth asphyxia, trauma and admission to neonatal unit are significantly high (2).

Our study clearly shows that failed instrumental deliveries are associated with lack of consultant direct supervision, failure of correct identification of the position of the fetal head, involvement of junior staff and the use of ventouse. There was a significant number of maternal and neonatal morbidity in caesarean section after failed instrumental delivery.

We would recommend the need of a physical involvement of consultant in delivery of failed trial of instruments. It is a timely requirement to develop and maintain junior staff skills for safe and effective instrumental delivery through structured training and assessment of competencies. Development of unit guidelines adapted from the RCOG Green Top Guidelines is necessary for uniform and evidence based practice. Timely auditing will ensure identification of deficiencies and reinforcement of those deficiencies.

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Cardiovascular risk factors, socioeconomic determinants and angiographic severity of coronary artery disease in patients awaiting coronary artery bypass graft in a provincial hospital Sri Lanka

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ABSTRACT

Introduction: The age-standardized death rate of coronary heart disease has shown a downward trend in many developed countries while an upward trend has been seen in developing countries with demographic changes, urbanization, and lifestyle changes. The aims of our study were to study the prevalence of cardiovascular risk factors (CVRFs), socioeconomic determinants and explore the relationship between CVRFs and angiographic severity of coronary artery disease (CAD) in a cohort of patients awaiting coronary artery bypass graft (CABG).

Methods: It was a cross-sectional descriptive study. One hundred and forty one consecutive male patients with angiographically diagnosed CAD were selected. We examined the relationship between traditional CVRFs and atherosclerotic burden assessed by different vessel scores.

Results: Mean (SD) age of the subjects was 56 (8) years. The prevalence of CVRFs was high in the study group. Majority of them were in the lower socioeconomic status (SES). The analysis indicated that there were no significant correlations or a significant predictive value of CVRFs with the severity of CAD.

Conclusions: Severity of coronary artery disease estimated by angiographic scores appears to correlate poorly with established traditional cardiovascular risk factors.

Key words: Cardiovascular risk factors, Socioeconomic determinants, Angiographic severity of coronary artery disease.

Introduction

The age-standardized death rate of coronary heart disease has shown a downward trend in many developed countries while an upward trend has been seen in developing countries such as Sri Lanka with demographic changes, urbanization, and lifestyle changes (1,2). Coronary artery disease (CAD) is one of the leading causes of mortality in men. Traditional cardiovascular risk factors (CVRFs) such as advancing age, diabetes mellitus, hypertension, dyslipidaemia, smoking, obesity, and family history

of CAD are well recognized for their association as risk factors with CAD (3). However, the correlation between CVRFs and atherosclerotic burden, assessed angiographically is not as well established, reporting variable and inconsistent results (4-11).

The aims of our study were to characterize socioeconomic determinants, CVRFs and explore the relationship between CVRFs and angiographic severity of CAD in a cohort of patients awaiting coronary artery bypass graft.

Methods

This cross sectional descriptive study investigated 141 consecutive male patients (age 35-76 years) with angiographically diagnosed CAD, awaiting CABG in the Cardiothoracic Unit, Teaching Hospital Karapitiya, Sri Lanka.

An interviewer-administered questionnaire was used in the collection of data. The following information was gathered during the interview and examination: socio-demographic data, presence of traditional cardiovascular risk factors. The socioeconomic status (SES) was defined by occupational position, education and income according to the Barker & Hall guidelines (12).

All baseline anthropometric measurements were estimated by the same investigator, using same instruments. Height was measured following standard technique by a portable stadiometer (IUCHI, Yamato Scientific, Japan) with the precision of +/-0.1 cm and readability up to 200 cm. Weight was measured using a portable beam balance (Bauman, Germany) with the precision of +/-0.1 kg and readability up to 100 kg. Waist circumference was measured to the nearest 0.1 cm according to the standard technique using a non-stretchable measuring tape. Mean of the two readings (three times if difference between readings was = 0.5 cm) was taken as the final measurement. Body mass index (BMI) was calculated.

The interpretation and grades of luminal narrowing were determined according to the consensus opinion of two separately read angiography reports by interventional cardiologists who were blinded for the characteristics of the patients. Three methods were employed in the assessment of the severity of the CAD; Gensini score (13), Leaman score (14), vessel score (15).

This clinical protocol was approved by the Ethical Review Committee of Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka and conducted according to the ethical guidelines outlined in the Declaration of Helsinki. Permission from the respective hospital authorities was obtained. Informed written consent was given by all the participants.

Data were analyzed using Minitab version 15. Results were expressed as mean (standard deviation), percentages or frequencies. Statistical significance was defined when P value was < 0.05. Coronary vessel score was divided into four groups

as zero, one, two and three-vessel disease. Gensini and Leaman scores were categorized into four categories according to the quartiles ranges. Ordinal logistic regression analysis was performed to determine the predictors of the extent of CAD (on the scale three scores used).

Results

A total of 141 male patients with CAD were included. Mean (SD) age of subjects was 56 (8) years (range: 35-76 years). Table 1 shows the prevalence of cardiovascular risk factors, demographic and socioeconomic characteristics of the patients. Body mass index (BMI) ranged from 17.8 kgm⁻² to 38 kgm⁻² and the mean (SD) was 24(3) kgm⁻². Majority of patients (66.7%) were within the normal BMI limits and only 31.9% were in the overweight and obesity groups, according to the WHO criteria (16). The prevalence of overweight and obesity (60.2%) was higher with the use of lower cut off values (= 23 kgm⁻² as over weight) defined for the Asian populations by International Association for the Study of Obesity (IASO), and the International Obesity Task Force (IOTF) (17).

Table 1: Basic clinical, demographic and socioeconomic characteristics (n=141)

Characteristics	Mean (SD) or n (%)
Age (years)	56 ± 8
BMI (kgm ⁻²)	24 ± 3
Obesity (BMI >30 kgm ⁻²)	5 (3.6 %)
Diabetes mellitus	56 (39.7 %)
Dyslipidaemia	50 (35.5 %)
Hypertension	67 (47.5 %)
Smoking	105 (74.5 %)
Alcohol intake	107 (75.9 %)
Statin treatment	136 (96.4 %)
Social classes	
Class 1	10 (7.1 %)
Class 2	36 (25.5 %)
Class 3	37 (26.2 %)
Class 4	41 (29.1 %)
Class 5	17 (12.1 %)

A/L = Advanced level examination. O/L = Ordinary level examination.

Waist circumference varied from 70.2 cm to 115.5 cm with a mean and SD of 87.1 and 7.6 cm. Minority of the patients (17.7%) had a waist circumference above the cut off value defined for males (= 94 cm), that indicates the central obesity by the WHO criteria, but when Asian population specific cutoff values for WC (= 90 cm) was used it rose to 28.3%.

The vessel score varied from zero to three, Gensini score ranged from zero to 166 and Leaman score varied from zero to 35. Table 2 indicates the severity categories according to the three scores and the percentage of patients in each category. The other tables (Table 3, 4, 5) demonstrate the significant values, odd ratios and the relevant confidence intervals for each predictor variables considered for atherosclerotic burden categories following ordinal logistic regression. The results reflected that the traditional cardiovascular risk factors were not independent predictors of severity of CAD.

Table 2: Angiographic characteristics of the study cohort (n=141)

Angiographic findings	Number (%)
Vessel score categories	
Minor vessel disease (zero)	2 (1.4 %)
One vessel disease	8 (5.7 %)
Two vessel disease	29 (20.6 %)
Three vessel disease	12 (72.3 %)
Gensini score quartiles	
0 - 50	36 (25.5 %)
> 50 - 72	37 (26.2 %)
> 72 - 98.5	33 (23.4 %)
> 98.5 - 166	35 (24.8 %)
Leaman score quartiles	
0 - 9.5	36 (25.5 %)
> 9.5 - 15	36 (25.5 %)
> 15 - 20	37 (26.2 %)
> 20 - 35	32 (22.7 %)

Table 3: Predictors of atherosclerotic burden assessed by Gensini score among patients with CAD (n=141)

	Odd ratio	95 % CI for β	P value
Age (1- year increase)	0.99	0.96 - 1.03	0.666
Obesity (BMI >30 kgm ⁻²)	0.67	0.13 - 3.52	0.637
Diabetes mellitus	1.37	0.74 - 2.54	0.312
Hypertension	0.45	0.24 - 0.84	0.012
Smoking	1.40	0.67 - 2.92	0.369
Alcohol intake	0.90	0.43 - 1.89	0.782
Dyslipidaemia	1.28	0.67 - 2.47	0.451

Results of the ordinal logistic regression analysis are given as odd ratio (OR) and confidence intervals (CI).

Table 4: Predictors of atherosclerotic burden assessed by Leaman score among patients with CAD (n=141)

	Odd ratio	95 % CI for β	P value
Age (1-year increase)	0.98	0.95 - 1.02	0.311
Obesity (BMI >30 kgm ⁻²)	0.37	0.07 - 2.01	0.251
Diabetes mellitus	1.21	0.66 - 2.23	0.541
Hypertension	0.62	0.33 - 1.15	0.126
Smoking	0.98	0.47 - 2.05	0.966
Alcohol intake	0.84	0.40 - 1.77	0.654
Dyslipidaemia	0.93	0.49 - 1.79	0.835

Results of the ordinal logistic regression analysis are given as odd ratio (OR) and confidence intervals.

Table 5: Predictors of atherosclerotic burden assessed by vessel score among patients with CAD (n=141)

	Odd ratio	95 % CI for β	P value
Age (1 year increase)	1.01	0.97 - 1.06	0.598
Obesity (BMI >30 kgm ⁻²)	0.70	0.07 - 7.28	0.765
Diabetes mellitus	0.37	0.16 - 0.86	0.020
Hypertension	0.81	0.37 - 1.78	0.606
Smoking	1.62	0.66 - 3.96	0.289
Alcohol intake	1.70	0.64 - 4.53	0.284
Dyslipidaemia	0.54	0.22 - 1.28	0.161

Results of the ordinal logistic regression analysis are given as odd ratio (OR) and confidence intervals.

Discussion

Our findings suggest that majority of patients with CAD undergoing coronary artery bypass graft in a local provincial hospital belongs to lower socioeconomic classes. Prevalence of traditional risk factors was high among these patients. The anthropometric parameters did not appear to predict the atherosclerotic burden assessed by angiogram based tools. Diabetes mellitus was found to be an independent predictor of the atherosclerotic burden estimated by the vessel score, but OR was less than 1. Hypertension seemed to be an independent predictor of the severity of CAD assessed by the Gensini score with a low odds ratio. Therefore none of the traditional risk factors emerged as a meaningful independent predictor of atherosclerotic burden. The associations of CVRFs with coronary atherosclerotic burden have been variable and inconsistencies exist. Few have shown positive associations, while others have reported equivocal or even negative associations (4-11, 18).

Wang *et al.* found that the total amount of lifetime smoking and total cholesterol/ HDL-cholesterol was associated with the severity of coronary artery disease (4). Phillips *et al.*, showed that in men selected for coronary arteriography; age and HDL-cholesterol might be stronger predictors of the degree of CAD than were blood pressure, cholesterol, diabetes, smoking, and BMI (5). Vlietstra *et al.* concluded that some risk factors were associated with the presence of disease and also with

the extent of the CAD, but other factors appeared to influence only to the onset of the disease (6). Anderson *et al.* also showed a variable relationship between cardiovascular risk factors and the extent of coronary artery disease (7). According to Hasin *et al.* the most important contributory factors to the severity of atherosclerosis were the duration of clinical history, number of previous myocardial infarctions, and male sex, but more specifically elevation of serum cholesterol and diabetes mellitus. Cigarette smoking, obesity, hypertension, a family history of atherosclerosis, and elevated serum triglycerides had a positive influence, but this was not statistically significant (8). Krishna Swami *et al.*, revealed that although strong associations exist between risk factors and the occurrence of CAD, the small quantitative association detected between the presence of risk factors and the severity of disease was weak (9). Opherk *et al.*, found a significant correlation between the degree of atherosclerotic lesions and hypertriglyceridaemia, hypercholesterolaemia as well as smoking habits. No correlation between other risk factors, such as hypertension, diabetes mellitus, hyperuricaemia, obesity, and the coronary score was observed (10). Guo *et al.*, demonstrated high low-density lipoprotein as a prominent predictor of the extent and severity of angiographic CAD (11). Nicholls *et al.* showed male gender, diabetes mellitus, and a history of prior revascularization were as strong independent predictors of atherosclerotic burden in coronary disease patients. However many risk

factors did not predict angiographic disease severity, suggesting different mechanisms drive stenosis development and atheroma accumulation (19).

Similarly, in a study involving younger patients (mean age 56 years) to determine the relationship between CVRFs and the extent of CAD, only a few risk factors (diabetes and male sex) correlated with intravascular ultrasonography (IVUS) measured coronary atheroma burden; none of these risk factors correlated with "luminal" severity assessed through coronary angiography, suggesting that different mechanisms drive stenosis development and atheroma accumulation (18).

Hypercholesterolaemia has been reported as an independent risk factor for severity of coronary artery disease (8,10). In the present study, a trend of dyslipidaemia and higher prevalence of statin use were observed, but dyslipidemia was not a predictor of the extent of obstructive CAD burden. Similarly, a lack of association between lipids and atheroma burden, as estimated by IVUS in a recent study, prompted the speculation of other factors such as inflammation and genetic susceptibility may predict cardiovascular outcomes in the setting of dyslipidaemia (18).

In conclusion, the patients who were admitted for coronary artery bypass graft in a state local provincial hospital were mainly in the lower socioeconomic status. The conventional cardiovascular risk factors were not able to predict the severity of coronary artery disease estimated by coronary angiography based scores, although they were considerably prevalent.

The limitations we encountered were the missing of patients who were being treated at the private sector hospitals who may be included in the higher SES. The study was confined to men and need to be expanded to women.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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Wife battery: Preliminary survey of fifty one cases and literature review

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ABSTRACT

Introduction: This paper presents wife battery in Southern region of Sri Lanka, as a part of a worldwide phenomenon. Due to hidden nature of the problem accurate statistics are hard to come out by victims.

Methods: This was a two-year prospective study to determine the prevalence of domestic violence against women and its associated features in cases presented to Teaching Hospital Karapitiya, Galle, commencing November 2008. The present paper deals with preliminary survey of 51 cases investigated at our unit up to July 2009.

Results: There had been 2400 cases admitted to casualty wards of the Karapitiya Hospital with medico-legal references from the police stations in Southern Province, during this period and 51 women out of the total number who complained of physical assault by their husbands were interviewed. The majority victims had presented with bruising, often together with other injuries such as lacerations and fractures. The higher prevalence of violence was observed in families with problems of chronic alcoholism and other anti-social habits. The educational standards of both wives and husbands spanned over a wide range from primary schooling to university level. The study revealed a significant association between the level of husband's education and incidence of violence against the women. The impact of the husband's job and economic status of the family on frequency of domestic quarrel was also observed. We observed that the victims of wife battery did not always leave the abusive environment probably because of lack of family and community support.

Conclusion: Wife battery has clear associations and these can be used in recognizing high risk family situations. Wife battery must be discouraged through litigation, general education and economic empowerment of women.

Introduction

It has been noted worldwide, that one of the most common forms of violence against women (VAW) is abuse by their husbands or other intimate male partners. Wife beating has been condoned throughout the history of mankind. The first known written laws (about 2500 B.C.) proclaimed that the name of any woman who verbally abused her husband was to be engraved on a brick which was then to be used to dash out her teeth. A physical punishment of a wife was a recognized right of men in Greek and Roman societies and was accepted by Jewish, Christian and Islamic authorities as well (1).

Partner abuse exists in a variety of forms including physical assault such as punching, slapping, kicking, and beatings; psychological abuse, such as constant belittling, intimidation, and humiliation; and coercive sex. Physical abuse is the most visible of all kinds of wife battery whereas psychological abuse is usually non-exhibiting in majority cases.

Domestic violence has gained considerable public attention during past few decades. In Western countries places of refuge for battered wives have been established, and police, social workers, doctors and women's groups have been alerted to the problem.

The present study was conducted to ascertain the nature and circumstances of violence against women. In this survey a battered wife was defined as a woman who had received deliberate severe and repeated demonstrable physical injury from her husband.

Methods

The data and Information were obtained during medico-legal examinations, using an open questionnaire and the personal interview of consenting women claiming physical assault by their husbands. Most victims were in ward patients of Teaching Hospital, Karapitiya and others were

directly referred by the police for medico legal purposes, both categories with medico-legal examination forms. Details were summarized, analyzed and compared with currently available literature sources.

Results

Physical injuries

Of 51 cases, 18 cases presented with abrasions and 27 cases had contusions. Lacerations were present in 4 cases, and in 3 cases, victims were bitten by their husbands. Only four victims had more than one type of injury (Figure).

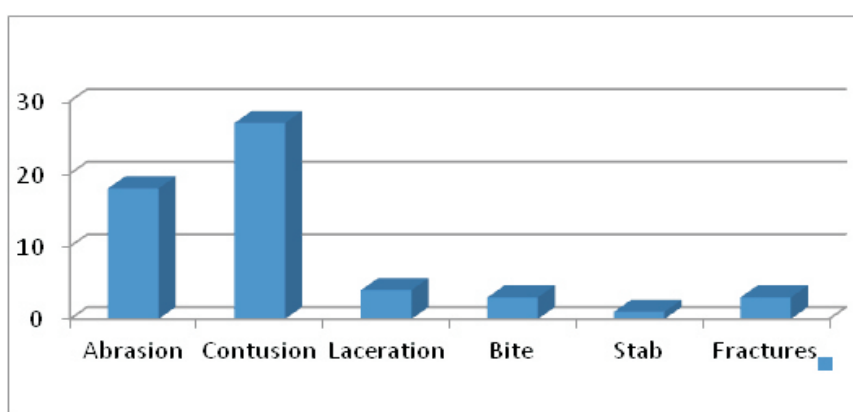


Figure: Prevalence of injury types

Almost all injuries were of non-grievous category except three cases, those presented with grievous injuries namely, fractures. Injuries, either non-grievous or grievous were exclusively caused by application of blunt forces. Weapons were used in 23 cases and commonly available domestic objects such as clubs and wooden poles had been used in 14 cases. Two were stoned, and a wire, a shaver, a chair and a slipper had been used in solitary incidents. Only in one case, the victim was stabbed by her husband using table knife inflicting a superficial cut injury. There was an exclusive case, where the woman was pushed out from a moving vehicle. In all cases physical assaults were preceded/ accompanied by psychological abuse. All incidents of physical abuse had taken place within their residential premises.

Other background factors

A large majority of the victims (41 women) were married for over 5 years, while 9 victims revealed

marital life from 2 to 5 years. In one case, duration of marital life was only 2 months.

In 35 families there were two or more children and 14 families had only one child. Two families had no children. The educational background of the victims revealed that 18 victims had received school education above the Grade 9, 20 victims had studied up to Year 9 or below and 12 had never been to a school (Table). No reliable data regarding husbands' education level were available.

In 41 cases, assailants were habitual alcoholics and 20 were smokers. Gambling was an issue in 2 cases. There were 4 assailants with sober habits, and non-smokers. Most of the husbands were casual laborers and five were unemployed. Government servants and qualified professional partners were reported in 2 occasions. Most of the women were unemployed and entirely depended on her husband's earnings.

Table: Circumstances and background factors (n=51)

Characteristics studied	Range	Mean
Age of the battered wife (yrs)	23 - 59	32.1
Length of relationship (yrs)	2 - 35	9.6
Age of leaving school (yrs)	6 - 18	11.5
Age of husband (yrs)	20 - 63	35.5
Number of children	0 - 7	2

Discussion

Females may suffer from violence throughout their “life cycle” as fetuses may be aborted just because they are female, infants may be killed because they are female, girls may be neglected or subjected to various other types of abuse, adolescents may be raped, married women may be beaten, raped or killed by their husbands and widows may be neglected. The female infanticide and sex selective abortions that are caused by son-preference ideology have led to an imbalance in sex ratios characterized by millions of females “missing” from populations in Asia, China and North Africa. India is the site of approximately 5000 dowry related deaths each year (1). A survey of 1842 rural women of reproductive age in India revealed that both men and women consider wife beating acceptable and that 40% of all wives have been beaten by their husbands (1). In Bangladesh, a study carried out in a remote rural area during December 2000 indicates that 50.5% of the women were reported to be battered by their husbands and 2.1% by other family members (1). In the United Kingdom, two small studies reported lifetime prevalence of domestic violence against women of 39 and 60% (1,2). In North America (1), where women have equal rights and status, violence against women is still present in the society. Women numbering 40-51% experience some type of violence in their lifetime including child abuse, physical violence, rape and domestic violence. It is rather encouraging that, attempts to draw attention to the problem of violence against women as a serious social problem have ceased to be lonely voices in the wilderness. This is attested to by series of international conventions and local legislations which now make wife battery a criminal offence.

For example, the United Nations General Assembly passed the declaration of the Elimination of Violence against Women in 1993 (Population Reports XXVII 1999:5) (1). This was done through Resolution 48/104 (444). Also in 1995, the Fourth World Conference on Women, which took place in Beijing, China, advocated ending gender violence as a priority. In 1994 the Commission on Human Rights appointed the first special Rapporteur on violence against women and empowered her to investigate cases of abuse of human rights (Population Reports, op cit). These campaigns were designed to draw attention to the issue of violence against women. Finally, in 1999, the United Nations Population Fund declared violence against women a public health problem (1).

More than 160 countries have ratified the UN's Convention on the Elimination of All Forms of Violence against Women, and many countries have included provisions to protect women against violence in their constitutions and criminal codes. However, only 44 countries specifically protect women against Domestic violence (3).

The prevalence of women in this study who reported a history of physical violence from their partners is 12%, when compared to total number of females admitted with injuries during the study period. More than 60% of women across Sri Lanka are victims of domestic violence while 44 per cent of pregnant women are also subjected to harassment, according to a 2006 survey by the Ministry of Child Development and Women's Empowerment (1). This is a significantly high ratio compared to what we found in our study. That may be due to the facts that our study represents only a part of Sri Lanka and

figures might have been exaggerated, and there may be number of hidden cases which does not come to the attention of authorities.

The National Report on Violence and Health in Sri Lanka states that the cultural values inculcated in the minds of Sri Lankan women by the institution of marriage seems to have resulted in women continuing to remain in their marriage despite being in an abusive relationship.

The case studies conducted by Gayford revealed that, men with low frustration tolerance, who often completely lose control under the influence of alcohol, punch and kick their wives in a savage manner, perhaps using weapons to aid their assault (1). The general practitioner, usually one of the first outside the family to be trusted with her guilty secret, was more often presented with vague physical or mental symptoms. Even severe injuries were passed off as accidents. In many cases she was afraid to appear in public until the physical signs had subsided, but in a few cases she was made to parade her injuries as a sign of her husband's dominance. Suicidal gestures were usually treated in hospital without the true facts being revealed. Occasionally husbands prevented their wives from attending hospital for obviously needed medical attention, while others removed them prematurely. According to our data, longer the duration of marriage, the chances of battering is higher but the number of children does not play a significant role in wife battering. Study shows direct impact of alcohol abuse with incidence of spouse abuse. However, it is necessary to perform a broader society based surveys to reveal impact of alcohol abuse on prevalence of domestic violence. According to our general observations, there are many husbands of higher socio-educational background, who are regular alcohol consumers, but hardly abuse their spouses. The other significant factor associated with wife battering is poor socio-economic situation prevailing in majority affected families, though violence is present in few families with higher socio-economic status. These factors are common to other surveys from our region.

Women victimized by domestic violence suffer from more health problems than non-victimized women (1). Battered women are more likely to have been injured in the head, face, neck, thorax, breasts and abdomen than women injured in other ways (1).

The injury patterns of our victims were corroborative with the patterns described in above surveys. However, the severe maneuver like throwing out from the moving vehicle is an exclusive finding. The injuries fear, and stress associated with violence can result in chronic health problems such as chronic pain (e.g. headache, back pain), recurrent central nervous system symptoms including fainting and seizures, gastrointestinal disorders like loss of appetite, eating disorders or chronic irritable bowel syndrome, and also cardiac problems such as hypertension and chest pain (1).

Depression and post-traumatic stress disorder are the most prevalent mental health problems of domestic violence (1), though none of our victims showed severe psychological problems. These are mainly associated with emotionally abusive behaviors such as prohibiting a woman from seeing her family and friends, ongoing belittlement, humiliation, or intimidation, economic restrictions such as preventing a woman from working, or confiscating her earning and other controlling behavior, fear and stress due to physical abuse and forced sex. In a Canadian population based study, Ratner found that in addition to depression, abused women have also been associated with anxiety, insomnia and social dysfunction (1). But in our survey it was not elicited. Is violence passed on in families? As in cases of child abuse, it can be shown that the more violence an individual is exposed to during childhood, the more likely he is to be violent as an adult (1).

Recommendations

Patient guidance and support is essential to see even the more able and intelligent woman through this difficult period. A few women present as extremely damaged personalities who will need long-term support with their children (1).

General education and economic empowerment of the women is important. When women are educated, they stand better chances of being aware of and asserting their rights. It is also true that an educated woman who can assert her rights will find it easier to leave an abusive situation, because she can exist independently without being her husband's appendage.

Such as illiterate unemployment, lower education for both men and women, placed our population at greater risk, so the topic of the outcome of domestic violence must be incorporated into the school and medical education curriculum.

Public education is a vital step, especially family life education in preparing young people for marital responsibilities and relationships. Education of the police and health workers is equally important, as many battered women report being told to return home, not be provocative or make matters worse. Certainly alcohol is the factor which most often precipitates violence. Counseling both parties before going to legal procedure may be helpful.

A major limitation of the study was the potential for bias in the given information. Women that experience domestic violence may be reluctant to acknowledge this because of shame or embarrassment.

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Review on Child Sexual Assault; influence of age on management strategies highlighted based on a case history

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Introduction

Medico-legal management of child survivors is entirely different from adults. However, in Sri Lanka, the management of child sexual assault is mainly conducted in order to satisfy the medico-legal objectives. Specialists in Forensic Medicine should work as a team with the other stakeholders in the management of child survivors of sexual assault for the best interest of the children while attending to medico-legal objectives. Holistic management (1) of child survivors of sexual assault is discussed in relation to a case presented to a forensic medical practitioner at a tertiary care hospital.

Case report

A 14-year old girl was alleged to have been sexually abused with ejaculation by a 16-year old boy. She felt severe pain and started bleeding from vagina and immediately informed her grandmother and then police.

Medico-legal examination was conducted 24 hours after the incident, after obtaining consent from grandmother. Her parents had left the family and she and her younger brother were living with grandparents. She had attained her menarche at the age of 13 and the last regular menstrual period was two weeks before. She was rational and oriented. Age appropriate secondary sexual characteristics were found.

There was a fresh complete hymenal tear at 6 O' clock position extending to the posterior fourchette indicating vaginal penetration. Samples were taken for further investigations. There was no evidence of anal penetration. She was referred to an obstetrician and emergency contraceptive pills were prescribed. She was treated at the mental health clinic. She did not suffer from sexually transmitted infections. A case conference was arranged and the child was handed over to her grandparents under the supervision of probation. Upon request of grandparents at the case conference, hymenoplasty was arranged.

Discussion

Sexual intercourse with a girl below 16 years is considered as statutory rape in Sri Lanka (2). Though there was evidence of statutory rape, the perpetrator being below 18 years he would be sent for rehabilitation for juvenile delinquency (3).

Emergency contraception can reduce the risk of pregnancy if used within 120 hours after unprotected intercourse and is most effective if used within 24 hours (4). When initiated within 72 hours, risk of pregnancy is reduced by 75% (4). The contraindications are the same as those used for ordinary contraceptive pills (5) and if LRMP is doubtful, pregnancy test should be performed before prescribing emergency contraceptive pills. In this case, the victim was referred to an obstetrician about 24 hours after the incident. Since the last regular menstrual period was 2 weeks before and the pregnancy test was negative, emergency contraceptive pills (ECP) were prescribed by the

obstetrician. This reiterates the importance of offering ECP to prevent possible teenage pregnancies.

Eighty one percent of victims reported having psychological consequences after an incident of sexual assault (6). Psychological consequences may appear at different time intervals and mood changes and sleep disturbances were the most common (6). Prevalence of development of deliberate self-harm in survivors of sexual assaults is about 26% (7). This reiterates that the psychological symptoms or signs are not necessary to refer to the mental health expert. In this case, though there were no apparent psychological disturbances, routine psychiatric referral was done for counseling and management.

The overall prevalence of sexually transmitted infections (STI) among the survivors of sexual assault is about 26% (6) and routine referral is essential. Routine prophylactic therapy against STIs after a sexual assault is often recommended because follow up with these patients can be difficult and it also reduce the need for more expensive or extensive treatment if a STI is discovered at a later time (8). Evidence of STI is not essential in order to refer to the STI unit. Though the prophylaxis treatment of STI is not given to victims of sexual assault in Sri Lanka, it should be prescribed at least when there is evidence of penetration. In this case, though the child did not show evidence of STI, she was referred to the STI unit, and since she showed evidence of penetration, she was an eligible victim for prophylactic therapy.

The main objective of 'case conference' is not to find fault of anyone but to look into the welfare of the victim and the family (9). Though non-relative foster care services are not available in Sri Lanka, children are legally handed over to relatives under the supervision of the probation by the magistrate. Therefore, in this case, the conclusion of the case conference was to handover this child to grandmother under the supervision of the probation. This highlights the importance of arranging case conferences for the welfare of victims.

Sri Lankan culture is largely based on the values of the hymen. No vaginal bleeding at the honeymoon night is culturally considered as she has had prior sexual penetration with another man. Hymenoplasty is culturally sensitive and linked to a belief in certain cultures that the hymen is proof of virginity (10).

Hymenoplasty or hymen reconstruction surgery is a procedure to artificially restore the hymen and the aim is to reinstate bleeding during sexual intercourse, in particular for women who are getting married for the first time. Victims of statutory rapes, who receive hymenal damages by acts for which they cannot consent or comprehend, would be candidates for hymenoplasty.

In this case, after successful hymenoplasty surgery, the grandparents informed that they were greatly relieved and also changed the place of residence in order to prevent future social stigmas. In cases of statutory rape, after the medico-legal investigations, hymenoplasty should be available as an option whenever it is demanded.

Survivors of the sexual assault are re-victimized by different stakeholders of the management due to involvement and contact at different times. Joint Information Response Teams (JIRTs) comprised of community services, police and health professionals who undertake joint investigation of child protection matters, should be introduced to reduce re-victimization for the best interest of children (11). Then, the survivors of the sexual assaults can be managed as 'whole' with minimal re-victimization. Further, by arranging case conferences, all the stakeholders meet together and manage the victims in holistic manner considering the survivor and the family as a whole.

“National guidelines on examination for medico-legal purposes, reporting and management of sexually abused survivors” prepared by the College of Forensic Pathologists of Sri Lanka, “Sexual Assault Forensic Examination (SAFE)” programme conducted by USAID, and the “Guidelines for the multi-sectorial management of child abuse” prepared by the College of Paediatricians are prospective initiatives for the holistic management of survivors of sexual assault.

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