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From the Editor

Stroke is a catastrophic event for survivors and their families. Because, significant numbers of stroke survivors experience limitations after they go home. So, continuing and targeted education is crucial to minimize the impact of stroke on the patient and family. The incidence of stroke increases with ageing and, many elderly people suffer due to stroke. It is essential for health care workers to know about stroke management especially at community level.

A study reported that among stroke survivors 6 months after discharge, 50% had one-sided paralysis, 35% were depressed, 30% were unable to walk without assistance, 25% were dependent in activities of daily living (ADL), and 19% were aphasic (Kelly-Hayes et al., 2003). Majority of patients had ongoing motor problems.

Family members have to learn rehabilitation techniques and adjust to changes in their relationships with the stroke survivor. Although a return to the home environment has distinct advantages for stroke survivors, it also involves less contact with nursing and rehabilitation professionals, resulting in reduced daily professional support for survivors and caregivers.

The initial management of stroke is health education which should involve both the patient and the caregivers, and it is very effective. The health education should focus on the following factors: the cause of the stroke, prognosis, hospital management, community based rehabilitation, the responsibilities of caregivers and family members, alleviation of carer stress, prevention of further episodes and management of modifiable risk factors, and resources available for rehabilitation. Managing co-morbid diseases is essential to prevent recurrent strokes. The depression among stroke survivors is often over looked and should be treated at initial suspicion. A study by the WHO (Mackay & Mensah, 2004) found that stroke survivors with lower socioeconomic status (SES) had more previous strokes and more stroke-related co-morbidities. A special emphasis should go to diet and exercise as most stroke survivors do not comply with dietary and exercise guidelines. How can you layout the plan of management of stroke survivors especially in a resource poor setting like ours? There are so many stroke affected peoples living in Batticaloa district. The health education should be initiated at first contact by a health care worker. As a significant proportion of patients don't come to tertiary care hospital, it is the responsibility of primary care medical officer to initiate the management plan and make appropriate referrals.

The stroke rehabilitation involves a co-ordinated program of physiotherapy, occupational therapy, speech therapy and neuropsychology. A home-based physiotherapy must be started from the day of discharge. There are many non-governmental organizations helping those who are handicapped.

The important causes of deterioration after stroke are infections such as urinary tract infections, chest infections and cellulitis, as well as cardiac complications and depression. Early detection and appropriate intervention of these complications will make major impact in maintaining best quality of life for stroke survivors.

In summary the management of stroke survivors in the community is crucial in terms of their functional outcome.

K. Arulmoly

The Editor



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CONTENTS

Editorial		Managing Stroke Survivors in the Community
Review Articles	01	Jehovah's Witnesses: Perioperative Implications Mathanalagan S, Dassanayake V. E. G
	08	Immunization in Sri Lanka: past, present and future Murali Vallipurathanan
Papers	14	Outpatient Endometrial Sampling as a Method for Assessing Abnormal Uterine Bleeding in Women over 35 years in Teaching Hospital, Batticaloa. Siraj S H M
	17	Knowledge, Attitude, Perceived Risks of Infection and Sources of Information about Lymphatic Filariasis among Residents in an Endemic Area in Sri Lanka Darshana Wickramasinghe
	21	Complications and Their Outcome in an Outbreak of Leptospirosis - Experience in a Base Hospital Munasinghe B. N. L., Nilaweera S. P, Bandara P. M. I. P, Fernando D. M. H, Jayanaga W. W. L. A.
Clinical Practice	24	Management of Procedural Pain in Children Arulpragasam A.N, Dissanayake C.G, Kulathilake T.R
	28	Mucocele -A Common Type of Oral Soft Tissue Cyst Kalaichelvan S
	31	Red Eye Thivahar S
Medical Education	33	Adult Learning Theory Sathananthan T, Karunakaran K E
Case Reports	36	Myomectomy in Pregnancy - An Inevitable Option A Case Presentation and Discussion Karunakaran K.E, Mangalanathan V
	38	Von Hippel Lindau Disease Presented as Diabetes Mellitus Ethayakumar. N, Ragnathan M.K.
Miscellaneous	40	Is old gold or not? Arulanandem K
	41	Physiological Basis for Analgesia by Acupuncture RajendraPrasad R, Thayabaran M
Letter to the Editor	43	'Tap Sign' in Leprosy and Sensory Testing with a Point of Folded Paper Prasad Kumarasinghe

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Jehovah's Witnesses: Perioperative Implications

Mathanalagan S¹, Dassanayake V E G²

The Jehovah's Witness religious sect is a Christian movement, originated in Pennsylvania (US) during the late 1870s under the guidance of Charles Taze Russell. In 1945, based on interpretation of three biblical passages, the sect determined that blood transfusion should be forbidden because it violated God's law, and since 1961 members who accepted prohibited blood components have been expelled. Originally they had objections to other medical treatments such as vaccination and inoculation, although these are now largely accepted. They believe that the prohibition of blood transfusion has a deeply held core value and is a sign of respect for the sanctity of life. It is estimated that there are nearly 6.5 million Jehovah's Witnesses in 235 countries worldwide. Ethical, medical, and legal dilemmas occur when these patients present for surgery because of their refusal to allow blood transfusion (Table 1). As a result of variations in individual beliefs, operative preparation needs to be tailored to each patient.

Legal and ethical dilemmas

Respect for a patient's autonomy and human rights requires procurement of informed consent before any medical intervention. A mentally competent individual has an absolute right to refuse consent for medical treatment, for any reason, even when this may lead to his or her own death. Legally, it is clear that a health professional may not override a valid and applicable advance refusal of treatment.

Consent forms and advance directives

During the preoperative interview with the Jehovah's Witness, it is important to explore religious commitment, explain treatment options, and ascertain what treatment options the patient is willing to accept.

Table 1 Blood products and transfusion related procedures accepted and rejected by baptized Jehovah's Witnesses

Unacceptable	Acceptable by personal choice (matters of conscience)
Whole blood	Blood salvage (intra and post-operative)
Packed red cells	Haemodilution
White cells	Haemodialysis
Plasma (FFP)	Cardiac bypass
Platelets	Blood 'fractions' of plasma or cellular components (e.g. albumin, immunoglobulins, clotting factors)
Preoperative autologous donation (PAD)	Haemoglobin based oxygen carrying solutions
	Transplantation, including solid organ, bone, tissue etc
	Epidural blood patch

Consent forms designed for Jehovah's Witnesses provide a section for the patient to complete, and this may contain specific exclusions from the consent. They must sign the consent form documenting refusal of blood transfusion and any transfusion related procedures, and absolving the hospital and physicians of any liability should an untoward event occur related to his or her refusal. When obtaining restricted consent, the patient should be interviewed in the presence of an independent witness, and an attempt made to help the patient understand the reasons for the recommended treatment. All parties involved should sign the consent form. The precise nature of the restrictions placed on the doctors by the patient should be documented in the clinical notes as well.

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Most practicing Jehovah's Witnesses will carry with them an Advance Directive document. A typical directive specifically states that "in the event of emergency treatment including general anaesthesia and surgery...." it forbids the administration of blood or blood components. The advance directive further states "my express refusal of blood is absolute and is not to be overridden in any circumstances".

To administer blood to a patient who has steadfastly refused to accept it by either the provision of an advance directive or by its exclusion in a consent form is unlawful and ethically unacceptable. This has been likened by the Witnesses to rape. It will not result in expulsion from the community if it was carried out against the expressed wishes of the patient but may have as deep a psychological effect as forceful sexual interference.

Elective cases

Physicians caring for a Jehovah's Witness must also make management decisions based on their own beliefs, ethical concerns, and possible legal consequences. Anaesthetists and Surgeons have the right to refuse the medical assistance to a Jehovah's Witness who refuses to allow blood transfusion in an elective situation but should attempt to refer the case to a suitably qualified colleague prepared to undertake it. However, once a physician agrees to proceed with medical assistance under the limitations imposed by the patient's desires, these limitations must be respected.

Emergencies

In the management of an unconscious patient whose status as a Jehovah's Witness may be unknown, the doctor caring for the patient will be expected to perform to the best of his ability, and this may include the administration of blood transfusion. However, there may be opinions put forward by relatives or associates of the patient suggesting that the patient would not accept a blood transfusion even if that resulted in death. Such relatives should be invited to produce evidence of the patient's status as a Jehovah's Witness and an advance directive.

In an emergency, an anaesthetist is obliged to care for a patient in accordance with the patient's wishes, even if this means the patient will die for lack of blood transfusion.

Children

Young adults of sound mind aged 16-18 years have a statutory right to consent to procedures on their own account and there is no legal requirement to obtain additional consent from a parent or guardian.

Children of Jehovah's Witnesses below the age of 16 years may cause particular difficulty. The wellbeing of the child is overriding and, if the parents refuse to give permission for blood transfusion, it may be necessary to apply for a 'Specific Issue Order' via the High Court in order legally to administer the blood transfusion.

Children aged 12-16 years may be competent to give their own consent if they demonstrate a clear grasp of the proposed treatment and the risks, benefits or consequences of acceptance or rejection of a proposed treatment. This is referred to as 'Gillick-competence'. Consent to an elective blood transfusion in the face of parental opposition in this case would be sound. However, the courts have proved willing to overrule the refusal of specific procedures by these children.

The management of a child of a Jehovah's Witness in an emergency situation who is likely to succumb without the immediate administration of blood is viewed in law in a different light. In this situation, application to the courts will be too time consuming and the blood should be transfused without consulting the court. The courts are likely to uphold the decision of the doctors who give blood.

Perioperative aims

The therapeutic aims of peri-operative management should be:

- Pre-operatively, blood augmentation;
- Intra-operatively, (i) blood-loss minimization by means of blood conservation and fibrinolysis reduction and (ii) use of blood alternatives;
- Post-operatively, blood-loss prevention and patient monitoring in a critical care facility

Preoperative management

Planning

It is essential that surgeons who are aware that an elective patient is a Jehovah's Witness should alert the anaesthetic department as soon as possible in order to ensure that a consultant anaesthetist is prepared to manage the patient's care. Early warning of any potential intervention that could lead to the need for blood or blood products is also advisable. Before surgery, there must be full discussion between the patient, surgeon and the anaesthetist in order to ascertain the degree of limitation on intra-operative management. Major procedures can be carried out in stages in order to limit acute blood loss, and the choice of operative technique may also influence outcome.

Increasingly, procedures are performed under local or regional anaesthesia alone and, in this situation some patients may change their mind when confronted with the need for a blood transfusion as a life saving measure. Any change in the patient's views at this point should be regarded as a modification in the scope of consent and should be witnessed. A contemporaneous entry should be made in the patient's anaesthesia and clinical record.

Clinical assessment

Thorough pre-operative clinical assessment should be made. Factors that predict a poor response to blood-augmentation therapy with erythropoietin should be sought. These include a history of bleeding episodes, anaemia, hypertension, and evidence of chronic inflammation, infection or malignancy. Drugs that could increase bleeding risks should be stopped.

At the pre-operative visit it is very important to take the opportunity to see the patient without relatives or members of the local community who may influence and impede full and frank discussion of the acceptability of certain forms of treatment. At this stage, treatments that are regarded as acceptable should be established and the patient and staff made fully aware of the risks of refusal of blood or blood products. Agreed procedures and unacceptable treatments should be entered into the clinical notes and signed as a record and witnessed by the patient. Such entries should be both dated and timed.

Blood augmentation

Combined therapy with high-dose erythropoietin, iron supplementation and folic acid is effective in significantly increasing haematocrit and therefore, reducing the intra-operative transfusion need. Discussion of an individual case with a haematologist could be beneficial.

The preoperative use of recombinant human erythropoietin (rhEPO) has proved useful in patients in whom autologous donation of blood is not feasible, but is a slow treatment that might not be clinically justified in case of emergency or cost effective. Although hypertension, seizures and rarely thrombotic events are reported with the use of rhEPO in chronic renal failure patients, none of these has been described in the surgical setting. In healthy volunteers EPO showed a dose-response between 500 IU/kg and 1000 IU/kg. Subcutaneous rhEPO 100 IU/kg three times a week may be administered for 2 to 3 weeks prior to surgery. Erythropoiesis is seen in 3 days, the equivalent of one unit of blood is produced in 7 days, and five units are produced in 28 days. It is recommended in patients undergoing rhEPO therapy, to improve the iron stores by pre-administration of iron supplements.

Pre-operative anaemia should be investigated and treated. It may be advisable to consider de-worming therapy. Iron supplementation with oral ferrous gluconate 300mg three times a day, even in a patient without obvious anaemia can protect against a reduction in haemoglobin concentration during the immediate postoperative period. Hydroxycobalamin (1 mg three times a week), and folic acid (5 mg oral daily) may also enhance the red cell production.

Other measures

Nutritional status should be optimized with the use of supplemental enteral feeding or total parenteral nutrition. If necessary, use of drugs to promote clotting (Vitamin K 10mg daily for 5 days) should also be considered.

Moreover, possible measures to reduce the vascularity of the surgical site, thereby perioperative bleeding, should be considered. For example, tumor embolization or irradiation before surgical resection, lugol's iodine before thyroidectomy, etc.

Intraoperative management

Blood loss minimization

Surgical techniques:

Surgeons should employ methods/ techniques to minimize the intra-operative blood loss. This can be achieved by:

1. Training, experience and, meticulous care to minimize the duration of the operation.
2. Less invasive surgical/ treatment modalities like scopic surgeries, interventional radiology, staged surgeries, etc. This should have been discussed with the patient and planned preoperatively.
3. Meticulous attention to bleeding points with the use of an argon beam coagulator; Avoid large abdominal packs and shed blood can be recycled by cell salvage technique.
4. Use of local vasoconstrictors like adrenaline, cocaine and ice packing may be useful particularly in some surgical specialities like ENT.
5. Biological haemostasis (topical), including collagen and cellulose pads, and fibrin glues and sealants aid coagulation.
6. Use of arterial tourniquets where appropriate.
7. Use of advanced devices like ultrasonic/ harmonic scalpel, laser technique and spray coagulation may also reduce the blood loss.

Anaesthetic techniques:

There are a number of routine anaesthesia techniques that reduce intra-operative blood loss.

1. Ensure adequate depth of anaesthesia, analgesia and paralysis to avoid hypertension and tachycardia. This minimizes blood loss as well as reduces tissue oxygen consumption.
2. Venous oozing is difficult to control surgically. This can be achieved by careful patient positioning to avoid venous obstruction/ congestion, avoidance of high intra thoracic pressures and hypercarbia.

3. Avoid hypothermia using forced air warming devices and IV fluid warmers. This prevents the coagulopathy of hypothermia.

Deliberate hypothermia has been used in the past not only to decrease oxygen consumption but also to increase oxygen delivery. Cooling a patient to 30°C decreases total body oxygen consumption approximately 48% below basal levels and increases the amount of dissolved oxygen in the blood by approximately 10%. Clinically, most physicians used a target temperature of approximately 30°C, because below this level hypothermia-induced arrhythmias (increased PR, QRS, and QT intervals; atrial and ventricular fibrillation) began to occur. Deliberate hypothermia should always be utilized in conjunction with normovolaemic haemodilution to counteract hypothermia induced increases in blood viscosity and systemic vascular resistance.

4. Regional techniques have been shown to reduce the surgical blood loss and should be recommended if appropriate.
5. Controlled hypotensive anaesthesia has been shown to reduce blood loss in major surgery and transfusion requirements by up to 50%. It is defined as 'the deliberate reduction of systemic arterial pressure in order to reduce bleeding and facilitate surgery'.

The safe lower limit of deliberate hypotension is not known, yet most physicians clinically use a target mean arterial blood pressure of approximately 50 mmHg because the lower limit of autoregulation for cerebral blood flow is thought to be at this pressure. Numerous anaesthetic techniques may be utilized safely to lower the blood pressure. Deliberate hypotension should be used cautiously, if at all, in patients who exhibit significant cardiovascular, cerebrovascular, renal, or hepatic disease.

6. Phlebotomy and Haemodilution are also considered as effective blood conservation techniques. Both can be performed by the

anaesthetist immediately before surgery, and these techniques are acceptable to some Jehovah's Witness patients if a closed blood circuit is kept.

Phlebotomy is achieved by removing blood from the central line into a citrate-phosphate-dextrose bag by gravity, with the main purpose being to reduce central venous pressure.

Two strategies have been described to achieve haemodilution, thereby reduce number of red cells lost during haemorrhage. Acute normovolaemic haemodilution (ANH) is achieved by restoring blood volume after phlebotomy by infusing a combination of colloid and crystalloid solutions. The advantage of ANH is that the blood lost intra-operatively has a lower haematocrit percentage and the blood returned to the patient contains platelets and clotting factors. However, coagulation factors are diluted compared to the re-infused blood taken by simple phlebotomy. The safe lower limit of normovolaemic haemodilution is not known, yet hemoglobin levels as low as 4.0 g/dl may be well tolerated even in critically ill patients. Clinically, most physicians use a target haematocrit of approximately 20% because below this level, in the absence of hypothermia, inadequate oxygen delivery may occur.

Acute Hypervolaemic haemodilution (AHH) involves rapid infusion of fluid to achieve haemodilution without withdrawal of blood. AHH has been shown well tolerated by patients who are otherwise fit and well. However, care must be taken in patients with cardiac compromise.

Optimizing tissue oxygen delivery is of paramount importance with low levels of haemoglobin. Cardiac output can be optimized by ensuring adequate filling pressure and the use of inotropic drugs. Oxygen saturation can be improved by increasing the inspired oxygen concentration, which also increases

dissolved oxygen in the blood. Such manoeuvres will enable tissue oxygen delivery to be maintained down to haemoglobin concentration as low as 2.8g/dl.

Invasive monitoring allows optimization of tissue oxygen delivery in patients who are very anaemic, even when the medical condition of the patient or the nature of the operation would not usually warrant it.

Pharmacological agents:

Drugs with anti fibrinolytic and platelet activating effects have been shown to increase coagulability and reduce blood loss during major surgery.

1. Antifibrinolytics like aprotinin, tranexamic acid and epsilon aminocaproic acid (EACA). Aprotinin has consistently shown efficacy in reducing the transfusion need in certain surgeries like orthotopic liver transplant. Its prophylactic use can reduce the blood transfusion requirement by around 30%. It also has theoretical advantages including anti-inflammatory properties, which may improve patient outcome, and a small antithrombotic effect, but tranexamic acid (1g three or four times a day) is often preferred due to its lower cost with adequate safety profile. There remains uncertainty about the efficacy of EACA in reducing blood loss and transfusion needs.
2. Desmopressin (DDAVP) 0.3 – 0.4µg/kg has been recommended to boost factor VIII levels and thereby increase coagulability. Available evidence does not support its use in haemostatically normal patients undergoing elective surgical procedures.
3. Recombinant activated factor VII (rFVIIa) acts by enhancing the natural coagulation pathway through the formation of tissue factor (TF) – FVIIa complex at the site of endothelial damage, strictly a localized effect. When given in supra physiological dosage (x10), can bind to the phospholipids membranes of activated platelets where it activates factor X independent of the TF pathway, leading to a massive rise in thrombin generation at the platelet surface. High-dose rFVIIa can therefore compensate for a lack of FVIII or FIX through a bypass effect, which explains

its efficacy in treating patients with haemophilia with inhibitors. It can also be used to reduce blood loss in elective surgical procedures associated with excessive bleeding, but has not been approved yet for use as a haemostatic agent in patients without pre-existing bleeding disorders undergoing elective surgery.

4. Prothrombin complex concentrate (Beriplex) contains factors II, VII, IX and X and is effective in immediately stopping bleeding without thromboembolism complications.

Recombinant products are effective and safer alternatives to their plasma derived cousins; however, security of supply has been intermittent and they are expensive. These have been used successfully in Jehovah's Witnesses.

Autologous blood transfusion

1. Intraoperative cell salvage ('cell saver')
Consider the use of 'cell saver' system in which shed blood is suctioned from the surgical site, centrifuged, washed, mixed with an additive/ anticoagulant solution and then reinfused as required. A 'cell saver' system may be acceptable to the Jehovah's Witness and can be used in certain operations where blood loss is unlikely to result in blood contamination. Nevertheless, discussions of the use of a cell saver should be carried out with the patient to assess acceptability.
2. Phlebotomy and ANH
Most Jehovah's Witness patients require that their collected blood remain in a continuous circuit within their body. Blood is transfused back to the patient at the end of the surgery (within 6h), once haemostasis achieved.

Blood alternatives

Most Jehovah's Witness patients accept crystalloid and colloid volume expanders.

Red cell substitutes

Greater understanding of the physiology of blood and blood substitutes is leading to the development of

more successful blood substitutes. Although oxygen carrying capacity is important, it is not the most critical property of a successful red cell substitute. Maintenance of microvascular blood flow, vascular volume and acid-base balance are of greater importance. The two major types of RBC substitutes are haemoglobin-based and perfluorocarbon-based. In the former type, haemoglobin can be obtained from expired, donated blood and from RBCs collected as a byproduct during plasma donation. Recombinant haemoglobin can also be used. It is manufactured by inserting the gene for human haemoglobin into bacteria. Haemoglobin is then isolated from the culture, purified and then modified to decrease its toxicity and increase its effectiveness. The synthetic perfluorocarbon-based substitutes may be more acceptable, and these are under investigation for use in acute blood loss.

Platelet substitutes

Various platelet substitutes are under development, including infusible platelet membranes, thrombospheres and lyophilized human platelets.

Postoperative management

In the post-operative period, close monitoring of the patient is vital to ensure early detection and correction of any bleeding. So, threshold for admission to HDU/ICU is very low. Major blood loss should always be anticipated and elective surgery only commenced if an ICU bed is available. Invasive monitoring is continued and the patient's condition optimized to achieve best possible tissue perfusion and oxygenation.

Phlebotomy should be kept to a minimum by using paediatric sample tubes. Post-operative blood loss should be carefully monitored and accurately recorded. Simple manoeuvres such as direct compression or early surgical exploration may reduce overall blood loss.

In certain peripheral orthopaedic surgery ex: TKR, post-operative wound drainage of blood can be re-infused, using special filter drainage systems. This is known as postoperative cell salvage (PoCS).

Postoperative management of the severely anaemic Jehovah's Witness who refuses blood transfusion is extremely challenging and is based on minimizing

oxygen consumption and maximizing oxygen delivery. Oxygen consumption is minimized by continuation of hypothermia, adequate sedation, analgesia and paralysis. Active cooling in the post-operative period in order to reduce oxygen consumption and increase the dissolved oxygen carriage can also be employed, though not widely accepted because of coagulopathy of hypothermia. In the event of massive blood loss it may be necessary to consider elective ventilation to enhance oxygen delivery.

Erythropoietin, iron and folate supplements may continue to be administered should rapid RBC recovery be required. High-dose erythropoietin should be used if life-threatening postoperative blood loss is detected.

Use of hyperbaric oxygen therapy to manage anaemia following severe blood loss is also recommended. Swift reversal of hypoxia is possible but the technique has limited application.

Other implications

Stress and anxiety for both the anaesthetist and surgeon, use of excessive resources including extra time necessary to complete bloodless surgery in order to satisfy their religious beliefs may result in lack of resources available for other patients as well as financial consequences as special equipment and additional theatre time is needed for these patients, are some of the other considerations which should be borne in mind when dealing with a Jehovah's witness.

In summary, it is therefore the doctors' duty to advise the patient clearly about their professional assessment of the patients needs and it is the patient's right to decide what should be done to his or her body. Once the patient's views have been clearly articulated they should be recorded and respected. Any major surgery can be performed safely in the Jehovah's Witness who refuses blood transfusion by utilizing pre-operative and intra-operative techniques that augment erythropoiesis, decrease surgical blood loss, decrease oxygen consumption, and increase oxygen delivery. Even if significant intra-operative blood loss occurs, successful postoperative management is possible by utilizing techniques that minimize oxygen consumption and maximize oxygen

delivery. Blood substitutes are possibilities for the future.

References

1. Lucy Yang and Zorica Jankovic. Orthotopic liver transplantation in Jehovah's Witnesses; *Current Anaesthesia & Critical Care* (2008) 19(1), 34-41.
2. Ajit Walunj, Anna Vabb and Roger Sharpe. Autologous blood transfusion; *Continuing Education in Anaesthesia, Critical Care & Pain* (2006); 6(5): 192 - 196.
3. Guidelines for Management of anaesthesia for a Jehovah's Witness - second edition; *the Association of Anaesthetists of Great Britain and Ireland*, (November 2005).
4. Milligan LJ and Ballamy MC. Anaesthesia and critical care of Jehovah's Witnesses. *Continuing Education in Anaesthesia, Critical Care & Pain* (2004); 4(2): 35-39.
5. A. M. Mahdy and N. R. Webster. Perioperative systemic haemostatic agents; *British Journal of Anaesthesia*, 93(6): 842-58, (2004).
6. Mark A Channey, W Scott Jelish and John P Leonetti. Perioperative Management of a Jehovah's Witness Presenting for Skull Base Surgery; *Skull Base Surgery*, 6(2):133 - 136, (1996).

Immunization in Sri Lanka: past, present and future

Murali Vallipuranathanan ^{a,b}

Development of Vaccination

Early attempts of immunization, using part or all of a microbial pathogen to protect against that microbe was traced back to a process called 'variolation' which was developed in the 10th century in China and India ^{1,2}. It involves taking pus from the smallpox lesions (pocks) and inoculating healthy people with it in an attempt to protect them from smallpox². This procedure was however associated with significant mortality². British Physician Edward Jenner discovered the safe way to immunize against smallpox by inoculating from cowpox lesions in 1796^{3,4}.

He named this procedure as "vaccination" ^{3,4,5}. This discovery was followed by the discovery of human rabies vaccine⁵ in 1885 and vaccines against plague, diphtheria, whooping cough, tuberculosis, tetanus and yellow fever were available before the Second World War in 1945⁶.

Vaccines against polio, measles, mumps, rubella and hepatitis B were developed during the post world war period⁶. The first major achievement of the vaccination programme was the global eradication of smallpox in 1977⁵.

History of Vaccination in Sri Lanka

In Sri Lanka immunization was introduced by the colonial rulers under Vaccination Ordinance in 1886 against smallpox⁷. This was followed by introduction of BCG in 1949, triple vaccine in 1961 and oral polio vaccine in 1962⁷ (Table 1). The introduction of these childhood vaccines was associated with decreasing infant mortality during this period⁸. In 1978 Expanded Programme on Immunization (EPI) was launched against tuberculosis, diphtheria, neonatal tetanus, whooping cough and poliomyelitis and measles vaccination was included in 1984^{6,7}. Subsequently vaccines against rubella, Japanese Encephalitis and hepatitis B were included into the National Immunization Programme (NIP) in 1996, 1998 and

2003 respectively^{7,9}. Vaccine against Haemophilus Influenzae b was added to NIP recently¹⁰. In addition vaccines against hepatitis A¹¹, mumps¹², meningococcus¹³, pneumococcus¹⁴, Rotavirus¹⁵, Typhoid¹⁶ and Chickenpox¹⁷ are available in the private sector.

Effects of Vaccination in Sri Lanka

Sri Lanka has achieved dramatic reduction in the burden of the vaccine preventable diseases due to the higher immunization coverage⁹. For example although polio was once a common disease, the last case was reported in 1993^{8,19}. Another example would be the decrease in the incidence of measles, an important cause of childhood mortality²⁰. Annual incidence of measles varied from about 20 to 47 cases per 100,000 population between 1951 and 1960²¹. However, after the introduction of measles immunization in 1984/1985, the incidence gradually decreased and only 263 cases were reported from government hospitals in 1998 (0.5 cases per 100,000 population) ²¹.

Vaccination for non-infectious Diseases

Until recently vaccines were developed to prevent healthy individuals from infectious diseases^{5,22,23}. New vaccines to prevent from neoplasms, diabetes, Alzheimer's disease and nicotine and cocaine dependence are in progress now⁵. A major break through in this direction would be the widespread use of Human Papilloma

Virus (HPV) vaccine to prevent the cervical cancer²⁴. This vaccine is not yet available in Sri Lanka²⁴.

Therapeutic Vaccines

Therapeutic vaccines aimed to alleviate the suffering of those already with the disease are being developed²².

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Table 1 Significant events in immunization in Sri Lanka

Year	Important events
1802	Vaccination against smallpox was introduced
1886	Vaccination against smallpox re-introduced under the Vaccination Ordinance
1949	BCG vaccination introduced against tuberculosis
1961	Triple vaccination introduced against diphtheria, whooping cough and tetanus
1962	Oral Polio Vaccine introduced
1963	BCG vaccination of newborn introduced
1969	Tetanus Toxoid administration to pregnant mothers introduced
1978	Launching of the Expanded Programme on Immunization (EPI)
1981	Revision of the immunization schedule and the introduction of a modified list of contraindications
1984	Measles vaccination introduced
1985	Strengthening of cold chain and logistics in EPI
1989/90	Achievement of Universal Childhood Immunization (UCI) with 80% coverage of all infants with the vaccines of EPI
1991	Revision of Tetanus Toxoid schedule
1995	First National Immunization Days (NIDs)
1996	Immunization against Rubella commenced
2000/01	Revision of immunization schedule and introduction of Measles Rubella vaccine
2003	Introduction of Hepatitis B vaccine
2008 January	Introduction of pentavalent vaccine containing Hib, Hepatitis B, DPT vaccines
2008 June	Suspension of pentavalent vaccine
2009 March	First reported death following Rubella vaccination

Presently therapeutic vaccines against various tumours, AIDS, hepatitis B, tuberculosis, malaria, peptic ulcers and autoimmune diseases such as myasthenia gravis are in development^{5,22,23}. In the development of therapeutic cancer vaccines the same principle of vaccination is used: tumour antigens are used to induce anti tumour immune responses²⁵. In the case of type 1 diabetes the vaccine is expected to work by stopping the autoimmune destruction of pancreatic beta cells²⁵. A therapeutic vaccine against multiple sclerosis is already licensed by the Food and Drug Administration (FDA)^{22,27}. Though therapeutic vaccines may be gradually available in developing countries such as Sri Lanka, their high cost compared to the preventive vaccines⁵ could be a serious limiting factor in their usefulness.

Delivery Routes of Vaccines

Increasingly easy vaccine delivery routes such as oral, nasal and transcutaneous routes are used without compromising the vaccine efficacy⁵. Human rabies vaccination was a painful and frightening procedure consisting of twenty one daily injections at abdomen until seventies²⁸. Today least painful intradermal injections are used for human rabies vaccination in Sri Lanka²⁹. Nasal spray vaccine against influenza virus approved by Centre for Disease Control and Prevention (CDC) is being widely used³⁰ though it is still not available in Sri Lanka³¹. Further, vaccines against several diseases are combined to facilitate easy delivery of vaccines. A recent example would be the use of pentavalent vaccine combining vaccines against five diseases: diphtheria, whooping cough, tetanus, hepatitis B and haemophilus influenza³².

Adverse events and reporting

Despite these advances in vaccine development, unexpected side effects could be a serious blow to the vaccination programmes.

Typical examples would be the recent suspension of pentavalent vaccine programme for children following reported Hypotonic Hyporesponsive Episode (HHE)^{32,33} and a death reported following rubella vaccination in Matara³⁴. Adverse Events Following Immunization (AEFI) could be due to the inherent properties of the vaccine or due to an error in the immunization process such as using inappropriate dose, inappropriate preparation of

vaccine, inadequately sterilized syringes and needles, incorrectly stored vaccine, using inappropriate route for vaccination or delayed use of reconstituted vaccine beyond six hours³⁵. Overlooking the contraindications for vaccination could be another cause³⁵. A well established system to report and analyse AEFI has been in operation in Sri Lanka since 1995^{9,35}. Because of the efficient functioning of this surveillance system, it was able to prove that most of the AEFI cases were mere coincidence and had no relationship with the vaccination³. This has led to the maintenance of confidence on the immunization programme by the parents and medical community⁹. Last year more than 80% of "Nil" returns of AEFI were sent from the North and East provinces except Ampara. It indicates that the surveillance of AEFI was not properly done in these provinces³⁵. It is particularly worrying to note that the Jaffna district has sent the highest number of "Nil" returns (96.3%) in 2007³⁵. All health personnel including medical practitioners dealing with children in both public and private sectors and field staff (public health midwife) should be aware of the AEFI reporting system and the availability of Immunization Clinic AEFI Register, MOH Office AEFI Register and Carbonized AEFI Reporting Forms^{35,36}. Careful surveillance and investigation of AEFI are necessary to identify causes of these events that require correction³⁵. Attention should be given to the frequent AEFI such as injection site abscesses, lymphadenitis associated with BCG, acute paralysis associated with Oral Polio Vaccine (OPV), Guillain Barre Syndrome, encephalopathy occurring with 72 hours of vaccination, encephalitis, meningitis, seizures lasting more than 15 minutes and not accompanied by focal neurological signs and symptoms, allergic reactions, anaphylactoid reaction, anaphylactic shock, arthralgia, disseminated BCG itis, HHE, osteomyelitis, persistent screaming, sepsis, toxic shock syndrome and any death happened within 4 weeks of vaccine administration, where no other clear cause to death can be established, should be reported³⁵.

Justifications for Newer Vaccines

Vaccination is a cost effective strategy in prevention and control of vaccine preventable diseases³⁷. Nevertheless, when introducing a new vaccine to the EPI, burden of that disease, safety and efficacy of the vaccine and the cost should be considered³⁷. Currently mumps and pneumococcal vaccines are

under consideration for inclusion into the EPI³⁸. Though exact statistics on the mumps morbidity is not available, it is estimated to affect at least 20,000 persons per year and on average mumps causes 14 days of disability³⁹. Based on these estimations of disease burden with the availability of safe and efficient vaccine, mumps vaccine is under consideration for inclusion into the EPI as a combined Measles Mumps Rubella (MMR) vaccine^{38,39}. In the case of pneumococcal vaccine, sentinel surveillance of pneumococcus infections was started in 2004⁴⁰. Though the burden of pneumococcal infections is not known, it is justified considering the high morbidity and mortality due to pneumonia and the reported high antibiotic resistance of streptococcus pneumonia with the availability of safe and efficient vaccine^{38,40}. New vaccines are usually more expensive because of the consequence of the investments made in research and development⁵ and prices of older vaccines are expected to decrease³⁷. Further, availability of combined vaccines would save the cost of auto disabled syringes and convenient to the service provider and the recipients^{37,41}. Sri Lanka is a self sustained vaccine procuring country except for the partly funding from Global Alliance for Vaccines and Immunization (GAVI) to the hepatitis B vaccine³⁷ and pentavalent vaccine⁴².

Considering the high costs of the new vaccines, introduction of newer vaccines will depend on the financial commitment of the government³⁷. The NIP will be continuously overburdened with inclusion of newer and efficient vaccines added against more diseases and due to the need for coverage of increasing population.

Factors Affecting the Vaccination Programme

Eradication and elimination of diseases by vaccination programme at national level could be achieved only when the vaccination programme is carried out with high coverage in all parts of the country. Protracted civil conflict not only jeopardise the existing vaccination programmes but also could reverse the achievements in the past because in conflict areas vaccine coverage can be very low^{43,44} and disease outbreaks can easily occur. Though the average immunization coverage has been steadily increasing over the years⁴⁵ and Sri Lanka has achieved the highest immunization coverage in the region⁴⁶ constraints in implementing the EPI

have been reported in areas affected by armed conflict in Sri Lanka⁴⁷. Global peace needs to be achieved and maintained for the success of global disease eradication programmes through immunization. This fact was witnessed by the recent mass immunization carried out in USA against the once globally eradicated smallpox in preparedness of bioterrorism attacks^{48,49}. It is for these reasons peaceful atmosphere within the country as well as between nations would be important for the success of immunization programme and survival of the mankind. Finally it is the economy of a country and the policy of the government that would determine the availability of the ever increasing vaccines to its citizens free of charge.

"Life or death for a young child too often depends on whether he is born in a country where the vaccines are available or not" Nelson Mandela⁵⁰

References:

1. Plotkin SA. Vaccines: past, present and future. *Nat Med* (2005) 11:S5-11
2. BBC History- Smallpox: Eradicating the scourge, Web address:
3. http://www.bbc.co.uk/history/british/empire_seapower/smallpox_01.shtml
4. Reidal S. Edward Jenner and the history of smallpox and vaccination. *Baylor University Medical Center Proceedings*. 2005 January; 18(1):21-25. Web address: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1200696>
5. Worboys M. Vaccines: conquering untreatable diseases, *BMJ*, Jan 2007; 334: s19.
6. Ricciardi W, The old Edward Jenner and the new public health: the future of vaccines in Europe. *Eur J Public Health*, August 2008; 18: 353.
7. World Health Organization, The history of vaccination, Web address: <http://www.childredivaccine.org/files/WHO-Vaccine-History.pdf>
8. Kulathilaka TA, Jayakuru WS. Development of epidemiological services in Sri Lanka and future challenges. *The Journal of the College*

- of Community Physicians of Sri Lanka*, Public health development in Sri Lanka, 2001, 21-28
9. Laing RO, Perera RS. Health and health services on plantations in Sri Lanka. *Health Policy and Planning*, December 1986; 1: 317 - 325.
 10. Pieris TSR. Update on present status of National Immunization Programme, Sri Lanka In: Sri Lanka National Immunization Summit 2007: Proceedings of the second meeting of the national stake holders, Colombo, Sri Lanka, 5th January 2007, 1-8.
 11. Hib Focus, June 2006 Vol1, No.3,p4, Web address: [http://www.hibaction.org/news/ newsletter/hibFocusVol1No3.pdf](http://www.hibaction.org/news/newsletter/hibFocusVol1No3.pdf)
 12. Perera J. Hepatitis A vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 24-26
 13. Siriwardena P. Measles, mumps and rubella vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 50-52
 14. Perera J. Meningococcal vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 57-60
 15. Batuwanthudawe R. Pneumococcal vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 61-64
 16. De Silva S. Rotavirus vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 78-81
 17. Weerasinghe A. Typhoid vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 89-91
 18. Fernando S. Varicella vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 92-95
 19. Weerasinghe A. Yellow fever vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 96-98
 20. Department of Health Services, Sri Lanka. Annual Health Bulletin 2003, 44
 21. Centre for Disease Control and Prevention (CDC), morbidity and mortality weekly report, Progress towards sustainable measles mortality reduction- South East Asia region, 1999-2002, July 2, 2004 / 53(25):559-562
 22. Epidemiological Unit, Ministry of Health, Nutrition & Welfare. Immunization Handbook: National Expanded Programme on Immunization, Sri Lanka-2002, Measles 69-73
 23. Sela M, Hilleman MR. Therapeutic vaccines: realities of today and hopes for tomorrow. *Proc. Natl. Acad. Sci. USA* 101 Suppl 2, 14559 (2004). Web address: [http://www.pnas.org/content/101/ suppl.2/14559.full](http://www.pnas.org/content/101/suppl.2/14559.full)
 24. Autran B, Carcelain G, Combadiere B, Debre P. **Therapeutic Vaccines** for Chronic Infections. *Science*, Jul 2004; 305: 205 - 208.
 25. Karunaratne K. Human papilloma virus vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 34-37
 26. Lewis JJ. **Therapeutic cancer vaccines:** Using unique antigens, *PNAS*, Oct 2004; 101: 14653 - 14656.
 27. BBC News: Diabetes vaccine trials to begin. Web address: [http://news.bbc.co.uk/2/hi/health/ 4091399.stm](http://news.bbc.co.uk/2/hi/health/4091399.stm)
 28. Sela M, Mozes E. Therapeutic vaccines in autoimmunity. *Proc. Natl. Acad. Sci. USA*, Oct 2004; 101: 14586 - 14592.
 29. High Beam encyclopaedia: rabies. Web address: [http://www.encyclopedia.com/doc/1G2- 3437000220.html](http://www.encyclopedia.com/doc/1G2-3437000220.html)
 30. Wimalaratne O. Rabies vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 69-77
 31. Centers for Disease Control and Prevention: The nasal-spray flu vaccine. Web address: [http:// www.cdc.gov/flu/about/ga/nasalspray.htm](http://www.cdc.gov/flu/about/ga/nasalspray.htm)
 32. Abeyasinghe N. Influenza vaccine In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 38-41
 33. The Sunday Times, News: Vaccination suspended after children show side effects. Web address: <http://www.sundaytimes.lk/080629/ News/timesnews0011.html>
 34. Epidemiological Unit, Sri Lanka. Hypotonic Hyporesponsive Episode (HHE), *Weekly*

- Epidemiological Report*, Volume 35. No.21, 17th-23rd May 2008. Page 1.
35. Epidemiological Unit, Sri Lanka. Is victimization of the rubella vaccine vindicated?, *Weekly Epidemiological Report*, Volume 36. No.12, 14th-20th March 2009. Page 1.
 36. Peiris S. Surveillance and prevention of adverse events following immunization (AEFI) In: Sri Lanka Medical Association. SLMA guidelines and information on vaccines, 2008, 109-113
 37. Epidemiology Unit, Ministry of Health. Surveillance report on adverse events following immunization (AEFI), *Epidemiological Bulletin Sri Lanka*, Fourth Quarter 2007, Volume 48, October- December 2007, p10-15
 38. Amarasinghe A. Financial sustainability in introducing new vaccines into the EPI in Sri Lanka In: Sri Lanka National Immunization Summit 2007: Proceedings of the second meeting of the national stake holders, Colombo, Sri Lanka, 5th January 2007, 1-8.
 39. Epidemiology Unit, Ministry of Health. Sri Lanka National Immunization Summit 2007: Proceedings of the second meeting of the national stake holders, Colombo, Sri Lanka, 5th January 2007, Consensus statement 61-63
 40. Peiris TSR. Introduction of mumps vaccine into the national immunization schedule, Sri Lanka In: Sri Lanka National Immunization Summit 2007: Proceedings of the second meeting of the national stake holders, Colombo, Sri Lanka, 5th January 2007, 13-22.
 41. Batuwanthudawe R. Streptococcus pneumonia: Epidemiology, burden and vaccines In: Sri Lanka National Immunization Summit 2007: Proceedings of the second meeting of the national stake holders, Colombo, Sri Lanka, 5th January 2007, 39-46.
 42. Andre FE. Development of clinical application of new polyvalent combined paediatric vaccines. *Vaccine*, Volume 17, Issues 13-14, January 1999, 1620-1627
 43. Epidemiological Unit, Sri Lanka. Introduction of Hib vaccine into the EPI programme, *Weekly Epidemiological Report*, Volume 34. No.40, 29thSep-5th Oct 2007. Page 1.
 44. Nicaragua Health Study Collaborative at Harvard, CIES, and UNAN. Health effects of the war in two rural communities in Nicaragua. *Am J Public Health*, Apr 1989; 79: 424 - 429.
 45. Robertson A, Fronczak N, Jaganjac N, Hailey P, Copeland P, Duprat M.
 46. Nutrition and Immunization Survey of Bosnian Women and Children during 1993. *Int. J. Epidemiol.*, December 1995; 24: 1163 - 1170.
 47. D Fernando. Health care systems in transition III. Sri Lanka, Part I. An overview of Sri Lanka's health care system. *J. Public Health Med.*, Mar 2000; 22: 14 - 20
 48. Zaidi AKM, Awasthi S, de Silva HJ. Burden of infectious diseases in South Asia. *BMJ* 2004;328(7443):811 (3 April), doi:10.1136/bmj.328.7443.811
 49. Country health profile, Sri Lanka. Web address: http://www.searo.who.int/LinkFiles/Sri_lanka_srilanka.pdf
 50. Selgelid MJ. Bioterrorism and smallpox planning: information and voluntary vaccination. *J. Med. Ethics*, Dec 2004; 30: 558 - 560.
 51. Drazen JM. Smallpox and Bioterrorism. *N. Engl. J. Med.*, Apr 2002; 346: 1262 - 1263.
 52. Martin JF. The immunization imperative, *Expert Review of Vaccines*, June 2004, Vol. 3, No. 3, Pages 225-227, Web address: <http://www.expert-reviews.com/doi/pdf/10.1586/14760584.3.3.225?cookieSet=1>

Outpatient Endometrial Sampling as a Method for Assessing Abnormal Uterine Bleeding in Women over 35 years in Teaching Hospital, Batticaloa

Siraj S H M*

Abstract

Endometrial sampling is an 'office' technique that has gained widespread acceptance in developed countries. It is as accurate as dilatation and curettage (D&C) in the diagnosis of endometrial atypia and carcinoma. It appears to be the most suitable method of endometrial assessment for general practice. However, research is lacking on the effect of the widespread introduction of the technique as an outpatient procedure in Sri Lanka.

Formal dilatation and curettage (D&C) is commonly used in developing countries as the standard and often sole means of assessing abnormal uterine bleeding in women of middle and advanced age. This is counterproductive in countries like Sri Lanka with limited resources.

Fifty-eight such women over 35 years of age were investigated using endometrial sampling as an outpatient assessment of endometrium in ward 03 at Teaching Hospital, Batticaloa. Histological diagnoses were obtained in 91.4% of patients, and of 05 instances with inadequate or no sample, 07 were endometrial polyps. Since Endometrial sampling, assessed alongside other diagnostic modalities, has previously been shown to be as accurate as D&C in detecting endometrial pathology.

Introduction

Our experience confirms its role as a valuable and inexpensive means of assessment as an outpatient procedure in developing countries like Sri Lanka. A significant proportion of the surgical workload of a gynecological department involves the exclusion of sinister endometrial pathology in middle-aged and older women, who present with abnormal uterine bleeding. The major concerns include endometrial hyperplasia and carcinoma and other abnormalities such as chronic endometritis and endometrial polyps. However, in the majority of cases, no organic pathology will be found.

The traditional method of assessing these women is a dilatation and curettage (D&C), but over the years a number of ancillary procedures have developed. These include transvaginal ultrasound (TVS), hysteroscopy, outpatient endometrial sampling and hysterosalpingosonography (HSSG). The relative sensitivity and specifications of these procedures,

have been addressed by many authors (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12).

In Teaching Hospital Batticaloa, the favored means of assessing the endometrium continues to be by D&C and it is likely that the same occurs in most of the other hospital in Sri Lanka since the methods which require technological equipment and expertise are commonly unavailable.

However, it has been reported that less than half of the endometrial cavity would be curetted in 60% of patients (12) and up to 15% of endometrial carcinomas would be missed (1).

MedGyn Endosampler is meant for obtaining clearly differentiated endometrial tissue without anaesthesia in an outpatient setting or as an office procedure. This instrument is designed to improve the efficiency, convenience and the reliability of endometrial tissue collection and to reduce the physical discomfort of the patient which is usual for endometrial biopsy. It provides liberal histologic specimens, surgical ease and is procedurally cost effective for routine use.

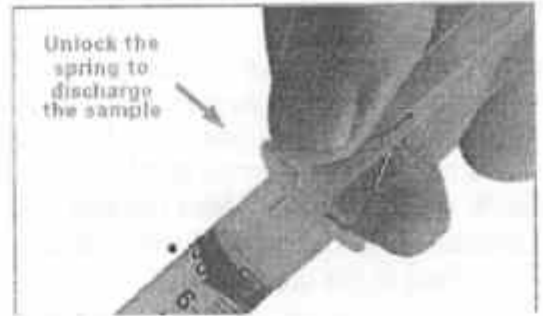
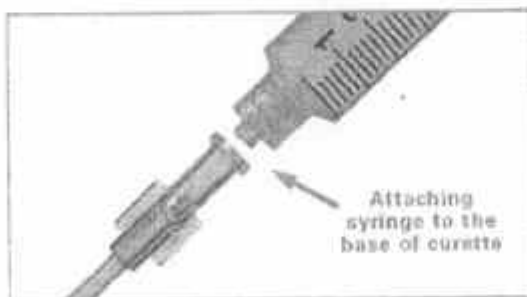
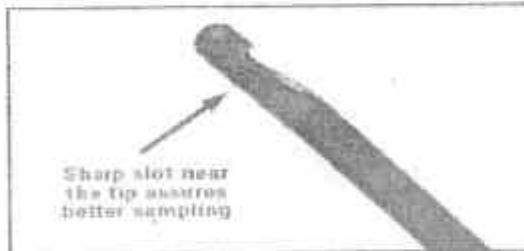
Materials and Methods

Between November 2008 and May 2009, Fifty four women eligible for the study, were enlisted because of presentation with abnormal per vaginam bleeding, limited to menorrhagia, intermenstrual or postmenopausal bleeding. Their ages ranged from 35 – 71 years and there was no upper limit.

After history taking and physical examination, the woman was scheduled for Endometrial sampling, providing that an obvious local cause (eg. cervical carcinoma) was absent.

The procedure was performed under aseptic conditions using the endometrial sampler according to manufacturer's instructions. In only a few cases, intrauterine entry required the application of an Allis forceps onto the anterior lip of the cervix. No complications of the procedure were recorded and samples were sent for routine histological analysis.

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Results

Table 1.

Characteristics	Number
Age Groups	
35-40	16
41-49	34
50+	08

The majority of women (58.6%) were between 41-49 years of age, with 13.7% , 50 years or over, and 27.58%, aged 35-40 years.

Indications for the procedure were menorrhagia 32 (55.2%), intermenstrual bleeding 11(18.9%) and postmenopausal bleeding 15(25.9%). Normal histological findings were noted in 42 women (72.4%) and in 05 cases (8.6%), the sample obtained was inadequate for histological analysis or no sample was obtained.

Table 2

Histological results	Number
Normal	42
Endometrial Hyperplasia	03
Adenomatous Polyps	07
Endometrial Carcinoma	01
Inadequate Sample	05

Discussion

Abnormal uterine bleeding in middle-aged and older women is a common indication for D&C in developing countries and this would be responsible for utilization of scarce resources. Performed alone, D&C is also known to carry a significant false negative rate (!). Our experience with Endosampling with endosampler is documented in this paper.

It is inexpensive, simple and easy to perform in the outpatient setting. In 05 cases (31.4%) however, sampling was deemed either inadequate for histopathology or no sample was obtained.

Conclusion

Since no complications occurred, our experience suggests that endosampling with endosampler is a simple, safe and reliable way to undertake assessment of abnormal uterine bleeding in the women described. This is particularly relevant in a setting where more advanced methods of assessment are not readily available.

References

1. Stovall TG, Soloman SK, Ling FW. Endometrial sampling prior to hysterectomy. *Obstet Gynecol* 1989; 73: 405-408.
2. De Jong P, Doel F, Falconer A. Outpatient diagnostic hysteroscopy. *Br J Obstet Gynaecol* 1990; 97: 299-303.
3. Downes E, Al-Azzawi F. The predictive value of outpatient hysteroscopy in a menopause clinic. *Br J Obstet Gynaecol* 1993; 100: 1148-49.
4. Georgiev D, Chemev R, Netzov V. Preoperative sonographic evaluation of patients with endometrial carcinoma. *Int J Gynaecol Obstet* 1994; 47: 147-50.
5. Fothergill DJ, Brown VA, Hill AS. Histological sampling of the endometrium. A comparison between formal curettage and the pipelle sample. *Br J Obstet Gynaecol* 1992; 99: 779-80.
6. Tahira B, Reginald P. Outpatient pipelle biopsy in the investigation of postmenopausal bleeding. *Br J Obstet Gynaecol* 1994; 101: 545-46.
7. Goldschmit R, Katz Z, Blickstein I. The accuracy of endometrial pipelle sampler with and without sonographic measurements of endometrial thickness. *Am J Obstet Gynecol* 1993; 82: 727-30.
8. Eddowes HA, Read MD, Codling BW. Pipelle: a more acceptable technique for outpatient endometrial biopsy. *Br J Obstet Gynaecol* 1990; 97: 961-62.
9. Tahir MM, Bigrigg MA, Browning JJ, Brookes ST, Smith PA. A randomized controlled trial comparing transvaginal ultrasound, outpatient hysteroscopy and endometrial biopsy with inpatient hysteroscopy and curettage. *Br J Obstet Gynaecol* 1999; 106: 1259-64.
10. Nasri MN, Coast GJ. Correlation of ultrasound findings and endometrial histopathology in postmenopausal women. *Br J Obstet Gynaecol* 1989; 96: 1333-38.
11. Osmer R, Volsken M, Schaver A. Vaginal sonographic detection of endometrial cancer in postmenopausal women. *Int J Gynaecol Obstet* 1990; 32: 35-37.

Knowledge, Attitude, Perceived Risks of Infection and Sources of Information about Lymphatic Filariasis among Residents in an Endemic Area in Sri Lanka

Darshana Wickramasinghe*

Abstract

Lymphatic filariasis is ranked as the second most common cause of physical disability. To prepare for an acceptable and practicable control strategy, planners and researchers need to be aware of the knowledge and belief of the people regarding the disease.

The study was undertaken in 7 suburbs of Matara district in Sri Lanka. Four localities were selected from each suburb for the direct application of a pre- tested, self administered questionnaire and each suburb covered a total of about 100-120 people.

96.6% of people had heard and knew the term filariasis. 44.7% of people recognized elephantiasis as the commonest clinical manifestation of filariasis. Knowledge about hydrocoele (7.5%) and chronic cough (7.56%) were very poor as clinical manifestations of filariasis. 50% of the people were knowledgeable about asymptomatic carriers of filariasis.

5.3% of the people had at least one family member affected with elephantiasis. 85.3 % of the people replied that elephantiasis was caused by mosquito bites. Even though this is a filarial endemic area, majority of people thought that hydrocoele was due to heavy physical work (29.8 %).

Very few people thought of familial relationship for both elephantiasis (1.3%) and hydrocoele (0.5%). Majority (70%) believed filariasis as a curable disease. More than 90% believed elephantiasis could be prevented. 77.5% had the idea that we would be able to eradicate filariasis from Sri Lanka. This study concluded that majority of the patients believed filariasis as a preventable and eradicable disease.

Introduction:

Lymphatic filariasis is a major public health problem and inflicts a considerable social and economic burden on many tropical and subtropical countries. It is currently estimated to occur in over 128 million people in 80 endemic countries (1). The possibility of eradicating lymphatic filariasis has recently received considerable attention because of several significant improvements in the tools available to control this disease. (2)

Sri Lanka has adopted the single annual dose mass albendazole and diethylcarbamazine treatment since

2001 for the control of lymphatic filariasis. Participation as well as acceptance of the target population is important for this type of control strategy. It is necessary to understand the target population's knowledge and perception with respect to clinical outcome, transmission and control of filariasis. (3)

Ignorance, poor knowledge, traditional and incorrect beliefs can lead to negligence in prevention and control measures as well as in accepting appropriate treatment.

To prepare an acceptable and practicable control strategy, planners and researchers must be aware of the knowledge and belief of the people regarding the disease, treatment, prevention and control. Such information is scanty as very few studies have been carried out to understand these issues.

Objective

This study was carried out to ascertain the people's knowledge, attitudes and perceptions in relation to lymphatic filariasis in filarial endemic area in Sri Lanka.

Material and method

This study was conducted in suburbs of Matara district. The study area is known for its endemicity for lymphatic filariasis cause by *Wuchereria bancrofti* which is mainly transmitted by *Culex quinquefasciatus*. Inhabitants of the study area vary in socio-economic states from low to middle income classes.

All 7 suburbs in Waigama and Matara areas were covered in this study. They were Waigama, Waigama Central, Waigama South, Waigama North, Hamugewatta, Matotagama and Baddegama. Four localities were selected from each suburb for the direct application of a pre- tested, self administered questionnaire. In each locality we visited the houses on both sides of the randomly selected roads. The houses that were closed during the survey were ignored. The questionnaire was applied directly to one or two adults from each house hold concurrently. We questioned around 25-30 people in each locality

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to cover a total of about 100-120 people in each suburb. The data from the responses to questions in the questionnaire were double entered and validated in SPSS 10.0 computer software.

Results

The age of the people interviewed ranged between 15 and 75 years. Females interviewed exceeded the males in the community where the female to male is 3:2. More than 95% are Buddhist. 96.6% of people have heard and knew the term filariasis.

The knowledge on filariasis had been transmitted to the community by several modes. Television, radio and news papers have provided the highest information (29.5 %). Apart from that, 28.4% got to know from health personnel. 23.7% of those who had the knowledge obtained it from the patients and non-medical persons.

Majority (44.7%) recognized elephantiasis as the commonest clinical manifestation of lymphatic filariasis. Apart from that fever and body aches (16.95%), pain in lymphatics (17.86%) were the other common manifestations known to people. Knowledge about hydrocoele (7.56%) and chronic cough (7.56%) were very poor as clinical manifestations of filariasis.

While 50% of the people were knowledgeable about asymptomatic carriers of filariasis, 33.1% had no idea and 16.7% noted that there can't be asymptomatic

41.3% of the people got to know about hydrocoele by media and 26.6% by health personal. Even though they were knowledgeable about filariasis (96.6%) their knowledge about hydrocoele was poor (56.2%). 3 % of the people in this filariasis endemic area knew that elephantiasis is caused by mosquito bites. The other ways of spread of elephantiasis cited by the respondents were, infective agent (7.6 %), infected from elephantiasis patients (2.1 %), hereditary (1.3 %) and heavy physical work (0.9 %).

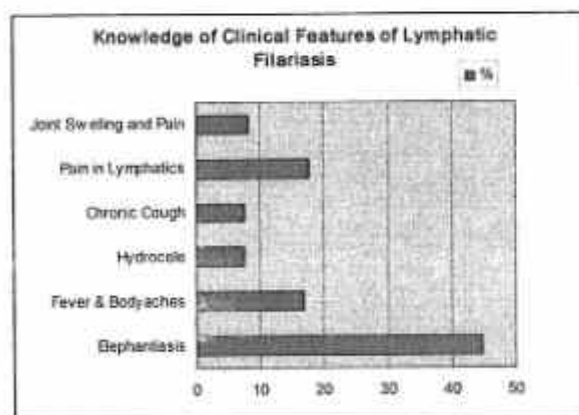
Cause	Elephantiasis		Hydrocoele	
	Frequency	%	Frequency	%
Heavy work	7	0.9	178	29.8
From Patients	16	2.1	7	1.2
Familial	10	1.3	3	0.5
Mosquito bites	636	85.3	53	8.9
Germ	57	7.6	150	25.1
Do not know	20	2.7	207	34.6
Total	746	100	598	100

Even though this is a filarial endemic area, 29.8 % think that hydrocoele is due to heavy physical work. Only 8.9 % of the people knew that hydrocoele has a relation to mosquito bites. There was 34.6% of the population who didn't have a clue about the cause of hydrocoele. The mode of spread of hydrocoele cited by the respondents was infection from an infective agent (25.1%), transmission from hydrocoele patient (1.2 %), and inheritance (0.5 %). Even though it is common to see multiple cases of elephantiasis and hydrocoele within the single families, very few people think of familial relationship for both elephantiasis (1.3%) and hydrocoele (0.5%).

Curable	Elephantiasis	Hydrocoele	Filariasis
No	44.2	1.9	17.5
Yes	36.2	62	70
Do not know	19.6	36.1	12.5

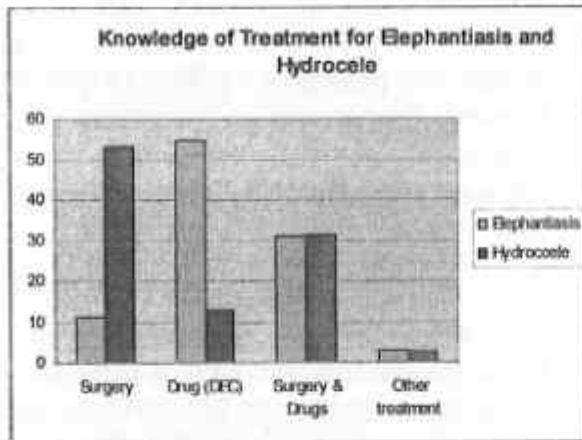
While 62% of the people believe that hydrocoele can be cured, only 36.2 % of people felt that elephantiasis is curable with treatment. Majority (70%) believe filariasis as a curable disease.

The treatment methods that they were giving for elephantiasis were drug treatment (56.4%) and surgery (11.4%). But regarding the cure of hydrocoele, 70% knew that surgery is the only treatment for hydrocoele. 30% of the population indicate that both surgery and drug treatment can be used as treatment methods for elephantiasis as well as hydrocoele.



carriers. In this study population all most all the people have seen elephantiasis patients. 5.3% of the people have at least one family member affected by elephantiasis. 63% of the people have neighbours or friends with elephantiasis.

Regarding hydrocoele, in 14.5% of families at least one family member had hydrocoele.



More than 90% believe elephantiasis can be prevented. But, regarding hydrocoele, only 60% of respondents knew that, hydrocoele can be prevented. Majority (70%) indicated that filariasis is not a person to person transmitting disease.

77.5% had the idea that filariasis can be eradicated from Sri Lanka. Even though the knowledge about asymptomatic carries and hydrocoele was poor it increases with the educational level.

Discussion

The study area is situated in the filarial endemic area. A majority of people of this endemic area are familiar with various manifestations of filariasis. Knowledge on the disease is wide spread in the community and that its distribution is not limited to sex, age groups, years of schooling and occupation of the population. So, this might be an indication that the propaganda, health campaign on the public health importance and control of the disease had reached these various levels of the population.

Most of them have attended the health education and participated in the mass treatment programme conducted by the Health Ministry of Sri Lanka.

With regard to the respondent's knowledge on epidemiologic factors, elephantiasis (44.7%) was the most recognized clinical feature. Though people were aware of hydrocoele, they were unable to link it to filariasis. Most of the people believe that hydrocoele is caused due to hard work or heavy cycling, as they see that condition among such people. It is known that about half to two third of hydrocoele cases could be of definite filarial aetiology of endemic areas of India (4).

People in endemic areas generally conceptualize the cause or spread of elephantiasis or hydrocoele in a manner related to their reasoning.

Studies from other endemic areas revealed a variety of reasons for elephantiasis such as ankle injury, aggravated by bathing in sea, spread through urine or food or drink (in French Polynensia) (5, 6), taking contaminated foods and drinks (in Malaysia) (7), drinking water of ponds or wells or accumulation of bad fluids, poor nutrition (In South India) (8), walking bare foot, stepping on a bug, worm or microbe (in Haiti) (9), etc.,. In this present study nobody indicates those factors as reasons for elephantiasis but majority (85.3%) knew it is related to mosquito bites.

The knowledge on the spread of the disease filariasis is poor among people and very small group of respondents could be able to link cause of hydrocoele to mosquito bite (8.9%).

Studies from other endemic countries such as Philippines (10), Malaysia (7), Haiti (9) and Ghana (11) reported the poor knowledge of people on the role of mosquitoes. In a rural community of South India, only less than 20 % of people knew that filariasis is caused by mosquito bites (8). In the current study more than 80% knew that elephantiasis is transmitted by mosquitoes, but less than 9% understand the relationship with hydrocoele. There is almost universal absence of recognition of the role of mosquitoes in transmitting filariasis (9).

In this present study people do not believe familial relationship for lymphatic filariasis. It is now known that those sharing a house hold with an lymphatic filariasis case are at high risk of being bitten by an infected mosquito and developing lymphatic filariasis themselves, irrespective of prenatal sensitization or genetic factors (12).

Unfortunately as reflected by the present study less than 50 % knew that there can be asymptomatic carriers and they have no idea of the disease transmission among clinically normal people. So it will badly affect the community participation in programs like annual single dose mass therapy with diethylcarmazine (DEC) and albendazole, and night blood surveys. So, there is a clear need to highlight the benefits of such strategies to the community.

Conclusion:

This study concludes that majority of them believe filariasis as a preventable and eradicable disease. So we have to educate the community by providing adequate and practicable knowledge on the disease causation, its manifestation, prevention, treatment and the community level action.

The information which include people's knowledge, beliefs and perceptions about a disease is essential to develop health education and control program.

References:

1. World Health Organization (2002). *Annual report on Lymphatic Filariasis 2001*. Document WHO/CDS/CPE/CEE/2002.28. Geneva:WHO.
2. Evans DB, Gelband H, Vlassoff C, (1993). Social and economic factors and the control of lymphatic filariasis: a review. *Acta Trop* 53: 1-26.
3. Rauyajin O., Kamthornwachara, B. & Yablo, P. (1995). Socio-cultural and behavioural aspects of mosquito-borne lymphatic filariasis in Thailand: a qualitative analysis. *Social Science and Medicine* 41: 1705-1713
4. Pani, S.P., Lall, R. (1998). Clinical features, pathogenesis and management of lymphatic filariasis. *ICMR Bulletin* 28: 41-51.
5. Carne, B., Utahia, A., Tuira, E. & Teuru, T. (1979) Filarial elephantiasis in French polynesia; a study concern in the beliefs of 127 patients about the origin of their disease. *Transactions of Royal Society of Tropical Medicine and Hygiene* 73: 424-426.
6. Kessel, J.F., (1957). Disabling effects and control of Filariasis *American Journal of Tropical Medicine and Hygiene* 6: 402-414.
7. Rijji, H.B.M. (1983). Cultural factors in the epidemiology of Filariasis due to *Brugia malayi* in an endemic community in Malaysia. *South East Asian Journal of Tropical Medicine and Public Health* 14: 34-39.
8. Ramaiah, K.D., Kumar, K.N.V. & Ramu, K. (1996). Knowledge and beliefs about transmission, prevention and control of lymphatic filariasis in rural areas of South India. *Tropical Medicine and International Health* 1: 433-438.
9. Eberhard, M.L., Walker, E.M., Addis, D.G. & Lammie, P.J. (1996). A survey of knowledge attitude and perceptions (KAPs) of lymphatic Filariasis, elephantiasis and hydrocoele among residence in and endemic area in Haiti. *American Journal of Tropical Medicine and Hygiene* 54: 299-303.
10. Lu, A.G., Valencia, L.V., Liagas, L., Aballa, L. & Postrado, L. (1988). Filariasis: A study of knowledge attitudes and practices of the people of Sorsogon: Social and Economic Research Project Report No. 1, TDR/SER/PRS/1 World Health Organization Geneva.
11. Ahorlu, C.K., Dunyo, S. K., Koram, K.A., Nkrumah, F.K., Asgaard, J. & Simonsen, P. E (1999). Lymphatic Filariasis related perceptions and practices on the coast of Ghana: implications for prevention and control. *Acta Tropica* 73: 251-264
12. Das, P.K., Srividya, P., Vanamail, P., Ramaiah, K.D., Pani, S.P., Micheal, E. & Bundy, D.A.P. (1997) *Wuchereria bancrofti* microfilaraemia in children in relation to prenatal infection status. *Transactions of Royal Society of Tropical Medicine and Hygiene*, 91: 677-679.

Complications and Their Outcome in an Outbreak of Leptospirosis - Experience in a Base Hospital

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Abstract

Introduction – Leptospirosis affects a majority of farmers in Sri Lanka during outbreaks. Complications of the disease are associated with significant morbidity and mortality even in the best centres. This study aims to identify the complications and outcome in a Base Hospital Facility, in Sri Lanka.

Patients and Methods – 162 patients (149 males: 13 female: median age 36 years, range 12 – 83 years) who were diagnosed to have leptospirosis at the medical unit of Base Hospital Homagama, Sri Lanka, from 1st of August to 31st of September 2008 were analyzed prospectively. The end points were to identify complications and the outcome of the complications after being managed in a Base Hospital facility.

Results – Twenty-seven patients (17%) developed Acute Renal Failure (ARF). Out of this, 20 patients (13%) responded to conservative management while 7 (4%) had to be transferred to a higher centre as they needed dialysis therapy. Out of twenty-two (13.5%) patients who were found to have thrombocytopenia, 14 patients (8.6%) responded to conservative management. However, 7 (4.3%) were transferred to a higher centre and 1 (0.6%) to an Intensive Care Unit for specialized management and platelet transfusion. Nine patients (5.5%) were suspected to have myocarditis clinically, of which 2 (1.2%) patients needed specialized management in a Cardiology Unit. Others improved with conservative management without any sequel. Binge alcoholics carry a 13% mortality rate, as opposed to the 3.7% mortality rate of the whole study group.

Conclusion – A significant proportion of patients with ARF and thrombocytopenia in leptospirosis can be managed conservatively, although the binge alcoholics carry a 13% mortality rate, in a Base Hospital facility.

Introduction

Leptospirosis, a zoonotic disease is caused by Gram negative spirochetes known as *Leptospira icterohaemorrhagiae* and *L. interrogans* found in the natural hosts such as rodents, dogs, pigs and cattle. When their urine contaminates stagnant water or water in paddy fields (commonest route of entry in Asian countries), the spirochetes enters the human body via breached skin or intact mucosal surfaces⁽¹⁾. The disease is of great importance globally^(2,3) and in 2007, 4036 cases of leptospirosis were reported in

Sri Lanka, with 180 (4.5%) deaths⁽⁴⁾. Thus, a thorough understanding of the disease and its complications is of importance in the management.

Although the disease commonly presents as a mild to moderate degree fever, it is evident that leptospirosis can lead to complications such as Acute Renal Failure (ARF), Thrombocytopenia, Myocarditis and to a more dreadful complication known as the Weil's disease (encountered by 10% - 15% patients) that impairs patients' physical mental and social wellbeing, compelling them to depend on their family members and relatives. And some of these complicated cases of leptospirosis could even end up in death despite the best medical support⁽¹⁾.

Although there have been many studies on leptospirosis in the West^(5,6), such studies in our part of the world are only a few. In this study we intended to find out the complications and their outcome in patients with leptospirosis, after presenting to a Base Hospital facility of Sri Lanka in South East Asia.

Patients and Methods

Between 01st of August and 31st of September 2008, one hundred and sixty two patients (149 males: 13 female: median age 36 years, range 12 – 83 years) who were diagnosed to have leptospirosis at the medical unit of Base Hospital of Homagama, Sri Lanka, were included in a prospective study, after obtaining their informed consent.

Patients were assessed on admission by a medical officer with regard to symptoms and signs, followed by routine investigations (urine full report-UFR, full blood count-FBC, blood urea - BU and erythrocyte sedimentation rate-E_{SR}). Thereafter, patients were assessed twice or thrice daily by the medical officers under the supervision of the Consultant Physician and the patients were kept under observation for early detection of complications (Acute Renal Failure-ARF, Thrombocytopenia, Myocarditis; etc) of leptospirosis.

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One hundred and fifty one patients (93%) were treated with i.v. Crystalline Penicillin, which is the drug of choice. However, a proportion of patients, those who were with either penicillin allergy (7patients; 4%) or those who had mild degree of the disease (4patients; 2.5%), were treated with Erythromycin and Doxycycline respectively.

ARF was managed conservatively by encouraging oral fluid intake, supported by intravenous fluids, while being monitored with a fluid balance chart including hourly urine out put, facilitated by an indwelling Foley catheter. Patients who did not respond to conservative management were transferred to a higher centre for either peritoneal or haemodialysis. Patients with thrombocytopenia were closely monitored for early signs of bleeding tendencies and were subjected to serial blood counts. Patients with very low platelet counts (less than 20,000/mm³) were either transfused with platelet concentrates or transferred to a higher centre. Similarly, patients who were suspected to have myocarditis clinically were offered strict bed rest and either managed conservatively or transferred to a higher centre for specialized medical management.

Analysis of data were by a computer generated software (SPSS version 13 version, Chicago,USA). The normal approximation test was used to assess significance of the results.

Results

All patients had a common symptom to present with, which is fever for a median duration of 3 days (range 1 – 14days). The onset of illness had been after a median duration of 11 days (range 3 – 30 days) after exposure to contaminated water in 147 (91%) patients (male; 138, female; 9). They have been exposed either by working in paddy fields (126patients; 86%), playing in paddy fields (7patients; 4.7%), gardening (4patients; 2.7%) or working at a construction site (2patients; 1.4%). However, 15 (9%) patients (male; 11, female; 4) denied any contact with polluted water. Only 7 (4%) patients has had leptospirosis previously, whereas 155 (96%) denied of a similar kind of an illness in the past. With regard to alcohol consumption among the patients, 38 (23%) were found to be bingers whereas others were either consuming alcohol occasionally (55patients; 34%) or denied alcohol consumption (69patients; 43%).

Twenty-seven patients (17%) developed ARF. A significant proportion of patients (20patients; 13%) responded to conservative management and 7 (4%) patients had to be transferred to a higher centre as they needed dialysis therapy. Twenty two (13.5%) patients were found to have thrombocytopenia and 14 (8.6%) responded to conservative management which was also significant. However, 7 (4.3%) was transferred to a higher centre and 1 (0.6%) to an Intensive Care Unit for specialized management and platelet transfusion as platelet concentrates were not available with the local blood bank. Nine patients (5.5%) were suspected to have myocarditis clinically, of whom 2 (1.2%) patients needed specialized management in a Cardiology Unit. Others improved with conservative management.

Fourteen patients died of complications (Thrombocytopenia 5, ARF 4, Myocarditis 4, Disseminated Intravascular Coagulation1) during the hospital stay giving a mortality rate of 8.6%. However, 5 (3.1%) were binge alcoholics with pre existing alcohol related hepatic damage thus giving a mortality rate of 13% among the binge alcoholic patients, which is significant. Furthermore, all alcoholic patients who died had come to the hospital very late in their disease and had symptoms and signs of end organ failure on admission. This point is further highlighted as 4 (80%) out of the five alcoholic bingers died within four hours of admission to the medical unit.

The median duration of hospital stay was 2.5 days (range 2 hours to 6 days).

Discussion

This study showed that ARF in leptospirosis could be managed with conservative measures in a significant proportion of patients. Although the group of patients, who needed dialysis therapy could have been managed with peritoneal dialysis, we were unable to do so due to unavailability of adequate peritoneal dialysis solution and laboratory facilities to check serial samples of serum electrolytes.

Similarly, though a significant proportion of patients with thrombocytopenia responded to conservative management, all most all of the non-responded patients (except the patient transferred to an ICU due to DIC) could have been managed in the same unit if platelet concentrates were available with the local blood bank. Thus we had to transfer such patients

with the best interest in the patient. Therefore we would like to recommend the health authorities to upgrade the laboratory and blood bank facilities in Base Hospitals, as most of the patients could have been managed in the same unit without being transferred.

Patients with pre existing alcohol related hepatic disease carries a high mortality rate (13%) in a base hospital, especially when seeking medical care is delayed; hence it is important to educate the community on methods of exposure to the bacteria, possible routes of entry, early symptoms and to seek medical attention in the first instance.

As the disease is commonly encountered by the farmers who are in contact with polluted muddy water constantly, we expected a majority of our patients to have leptospirosis in the past. However, surprisingly, only 7 (4%) has had the disease in the past, which raises the possibility of development of an immunity among the target community. Thus, it is of great importance to the Health sector officials in preventive medicine to explore the possibilities in the development of a vaccine against leptospirosis. However, this study does not possess adequate data to prove this point as it was not the intention of the study, and needs further evaluation and research by the immunologists.

Conclusion

A significant proportion of patients with ARF and thrombocytopenia in leptospirosis could be managed conservatively if adequate laboratory and blood bank facilities are available in Base Hospital level without transferring patients to higher centres. Binge alcoholics carry high mortality rate due to pre-existing hepatic damage and delay in seeking medical care.

References

1. P. Kumar, M. Clark. Bacterial infections- Leptospirosis. Kumar and Clark Clinical Medicine. 2002; 5th Edition: 80.
2. Bharti AR, Nally JE, Ricaldi JN, Matthias MA, Diaz MM, Lovett MA, Levett PN, Gilman RH, Willig MR, Gotuzzo E, Vinetz JM. Leptospirosis: a zoonotic disease of global importance. *Lancet Infect Dis.* 2003 Dec; 3 (12): 757-71.

3. Vijayachari P, Sugunan AP, Shriram AN. Leptospirosis: an emerging global public health problem. *J Biosci.* 2008 Nov; 33 (4): 557-69.
4. Medical Statistics Unit- Sri Lanka. Indoor Morbidity and Mortality Statistics. 2007.
5. Cruz LS, Vargas R, Lopes AA. Leptospirosis: a worldwide resurgent zoonosis and important cause of acute renal failure and death in developing nations. *Ethn Dis.* 2009 Spring; 19 (1 Suppl 1): S1-37-41.
6. Ko AI, Galvao Reis M, Ribeiro Dourado CM, Johnson WD Jr, Riley LW. Urban epidemic of severe leptospirosis in Brazil. Salvador Leptospirosis Study Group. *Lancet.* 1999 Sep 4; 354(9181):820-5.

Management of Procedural Pain in Children

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Illness needing hospital admission is an unpleasant experience not only for adults but more so for children. Many procedures become essential during admission and make it more distressful. The scope of this article is to help medical personnel understand the ill effects of procedural pain and help them minimize the suffering of the youngsters.

Definition of Pain

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. (International association for the study of pain-IASP).

Recent research indicates that the anatomical, neurochemical, and functional requirements for nociceptive reception and the ability to respond to noxious stimuli in an organized way are present at 22-26 weeks of gestation. (Anand & Hicky 1987, Fitzgerald et al 1988 a,b). Neonates can be regarded as hypersensitive to painful stimuli than adults since reflex withdrawal is evoked by milder stimuli in neonates. Related research suggests that younger children may experience higher level of distress during procedures than older children.

There may be long term consequences of unrelieved pain in infants. During immunization more distress is observed in older children who were circumcised with out anesthesia compared with uncircumcised group.

Studies of neonatal ICU have shown increased sensitivity in the heels of infants who required multiple heel sticks for blood sampling with a wider receptive field of sensitivity more than the area in which heel sticks were made. This work supports studies indicating that the early significant pain exposure can sensitize the developing sensory nervous system. Some children who frequently underwent invasive

procedures might have "Needle Phobia" carrying in to adult life.

Increased procedure success rate is a benefit of reducing the pain and distress during procedures. The success rate in IV canulation in a study of 142 children between the age of 1/12 – 17 years is 74% with 4% liposomal lidocain use and is 55% with placebo use. In Baxter's study, with EMLA cream the success rate is 84% with treated skin and 65% with untreated skin.

Clinical Assessment

As pain is both a sensory and an emotional response, behavioral and psychological signs can be misleading. For example, a toddler may scream and grimace during an ear examination because of fear rather than from pain. There are several tools used to assess the severity of pain in different age groups. Namely, Visual analogue scale (VAS), Behavioral or Combined behavioral psychological scale, Autonomic measures such as Heart Rate/ Blood Pressure/ Heart rate spectral analysis and Hormonal metabolic measures.

Management of Procedural Pain

There are key questions to be answered before deciding an invasive procedure in a child.

1. What is the procedure required?
2. Is the procedure really necessary?
3. How urgent is the procedure?
4. What is the expected intensity and duration of pain or distress for this child?

The resources required for management of procedural pain in children depend on the procedure, technique and the child.

The environment should be the treatment room (not the bed or bedroom).

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The setting should be comfortable, friendly and with understandable adults. The pictures drawn over the walls, toys around, and soap bubbles help in distracting the attention.

Staff should have experience in the technique used; and have ability to assess clinical effectiveness and possible deterioration; and manage adverse effects appropriately.

Common inward procedures

Type of procedure	Suggested techniques
Capillary sampling	Squeezing of tissue is most painful and is not relieved by topical anesthesia. <ol style="list-style-type: none"> 1. Pacifier and oral Sucrose up to 2 month of age. 2. Swaddling and containment of the infant. 3. Distraction, relaxation or other coping skills. 4. Use of an automated lancet where ever possible.
Suprapubic aspiration	<ol style="list-style-type: none"> 1. Pacifier and oral Sucrose up to 2 month of age. 2. Swaddling and containment of the infant. 3. Distraction, relaxation or other coping skills. 4. Topical anesthetic agents such as EMLA, Anasica gel, ALA, ELA.max, applied at recommended doses 20min before needling.
Immunization	Application of EMLA over the area 20min before the procedure reduces the pain with out interfering with the immunogenic activity. <ol style="list-style-type: none"> 1. Pacifier and Sucrose up to 2 month of age. 2. Swaddling and containment of the infant. 3. Distraction, relaxation or other coping skills. 4. Vapocoolent applied 15 seconds before vaccination.
Venopuncture / Arterial Puncture/ IV Cannulation/ Intra Arterial Cannulation	<ol style="list-style-type: none"> 1. Pacifier and Sucrose up to 2 month of age. 2. Swaddling and containment of the infant. 3. Distraction, relaxation or other coping skills. 4. Topical anesthetic agents such as EMLA, Anasica gel, ALA, ELA.max 5. Nitrous oxide gas inhalation.
Central Venous Line insertion	<ol style="list-style-type: none"> 1. Pacifier and Sucrose up to 2 month of age. 2. Swaddling and containment of the infant. 3. Distraction, relaxation or other coping skills. 4. Topical anesthetic agents such as EMLA, Anasica gel, ALA, ELA.max 5. Local anesthetic agents – ex. subcutaneous lignocaine + NaHCO₃ buffer. 6. Sedation with Midazolam (IM/IV/Oral/Intranasal) 7. Opioid analgesia (Morphine/Pethidine/Fentanyl)
Nasogastric and Orogastric tube insertion	<ol style="list-style-type: none"> 1. Pacifier and Sucrose up to 2 month of age. 2. Swaddling and containment of the infant. 3. Distraction, relaxation or other coping skills.

Urethral catheterization	<ol style="list-style-type: none"> 1. Pacifier and Sucrose up to 2 month of age. 2. Swaddling & containment of the infant. 3. Distraction, relaxation or other coping skills. 4. Use of lignocaine & lubricant in older children. 5. Nitrous oxide gas.
Lumber puncture	<ol style="list-style-type: none"> 1. Pacifier & Sucrose up to 2 month of age. 2. Swaddling & containment of the infant. 3. Distraction, relaxation or other coping skills. 4. Injectable local anesthesia such as S/C lignocaine is considered. However the pain of actual injection & the agent itself may be bad than the actual procedure. Needle - 3 ½ inch spinal needle for children >12 year of age. Butterfly needle for neonates. 20-22 gauge. 1 ½ inch needle for infants. 5. GA for children who need repeated procedures. 6. Topical application of local anesthetic agents and IV Opioids. 7. Sedation with Midazolam. 8. Intravenous Ketamin.
Bone marrow aspiration	<ol style="list-style-type: none"> 1. Consider General anesthesia. 2. S/C infiltration of lignocaine with NaHCO₃ buffer. 3. Nitrous oxide gas. 4. Sedation with Midazolam. 5. Intravenous Ketamin. 6. Opioid analgesia.
Endo-tracheal intubation	<ol style="list-style-type: none"> 1. Consider Etomidate 2. Midazolam 3. Fentanyl / Mophine 4. Ketamine 5. Laryngojet – 4% Lidocaine Disposable kit for laryngo tracheal anesthesia. Dose – usually 160mg as a single dose. Can be titrated according to the age.

Drugs used in pain relief

Sucrose

Administration of 15 – 50 % of sucrose up to 2/12 year of age. Systematic reviews of the literature suggest doses in the order of 0.5 – 1.0 ml of 24% sucrose in 0.25ml of aliquots commencing 2min before the procedure. Concomitant use of pacifier may further reduce behavior response to painful stimuli.

S/C Lignocaine / Prilocain

Duration of action 60 – 90 min, 60 – 120 min. Action can be prolonged by adding adrenaline. When using for local infiltration use gauge 25 – 27 to minimize the pain produced by the needle puncture. Buffering with NaHCO₃ reduces the pain with out compromising the effect of lignocaine.

Recommended dose is 5 mg/ kg without adrenaline and 7 mg/kg with adrenaline.

Contraindication - Allergy

- Local infection

Midazolam

Short acting, sedative and anxiolytic agent. No analgesic property

Contraindication - Hypersensitivity to Benzodiazepines.

Dose - IV: 0.05 to 0.15 mg/kg (max.dose 5mg). Oral: 0.5 mg/kg

(max.dose 15mg). Per rectal: 0.25 to 0.5 mg/kg (max.dose 10 mg). Intra nasal: 0.2 to 0.5 mg/kg (max.dose 10 mg).

Adverse reactions - Respiratory distress, nasal irritation with intra nasal route & agitation.

EMLA patch & EMLA cream (Eutatic Mixture of Local Anesthesia)

Side effects - Allergic reaction

Morphine

May provide analgesia but not necessarily sedation. The dose should be titrated carefully against response. Preferably given via IV route.

Recommended doses - Body weight	Dose <
50kg	0.1mg/kg slow bolus
50kg	0.5 - 0.8 mg/kg slow bolus.

Ketamine

A powerful anesthetic and deep sedative agent. It produces dissociative anesthesia.

Side effects - laryngo-spasms, arrhythmias, increased intra cranial pressure.

Recommended dose - 1 -2 mg/kg single dose

Nitrous oxide

It has shown to be safe and effective in reducing the pain and anxiety in venopuncture and cannulation. It provides conscious sedation. Its rapid onset and offset

make it particularly attractive for this brief procedure. Safe administration requires adherence to the conscious sedation guidelines.

Etomidate

Rapid onset of action. No hangover effect.

Side effects - Extraneous muscle movements.

Dose - 1/12 - 18 years 150 - 300 micrograms/kg

Parent's role

Children mainly want their parents there and parents usually want to be there. It's up to health care professional to encourage parents and child to be part of health care team and give them specific instructions. Successful pain management depends on interaction of parent, child and staff.

References

1. Nelson Text Book of Pediatrics 17th Edition (Edited by) Richard E. Behrman, Robert M. Kliegman, Hal B. Jenson, pg - 358
2. Guideline Statement: Management of procedure- related Pain in Children & Adolescents. The Royal Australasian College of Physicians.2005 Website : www.racp.edu.au
3. Text Book of Pediatric emergency medicine by Gary Robert Fleisher, Stephen Ludwig, Fred M. 5th edition.

Mucocele –A Common Type of Oral Soft Tissue Cyst

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Introduction

A Mucous cyst is a benign, common, mucus containing cystic lesion of the minor salivary glands in the oral cavity. Some authors prefer the term mucocele since most of these lesions are not true cysts in the absence of an epithelial lining.

Salivary disorders are fairly common and can be divided clinically into those which affect the major glands and those which arise in the minor glands. A surgical sieve approach to the diagnosis of salivary gland disease is helpful, since it classifies conditions into either congenital or acquired lesions. The latter group is subdivided into infective, traumatic, neoplastic and miscellaneous.

Under the heading of traumatic disease, it is proposed to discuss two conditions, mucocele and ranula which are almost certainly of traumatic origin. Trauma to an excretory duct of salivary glands may produce a collection of saliva within submucosal connective tissue and this is thought to be the aetiological process involved in the development of a mucocele. It can arise at any intra oral site where minor glands are situated. Size varies from few millimeters to several centimeters in diameter, but 75% of the lesions are smaller than 1 cm in diameter.

The lesions can be located directly under the mucosa (superficial mucocele), in the upper submucosa (Classic mucocele), or in the lower corium (deep mucocele).

Superficial mucoceles are typically located in the soft palate, retromolar region and posterior buccal mucosa, simulating a vesiculobullous disorder due to its intraepithelial nature. Deeper mucoceles are less common and are often retention cysts. In children, it has been suggested that trauma from erupting lower permanent incisors can predispose to development of a mucocele on ventral aspect of tongue.

Two types of mucoceles occur based on the histologic features of the cyst wall ; a mucous extravasation cysts formed by mucous pools surrounded by granulation tissue (92%) and a mucous retention cyst with an epithelial lining(8%).

Trauma to the duct of the gland could produce a stricture which causes retention of secretions; accumulation of which inside the gland produces a cyst; this would be a mucous retention cyst. Sometimes a breach is made in the duct through which saliva escapes in to the connective tissue where it produces an extravasation cyst.

Aetiology

Usually extravasation of mucus from damaged salivary gland duct. Rarely retention of mucus within a salivary gland or its duct.

Incidence

- Most common type of oral soft tissue cysts.
- Mostly in lower lip and in young adults or in children.



Figure 1: Mucocele

(Typical translucent bluish appearance in the characteristic site.)

- Particularly males are more affected.
- Sometimes affects tongue, buccal mucosa or floor of mouth.
- About 90% of cases are of mucous extravasation type.
- Over 70% of all mucous extravasation cysts arise in lower lip.

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- They are extremely uncommon in upper lip.
- Mucous extravasation cysts occur over a wide age range but most patients are under 30 years of age and there is a peak incidence in second decade.

Clinical Features

Clinical presentation varies on the depth of the lesion, while the colour depends on the size and its nearness to the surface.

They usually occur singly and only very rarely bilaterally as bluish, translucent, fluctuant and painless sub mucosal swellings with relatively rapid onset. They are dome shaped and rupture to release viscid salty mucus but frequently recur.

Diagnosis

In most cases, diagnosis can be established from clinical details, although a histopathological study is necessary to confirm the diagnosis and to exclude salivary gland neoplasm particularly in cystic swellings in upper lip.

Treatment

If the cyst is asymptomatic and small observation is adequate. Because, it may resolve spontaneously. Aspiration of the mucocele contents often results in recurrence and is not an appropriate therapy, except to exclude other entities prior to surgical excision. Most effective treatment is complete surgical extirpation of the lesion, including the immediately adjacent tissue. Laser ablation, cryosurgery and electrocautery are the other treatment options that have been used.

Post Operative Complications

Although rare, post operative complications can occur after the removal of cysts.

Therefore, patients should be warned preoperatively of the risk of bruising or transient nerve paraesthesia.

Mucous Extravasation cysts

Probably mainly result from injury to the duct, leading to leakage and formation of pools of saliva in overlying soft tissues. Coalescence of

pools of saliva leads to formation of a cyst. Extravasated mucus evokes a chronic inflammatory reaction and there is no epithelial lining.

Mucous Retention Cysts

Rare variant of mucocele, produced by duct obstruction forming a clinically similar lesion but cyst is lined by flattened duct epithelium. In contrast to extravasation mucoceles, retention mucoceles occur most frequently in patients over 50 years of age and is almost never found in the lower lip. They are derived from cystic dilatation of a duct. There is no surrounding chronic inflammatory reaction.

Ranula

It is a form of mucocele which arises from one of the sub lingual glands and typically presents as a large non- painful, bluish swelling on one side of the floor of the mouth. It is said to resemble a frog's belly. It is not a pathological diagnosis. Histologically most ranulae are mucous extravasation cysts. Marsupialisation with packing is the treatment of choice for a ranula, since attempts at enucleation are likely to be unsuccessful, owing to the friable and extensive nature of cyst lining.

Plunging Ranula

An extensive ranula may sometimes dip down into the submandibular space behind the posterior border of mylohyoid muscle. In this position, it would produce a submandibular swelling in addition to the sublingual swelling.



Figure 2: Ranula

According to an unpublished study that was conducted to find out the incidence of mucoceles during a period of six months (October 2007-March 2008) at OMF Clinic, Teaching Hospital, Batticaloa, Twenty-five patients (6.6%) presented with mucoceles, of the total number of three hundred and eighty clinic patients. Males were more susceptible (60%) than females. Lower lip was the most commonly affected site (76%) and majority (84%) were under 30 years of age.

References

1. N.A.de.S.Amaratunga, Lecture notes on benign cysts of jaws and mouth, 1988, p 26, 27, 28.
2. C.Scully / R.A.Cawson, Mucocele, Oral medicine [Colour guide], 1993, p 21, 22, 101.
3. R.A.Cawson / E.W.Odell, Salivary gland cysts and chronic non-specific sialadinitis, Oral pathology [Colour guide], 1993, p 131,132.
4. P.Lopez-Jomet: Labial mucocele: A study of Eighteen cases. The Internet Journal of Dental Science. 2006 Volume 3 Number 2.
5. J.V.Soames / J.C.Southam, Cysts of soft tissues, Oral pathology, second edition, November 1995, p 84,85,86
6. P.J.Lamey, Oral medicine in Practice: Salivary gland disease, British Dental Journal, 1990, p 237,239,240.

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Red Eye

Thivahar S*

The red eye is either due to a sheet of blood under the conjunctiva (sub conjunctival haemorrhage) or due to dilatation of blood vessels lying in or under the conjunctiva [inflammation]. In the red eye, the redness is noted in the white part of eye, the part of conjunctiva which covers the sclera.

Sub Conjunctival Haemorrhage

The conjunctival and sub conjunctival haemorrhage would present with normal vision. Sub conjunctival haemorrhage is due to oxygenated blood under the conjunctiva and normally it is localized with sharp defined edge.

Common causes:

- Direct trauma to eye and insect bite of eye example-leech.
- Tracing of blood from scalp trauma example-road traffic accident.
- Valsalva manure (severe cough, constipation, lifting the object and normal vaginal delivery)
- compression injury to chest
- Spontaneous mainly in patient using anti clotting agent and patients with any chronic liver disease or hypertension.

Inflammation

Inflammation occurs due to one or following causes.

- Trauma.
- Acute or chronic allergy.
- Infections- bacterial/ viral/ fungal/ Chlamydia.
- Corneal ulcer, oedema, keratitis and long standing epithelial defect.
- Post op, in response to a repair process.
- Materials entering into conjunctival fornix: chemicals, weedicide, acid/alkali, foreign bodies-iron pieces/insect particle, hair, eye lash, contact lens, hot oil/hot water, caterpillar hair, tarantulas, and vegetable materials. In these cases Broad spectrum antibiotics, topical steroids and tetanus prophylaxis are

indicated. Superficial corneal hairs may cause sub epithelial infiltrate and may be removed.

Pterygium/ Pinguecula

These are normally white but if get inflamed becomes red.

Episcleritis/ Scleritis

Localized injection of episclera or sclera.

Dry Eye

Dry eye is caused either by decreased tear production or by increased tear film evaporation. Severe dry eye may cause red eye.

Infection

Commonest cause is adeno virus. In this case, visual acuity is normal and the other eye is affected on the same or following day. In the aftermath of viral conjunctivitis, white spots appear on cornea due to antigen antibody reactions (keratitis).

Chronic follicular conjunctivitis too causes a red eye in which case the patient blinks often and gains certain degree of relief by squeezing or rubbing the eyes.

Allergy

Vernal conjunctivitis

The allergy is commonly affecting the children. Eye lid get dark and conjunctiva around the cornea appears red at first and later become dirty brown. The conjunctiva under upper lid develops a severe papillary reaction. This condition is treated with mast cell stabilizers, anti histamines and steroids. As it is a chronic disease, it may go on up to 20 years. It should be handled by Ophthalmological unit to manage the complications.

Up to now we have discussed red eyes where the sight is hardly affected.

In the following conditions vision is affected to some extent

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1. Corneal Infections & Ulcers
2. Keratitis
3. Anterior uveitis
4. Acute glaucoma

Corneal Infections And Trauma

It is common and discharge may be watery or purulent. Vision is usually blurred and there is pain which may be moderate or severe. There is diffuse conjunctival injection. The cornea may show a change in clarity depending on the cause. The pupils, their reaction and intra ocular pressure is normal. Smear may show organism especially in corneal ulcers due to bacterial or fungal infection

Keratitis

In mild keratitis patients has photophobia and blurring of vision. It may be due to bacterial or viral or fungal infection. In all forms of keratitis aggressive treatment with proper selection of antibiotic treatment will save the eye. Steroids even a drop will end up in loss of vision and eye.

Uveitis

It is the inflammation of uveal tissue. The patients with uveitis would present with photophobia, pain and blurred vision in addition to red eye. They also have circumcorneal injection. One of the complications is posterior synechiae, adhesion between the iris and anterior lens capsule. It should be treated as early as possible since it is easy to break the adhesions in the early course of disease. If it persists, it may lead to secondary glaucoma. So it should be referred to eye unit early.

Acute Glaucoma

In all of these, there is dilation of blood vessels surrounding the cornea termed ciliary injection or circum corneal injection. Acute angle-closure glaucoma causes several recognizable signs such as decreased or cloudy vision, nausea and vomiting. Pupil does not react to light and patient may have severe eye pain with swelling of the eye including painful redness that usually occurs in one eye. Acute angle-closure glaucoma is a serious medical emergency and must be treated immediately.

Important Warning Symptoms of Red Eye

There are three main danger symptoms in a red eye:
1. blurred vision 2. severe ocular pain and 3. photophobia (light sensitivity).

Blurry vision often indicates serious ocular disease. If the blurriness improves with blinking, it suggests ocular surface discharge of some variety.

Those suffering from conjunctivitis may report mild irritation or scratchiness, but never feel extreme pain. Severe pain is an indicator of keratitis, corneal ulceration, iridocyclitis, or acute glaucoma.

Photophobia (fear of light) is most characteristic of iritis, but may also occur in acute glaucoma.

Coloured halos are an indication of corneal edema, and are warning that acute glaucoma may be present.

Danger Signs of Red Eye

There are six danger signs: reduced visual acuity, ciliary flush (circumcorneal injection), corneal edema or opacities, corneal staining, abnormal pupil size, and abnormal intraocular pressure.

Reduced visual acuity is indicative of serious ocular disease, such as corneal inflammation, iridocyclitis, and glaucoma, and never occurs in simple conjunctivitis without concurrent corneal involvement.

If non ophthalmological fellow is consulted by red eye patient, if he/ she is sure about the diagnosis it is safe to start antibacterial or anti-inflammatory drugs, not the steroids. Any red eye patient with sinister signs must be referred to a specialist ophthalmology unit without delay to prevent any permanent visual loss.

References

1. Clinical Ophthalmology by Jack Kanski, 6th Edition.
2. Eye news – The bimonthly review of ophthalmology.
3. Journal of the College of Ophthalmologist of Sri Lanka, Vol II: 2; 2005.
4. Journal of American Academy of Ophthalmology

Adult Learning Theory

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Introduction:

Education helps in the development of the human mind, and it increases the powers of observations, analysis, integration, understanding, decision making, and adjustment to new situations. In other words, education is concerned with increasing one's knowledge and understanding the total environment.

Adults do not learn like children. Adults are more discerning in what they are willing to learn, more questioning, and more resentful of being told what to learn. They need to see more clearly on what they are being asked to learn and whether such learning will benefit them. Learning is much more utilitarian for adults than it is for children. Whether for children or adults, learning theories abound.

The pedagogical model of instruction is the foremost instructional method used in delivering lessons. This mode of teaching is also known as the traditional or teacher-directed approach. Pedagogy has been defined as the art and science of teaching children. The traditional teaching in this context is teacher centered instruction in which teachers do most of the talking and instructing while students do a lot of passive listening and memorizing. This type of teaching is best characterized by the phrase; the teacher is the 'sage on the stage'. Teachers define terms, give directions, explain problems, answer questions, and otherwise resent information to students. In contrast, non-traditional teaching is student centered instruction in which teachers have a very different role, one best characterized by the phrase; the teacher is the 'guide on the side'.

Medical education, including its theoretical basis, should effectively address all of these issues to produce competent trainees. This implies that there needs to be a sound and effective application in practice of theoretical concepts, using the fact that

medical education is based on three interrelated domains of learning, namely cognitive, psycho motor and affective domains.

The Three Domains

Education is a process for changing the behavior of students in desired directions. Students learn through this education. Thus learning is a process resulting in some modifications, relatively permanent of the way of *thinking, doing* and *feeling* of the learner. These three behavioural changes reflect the three Domains.

Cognitive domain reflects intellectual skills. This refers to knowledge and its applications. Knowledge can be defined as "a background of facts and interactions between facts that should lead to an understanding of the material being learned". Gaining Knowledge is measurable and the lack of knowledge is occasionally difficult to identify.

Psychomotor domain refers to practical skills. Skills are very much the panacea of medical institutions. Until recently the adage used to be "see one, do one, teach one." This method fosters a sense of competition and pride in the medical profession but at the same time creates undue tension in the learner and also may inhibit exploration of various aspects of the studied skill for example when things go wrong or possible complications which arise during or after the particular procedure. In addition, certain skills such as communication skills do not lend themselves readily to this format.

Affective domain reflects the domain of communication skills. This refers to attitudes. In guidelines of desired medical conduct, the attitudes of the medical professional are highly regarded. However, it is generally felt that in medical curricula this aspect is not given its due recognition. Through their own nature, attitudes are difficult to describe, quantify and address. Passing on desirable attitudes seems even more difficult. Attitudes can be defined as "...a learned predisposition to respond in a

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consistently favourable or unfavourable manner with respect to a given object."

Andragogy – the Adult Learning Theory

Medical Education is the undergraduate Education conducted in Universities and Higher Learning Institutes. Thus it should adopt the principles of Adult Learning.

Adult learning theories describe ways in which adults assimilate knowledge, skills and attitudes. One popular theory is andragogy. The emphasis in andragogy is that the teacher takes the role of facilitator rather than teacher, and allows student to realize his or her own potential. In such an environment, students do lots of investigating, exploring, solving, discussing and explaining to their peers and to the teacher. As the result of researches by Brookfield and Knowles, adult learning is now strongly identified with personal growth and social change. This point is particularly relevant for adult students who return to tertiary education at postgraduate level to prepare themselves for senior positions within their professional communities.

Malcolm Knowles has been a pioneer in the field of adult learning and is a strong proponent of the position that adults do not learn like children.

Knowles has been very active in propounding this set of principles for teaching adults and even refers to them by a distinctive name, andragogy, by which he intends to separate the principles from those used in pedagogy, the teaching of children. Knowles argues that the andragogical principles are quite different from what happens in most of our school systems where the model is that the instructor knows best what is to be taught and learned and where students are expected to learn the same things in the same ways. In the past, there has been an assumption that if a person knows very well the subject, then, he will be able to teach it. However the complexity involved in practicing medicine must be tackled with appropriate educational strategies in the training and education of undergraduate and postgraduate students. In fact, training teachers in educational techniques translates in better student learning outcomes.

There are many adult learning theories, which can be grouped into five main classes as given in Table I. Of these, self-directed learning particularly focuses on the individual learner as primary focus. Prominent amongst these self-directed theories is andragogy. The term andragogy (*andra* – meaning "man"; *agogos*– meaning "learning") was first used by Alexander Kapp in 1833 to describe the educational theory of the Greek philosopher Plato. He used it to refer to the normal process by which adults engage in continuing education. In the 20th century, various respected intellectuals, such as John Dewey, Eduard Lindeman, and Martha Anderson pursued theories of andragogy, but were largely ignored in the US. This situation had changed in the 1980's, with the work of Malcolm Knowles who championed this theory and further elaborated the concept.

Table I – Classes of Adult Learning Theories

Andragogy assumes that adults:

- are independent and self directing,

- | |
|---|
| <ol style="list-style-type: none">1. Instrumental Learning2. Self directed Learning3. Experimental Learning4. Perspective Transformable Learning5. Situated Cognition |
|---|

- have (various degrees of) experience
- integrate learning to the demand of their everyday life
- are more interested in immediate problem centered approaches and
- are motivated more by internal than external drives.

It should be noted that the attribute, 'reflection' is left out in Knowles' concept of adult learning, despite being an important component of adult learning skills. In fact, importance of reflection can be appreciated even more when one considers it to be an important difference between adult learning (andragogy) and child learning (pedagogy) theories. Finally, reflection can be seen to enhance adult learning by increasing

motivation to learn. Motivation is another important pillar on which adult learning is built.

Not all adult learners are equally intrinsically motivated, and this further highlights the inadequacy of andragogy with respect to motivation. In fact, there necessity arises for the need of a mix of learning strategies, ranging from "teacher-directed" - to- "student-directed" learning. This implies that there should be a "match" between the learner and the teaching styles used.

Going through the theories of adult learning, one runs the risk of losing track of what they stand for – to enhance adult learning and facilitate effective teaching. In other words, in the medical field whatever the specialty, this means the achievement of medical competence by the trainee. Indeed, achieving medical competence should be (and usually is) one of the ultimate motivations of any medical educational setup. This statement is many times taken for granted and medical education may at times actually lead to incompetence.

Medical Practitioners Become Effective Teachers.

Fortunately, a body of theory exists that can also inform practice. An unfortunate gap between academics and practitioners however has led to a perception of theory that is not relevant to practice. By using teaching and learning methods based on educational theories and derived principles, medical educators will become more effective teachers. They will be able to enhance the development of knowledge, skills, and positive attitudes in their learners, and thus improve the production of next generation of teachers. Ultimately, this exercise should result in better trained doctors who provide an even higher level of patient care and thus improved patient outcomes.

In the last two decades it has to be noted that medical education is slowly changing from acquisition of factual knowledge and recall of information to conceptual knowledge, solving problems and knowing 'where' to find information. Learning is becoming activity-based, problem-based and carried out in small groups in concordance with the principles of adult learning.

Every act of conscious learning requires the willingness to suffer an injury to one's self-esteem.

That is why young children, before they are aware of their own self-importance, learn so easily.

-Thomas Szasz

Nothing ever becomes real till it is experienced.

-John Keats

Reference:

1. Jurgen Abela,(2009) Adult learning theories and medical education: a review: *Malta Medical Journal Volume 21 Issue 01*
2. David M Kaufman, *Applying educational theory in practice.* BMJ 2003;326:213-216
3. Gibbs G, Coffey M. *The Impact of Training Of University Teachers on their Teaching Skills, their Approach to Teaching and the Approach to Learning of their Students.* Active Learning in Higher Education. 2004; 5:87-100.
4. Hodges B. *Medical Education and the maintenance of incompetence.* Medical Teacher. 2006; 28:690-6.
5. Ravi Shankar P, *Basic sciences in south Asia now and then: A personal perspective.* South East Asian Journal of Medical Education Volume 2; 2008; 20-24
6. *Educational Handbook for Health Personnel, World Health Organization 1998.*

Myomectomy in Pregnancy - An Inevitable Option

A Case Presentation and Discussion

Karunakaran K.E¹ Mangalanathan V²

A 34 year old woman in her first pregnancy at 13 week + 5 days of gestation presented with severe abdominal pain. She had developed abdominal pain at hypogastrum for 6 month before conception. The abdominal pain was around her umbilicus significant enough to disturb her daily activities. She however didn't have any associated symptoms. Response to analgesics and other remedial measures didn't cause relief.

Examination revealed an enlarged uterus, filling the major part of abdomen, well above umbilicus. The symphysis-fundal height was 24 cm. The features resembled an intramural fundal fibromyomata.

Ultrasonography revealed an intrauterine singleton pregnancy at 12 week + 2 days gestation and a fibromyoma measuring 11cm X 12cm X 11cm.

As such, it was decided to perform myomectomy. The patient gave her consent for surgery after explaining the management options, complications and possible outcome of such surgery.

Laparotomy revealed significantly large fibromyoma measuring 14 cm x 12 cm at the fundus of the uterus and two small fibromyomata at the anterior uterine wall.

All myomata were removed and haemostasis was achieved. Blood loss was minimal during the surgery (about 500ml). Post operative recovery was uneventful, except skin wound gaping at umbilicus. It healed subsequently.

The pregnancy continues to grow and she is due for confinement.



Discussion:

At least 20% of the women in the reproductive age have got uterine fibroids (1). Many women with leiomyomas succeed in becoming pregnant. These tumours are often detected during antenatal Examination. Usually the tumours are intramural or subserosal and do not disturb the pregnancy (4). The women with fibroids often develop abdominal pain either due to red degeneration of the tumour or torsion of the pedunculated ones. These lumps increase in

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size as the pregnancy advances causing discomfort to the pregnant women and at times may disturb the pregnancy by premature labour.

Almost every text book in Obstetrics and Gynaecology describe a conservative management for fibromyoma and surgery is best avoided because of the increasing vascularity to the uterine wall (1,2,3,4), except for pedunculated fibroids. Reported success rate of myomectomy is low.

In this case, the fibroid was large in size and caused frequent discomforts to the patient. Furthermore it responded poorly to conservative therapy. So, surgery has become an inevitable option. As bleeding is the main complication during this kind of surgery, every effort was taken to achieve haemostasis; thus blood loss was minimized. Bleeding into the myometrium was prevented by reducing the resultant dead space created by the removal of fibroid using appropriate suturing techniques with meticulous approximation of the edges.

Conclusion:

Myomectomy can be performed in pregnant women suffering from complications of uterine leiomyoma. Extra care should be taken to achieve adequate haemostasis in order to avoid complications due to excessive blood loss during this kind of surgery.

References:

1. Jayakrishnan : *Benign Lesions of the Genital Tract*. In Arulkumaran S, Sivanesaratnam V, Chatterjei A, Kumar P. Eds. *Essentials of Gynaecology* : Jaypee brothers : 2005 - 125 - 127
2. Hamilton D. F. Eds. *Lecture Notes Obstetrics & Gynaecology – Blackwell* : 2004 ; 155 – 156
3. Dutta D.C. Ed. *Text Book of Obstetrics* : 2006 pp 309 – 310
4. Kumar P, Mathotra N ; Eds. *Jeffcoate's Principles of Gynaecology*, Jaypee brothers: 2008: pp 488 – 498.

Case Report: Von Hippel Lindau Disease Presented as Diabetes Mellitus

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Introduction:

Von Hippel Lindau (VHL) disease is a rare genetic disorder, manifesting as highly vascular neoplastic lesions, involving cerebellum, spinal cord, retina, kidney, pancreas, adrenal medulla and male genital tract. Haemangioblastoma of cerebellum or retina is the common mode of presentation in most reported cases. Here, we are reporting a case as pancreatic insufficiency which is extremely uncommon.

Case report:

A 36 year old lady, who is a diagnosed Diabetes Mellitus patient, presented to us with the history of progressive upper abdominal pain and backache for last 2 months of duration. The abdominal pain was aching in nature and not associated with meals. Also she has experienced increased frequency of stools in the past 2 years especially after the oral intake, which gradually became more watery in consistency and a bit of stickiness to flush out. Also she complained of vomiting of 2-3 episodes per day for the last month. No haematemesis or malaena was noticed. Her appetite was good. No focal neurological manifestation was experienced.

She was diagnosed to have Type 1 Diabetes Mellitus 8 years ago and has been put on insulin. But the compliance was poor and the glycaemic control was erratic. She complained about the progressive visual impairment for last 3 years with glove and stocking numbness of both hands and feet.

Examination revealed a tender epigastric irregular hard mass which extended to left and measured about 12cm x 4cm with some cystic lumpiness. Left kidney was ballotable. Optic fundi showed marked changes of diabetic retinopathy bilaterally. Rest of the examination was normal.

Ultra sound scan of the abdomen revealed multiple cystic areas with calcification in the region of pancreas with a cyst seen in the lower pole of the left kidney. CT scan of the abdomen showed a grossly enlarged pancreas with numerous non enhancing cystic lesions with irregular and nodular calcifications throughout the pancreas but maintained the contour and no enhancing lesions seen (Fig 01). Left kidney had multiple benign cysts, one of which had calcification (Fig 02). Right kidney and rest of the intra abdominal parts were normal except the compression of stomach and duodenal loops by the enlarged pancreas. One medullary haemangioblastoma was found on brain MRI while looking for lesions in other sites. Pheochromocytoma and retinal haemangioblastoma were excluded.

Von hippel landau syndrome was diagnosed at this point.



Fig 01



Fig 02

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Patient was counseled regarding her problem and screening for 1st degree relatives was planned. Conservative management was planned with the available resource.

Discussion:

Von hippel lindau syndrome (VHL) is a rare autosomal dominant neoplastic condition. It can manifest as cystic or solid, benign or malignant tumour. The common presentations are haemangioblastoma of cerebellum, midbrain, spinal cord or retina; renal cell carcinoma, pheochromocytoma and cystic tumours of the pancreas or male genital tract. The VHL gene is a tumour suppressor gene which is located in the short arm of chromosome 3. Following a mutation, it starts to produce pVHL, which acts as a substrate recognition module of an ubiquitin ligase complex that targets hypoxia inducible factors (HIF) for destruction resulting in ultimately the neoplastic lesions.

The clinical presentation depends on the site of the tumour. As in this case, the main site of involvement is the pancreas, manifesting as multiple pancreatic cystic lesions with calcification, which results in destruction of the pancreatic tissue presenting as diabetes mellitus. Literature review tells that the presentation as pancreatic deficiency is extremely uncommon and there was no documentation of calcification of such tumour up to date. Even though there is a medullary haemangioblastoma, she has not shown any CNS manifestation.

Diagnosis is usually made on radiological evidences. For the confirmation of the disease, genetic analysis should be done, but it is expensive. If the diagnosis is made, one should look for pheochromocytoma.

The overall prognosis depends on the site of the lesion, and is generally not good. But early detection gives some better outcome with the available treatment modalities. The death is commonly due to metastasis of renal cell carcinoma or due to complications of haemangioblastoma of cerebellum or brain stem.

Currently surgical intervention and radiotherapy are the choices of treatment. Theoretically the inhibitors of HIF responsive growth factors are active against this condition and are under evaluation.

Reference:

- 01) Shen HC, Adem A, Ylaja K; VHL associated pancreatic manifestations; *PLoS ONE*. 2009; 4(4):e4897. Epub 2009 Apr 2.
- 02) Girelli F, Bassi C, Falconi M; Pancreatic cystic manifestations in VHL; *Int J Pancreatology* 1997 Oct;22(2):101-9.
- 03) Osawa A, Sumiyama Y; Renal cell carcinoma and pancreatic head cancer in VHL; *J Hepatobiliary Pancreat Surg*. 2006; 13(2):174-80.
- 04) Ling H, Cybulla M, Schaefer O; When to look for VHL in GIT neuroendocrine tumours; *Neuroendocrinology*. 2004; 80 Suppl 1: 39-46.
- 05) Richard S; Recent advances in VHL; *Expert Rev Anticancer Ther*. 2003 Apr; 3(2):215-33.
- 06) Elli L, Buscanni E, Portugalli V; Pancreatic involvement in VHL; *Am J Gastroenterol*. 2006 Nov; 101(11): 2655-8.
- 07) Kaelin WG; VHL disease; *Annu Rev Pathol*. 2007; 2; 145-73.
- 08) Thompson RK, Peters JI, Levine BA; VHL presents as pancreatic insufficiency; *Surgery* 1989 May; 105(5); 598-604.

Is old gold or not?

Arulanandem K*

As defined by all, old is old. But the reality of aging is not accepted as same by all irrespective of race, colour, religion or other social factors. While considering the instrumental activity of daily living, it takes a different pattern of a curvature. Most of the things are becoming difficult for elders due to the inevitable changes of body and mind. Elders are usually treated as ill patients as they appear feeble and weak, but they may show unexpected as well as unbelievable talents when appropriate opportunities are provided to them.

Overall aim of health management is to improve the quality of life of individuals in a community through maintaining a good standard of living. A significant proportion of elderly people in a community do not get their social respects as well as role plays, because of their age and their performing nature. The vast experiences, skills and creative ideas of old people are not considered important to improve social, cultural and economical status of modern living as latest concepts are thought to be more superior. Therefore, elders are pushed to corners only owing to their old age.

The community structure and its functions depend on active interaction among individuals who work for social harmony with common interest. Elders are capable in taking decisions on complicated family as well as social issues because of their previous experiences. But, this is understood and appreciated by youngsters only lately. Also, they have worked so hard for the present prosperity and wellbeing of younger generations with much hardship. Unfortunately these values are not considered significantly and sometimes totally neglected. Also, elders are often abused by their own children as well as their caretakers for many miscellaneous activities without understanding their inner feelings. General appearance, poor coordination of physical activities, visual impairment, poor hearing, reduced sleep and constipation can lead to suffer at later days. In addition to diseases at old ages, economic setbacks, feeling and being of isolations and improper social positions can adversely affect the elders. Modernized living conditions along with advanced technologies create a negative atmosphere for the elders. All these indeed make them more and more stressful and sorrowful.

So, many elders waste their valuable time and efforts uselessly thinking that they are old.

If measures are taken to reconsider their values, the stresses would be minimized and new thought of living may arise. The three dimensional approach of family practice can bring out their inner sufferings on physical, mental and social aspects, if a good rapport is maintained by family physicians. Therefore, possibilities are there to reduce their stress through providing appropriate, acceptable, accessible, adequate and affordable services. This will make them to think of living a very productive happy life. So, the elders themselves or through their Geriatric Societies could play an important role in maintaining a well balanced Society with better functioning families towards a pleasant environment.

Better health care coupled with new developments in medicine would definitely give better quality of life with prolongation of lifespan, which directly would increase the healthy elderly population. So, we should be prepared to live with a significant elderly population. Therefore we all should develop a positive attitude towards the value of the elders making them stress free and productive during the latter part of their life until they enjoy their peaceful last breath. The truth should not be forgotten that old is common for all whether they were rich or poor; good or bad before.

Therefore, old is old and gold if managed properly, otherwise not.

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Physiological Basis for Analgesia by Acupuncture

RajendraPrasad R¹, Thayabaran M²

Introduction

Pain suppression by acupuncture is explained by many mechanisms but the scientific secret of it will not be solved easily. It is still a complex phenomenon and will remain a mystery for many decades to come. The pain suppression accepted by physiologists is discussed in this article.

Pain pathway

Pain receptors are free nerve endings. Pain is transferred by A α ' myelinated nerve fibres (fast pain) and unmyelinated 'C' fibres (slow pain). The fast pain ends in lamina I of dorsal horn of spinal cord whereas the slow pain in lamina I and lamina II, and finally terminates in lamina V. Fast pain travels in neo-spinothalamic tract (crossed) and reaches the thalamus without interruption and gets projected to somato-sensory cortex.

Slow pain goes along paleo-spinothalamic pathway in which the axons cross to opposite side and follow the spino-thalamic pathway and end widely in brainstem. Most of the nerve fibers of this pathway terminate in reticular nucleus of brainstem, tectal and periaqueductal area. From these regions the pain signals are relayed in multi synaptic way to intralaminar nuclei of thalamus for diffuse projection to cortex. Localization of slow pain by paleospinothalamic pathway is not exact, but diffuse and continuous.

Pain suppression system

The brain has the capability to suppress pain signals by activating a pain control system called analgesia system.

This consists of,

- a) Grey mater surrounding aqueduct and periventricular areas (3rd and 4 ventricles)
- b) Reticular nuclei of brain stem

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- c) Pain inhibitory complexes of dorsal horns

The areas (a) and (b) when stimulated by pain signals, release opiate like substances called enkephalins and endorphins. These neurotransmitters suppress pain signals at brain stem by pre and post synaptic inhibition. These areas also send signals to dorsal horns of spinal cord to produce serotonin which in turn induces cord neurons to secrete enkephalins as well. These inhibit the endings of A α ' and C fibres and block the incoming pain. In addition to this, A α ' nerve fibers from peripheral tactile receptors depress pain transmission presumably by lateral inhibition at dorsal horns. It could explain the application of linament for pain relief.

Acupuncture and pain suppression

Under normal circumstances, the dorsal horn of spinal cord (functional gate) is wide open functionally. While pain impulses are going through it easily, acupuncture needling in an area can send second stream of impulses. These overcrowd the dorsal horn to bring lateral inhibition. Functional gate is closed and no or less pain is felt from that area. The invention of A α ' fibers, from skin which bring inhibition to dorsal horn forms a basis for acupuncture.

Humoral mechanisms are also involved in acupuncture. When a rabbit is acupunctured, its pain threshold is found to rise. If the cerebro spinal fluid is circulated into a non punctured rabbit, the pain threshold of second animal also rises. This indicates clearly that chemicals or neurotransmitters are involved in acupuncture mechanism. The exact nature of these transmitters is still under investigation. Work of neurobiological department of Toronto University has suggested that acupuncture needling releases endorphins and enkephalins from brainstem and other areas mentioned above. These neurotransmitters bind to opiate receptors in excitatory neurons. According to Bruce Pomperanz model of Toronto university, enkephalin brings partial depolarization of the terminal membrane of excitatory neurons and reduces the net depolarization produced by arrival of an impulse. The amount of excitatory

neurotransmitter released is proportional to net depolarization. So that less excitatory neurotransmitter is produced to the receiving neuron and its firing rate reduced. This phenomenon is called pre-synaptic inhibition. Such inhibition also modulates activity of ascending pathways for pain in spinal cord and brain stem. This mechanism explains why opiate drugs potentiate the analgesic activity of acupuncture. Further, antipeptidases also have potentiating action by preventing the destruction of enkephalins.

These findings of Toronto University are confirmed by many workers outside Republic of China.

Some biochemical engineers have claimed the acupuncture points as lower electrical resistance and consider them as booster amplifiers which restore the signal strength for propagation in acupuncture channels. Many medical critics believe that neither needle points nor channels exist peripherally and these may be a central neurological representation. What ever be, one of the best known effects of acupuncture is achieved by raising the pain threshold. This is also the physiological basis of acupuncture anaesthesia.

Acupuncture analgesia in child birth

Child birth is considered as a physiological process similar to urination and defecation. Why a woman experiences severe colicky pain of labour is a mystery. Some authorities suggested that the intense uterine pain is due to alteration of pelvis, its floor muscles and position of uterus by attaining erect posture. Yet, some physiologists argue that it is the civilized state of man that brought the labour pains, as it is less or absent in primitive people. The labour pain occurs in animals also but, domestic ones suffer more. This makes the cause of labour pain a complicated one.

It has been a proved fact that acupuncture could be used to reduce labour pain during child birth. If acupuncture is inadequate, lower dose of analgesia could be recommended. Needling expedites labour by augmenting the natural anti pain mechanisms. The mother is not in a drowsy state and the active cooperation of the mother during labour can be better solicited. At the end of delivery the mother is more receptive to greet her newborn. Shortening the labour is also conducive to the delivery of a less drowsy baby.

References:

1. William F. Ganong. Review of Medical Physiology. Saunders, Philadelphia, 2005.
2. Arthur C. Guyton: Text book of Medical Physiology. Saunders, 2006.
3. Anton Jeyasuriya, Clinical Acupuncture Colombo. 2002.

'Tap Sign' in Leprosy and Sensory Testing with a Point of Folded Paper

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Leprosy is not uncommon in many developing countries including Sri Lanka. Although the incidence of leprosy has diminished over the years, it has a significant presence in the country (1-3). Social marketing campaign and the integration of leprosy services into the healthcare system appear to have helped (2-3). While education of the public as well as clinicians has contributed to improved case detection, still leprosy can be missed by primary care clinicians. Extra vigilance in leprosy control is particularly important in Sri Lanka now, as medical services are becoming more accessible to a large number of people in the North and the East now. It would also be important to identify and treat patients in any pockets of high prevalence.

The main clinical clues in leprosy are; semianaesthetic hypopigmented patches, thickened nerve trunks or peripheral nerves with corresponding sensory or motor impairment, trophic ulcers due to affected nerve trunks, leonine facies, and multiple coppery plaques and nodules. A thorough clinical examination is the key to diagnosing leprosy.

Recently, an Australia woman of African origin presented to a colleague of mine in Perth, Western Australia with 4 slightly raised, non pruritic plaques on the skin. The lesions were on the lower limbs, some lesions overlying bony prominences such as the medial malleolus and the shin. The histopathology from a lesional biopsy had indicated dermal granulomas, but the pathologist had favoured sarcoidosis rather than leprosy. No organisms had been detected on special stains for leprosy bacilli. When my colleague invited me to give an opinion on this case, I demonstrated sensory impairment on the dusky erythematous plaques (with some difficulty, as she could not speak English well). I also demonstrated the 'tap sign' on a lesion overlying a bony prominence, which supported the clinical diagnosis of leprosy (4). The

common peroneal nerve was thickened on one side. Subsequently multiple biopsies were performed, and the diagnosis of borderline tuberculoid leprosy (pauci bacillary) was confirmed. The patient was prescribed appropriate anti leprosy treatment (rifampicin monthly and dapsone daily).

This case highlights the need to do the biopsy from a representative lesion, and also the need to rebiopsy if the histopathology does not correlate with the clinical diagnosis. Eliciting 'tap sign' and sensory testing with the sharp point of folded paper were also useful. Failure to check sensations and careful examination to detect subtle signs of leprosy may mean missing the diagnosis of leprosy.

Tap sign is a sign which is easy to demonstrate without any sophisticated tools(4,5). It is a paradoxical dull bony pain experienced by the patient (in spite of superficial sensory impairment) which lasts for several seconds, when a semianaesthetic patch of leprosy overlying a bony prominence is tapped or knocked with the flexed knuckles of the examining clinician or the bound side of a hard cover book(Kumarasinghe 2001,2004). Any firm small object with a smooth surface(e.g a wooden paper weight) can also be used. The contralateral side is tapped to compare sensation. Tap sign is usually positive on the affected side (pain). When specifically asked, often these patients recall this type of pain when a bony prominence (with an overlying semianaesthetic leprosy lesion) is accidentally knocked on by them. This pain is different to the shooting type of pain when an enlarged nerve trunk is accidentally pressed or traumatized. Interestingly, in polar lepromatous leprosy, even if a lesion overlies a bony prominence 'tap sign' is negative.

The sharp point of a folded, creased, piece of paper is a useful tool to test sensations in a busy clinic or in the field(4,6). Widely available writing, typing or printing paper is suitable. Usually two folds are adequate to obtain a sharp point. The sharp point is pressed perpendicular to the skin to elicit

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the sensation. We have compared this method with standard methods of sensory testing and found it comparably efficient. This method is user friendly, child friendly, carries no added cost (cf. Weinstein nylon monofilaments) and carries no risk of transmitting diseases (cf. using pins for sensory testing). This method of sensory testing may be used in initial evaluation of peripheral neuropathy in diabetic patients as well.

In diagnosis of tuberculoid and borderline tuberculoid leprosy, an astute clinician and a good pathologist are much more important than sophisticated modern diagnostic tools. In multibacillary leprosy, the diagnosis is much easier as AFB can be demonstrated in histopathology or smears.

Uncommon presentations of leprosy should also be kept in mind. They include, histoid leprosy, Type I Lepra reactions mimicking cellulitis, chronic 'sinusitis' with blood stained discharge from the nose, lagophthalmos with or without corneal ulcers, painful paraesthesia (as opposed to anaesthesia), localized muscle wasting, arthritis in neurologically affected regions, bone resorption of phalanges leading to deformities, hyperkeratoses/callosities of the soles of feet before ulceration when common peroneal nerves are affected, pseudoepitheliomatous hyperplasia or squamous cell carcinoma in chronic trophic ulcers, leprosy coexisting with vitiligo, discharging nerve abscesses, gynaecomastia due to testicular damage and chronic renal failure due to amyloidosis following longstanding lepromatous leprosy.

References

1. Kumarasinghe SPW. Leprosy in Sri Lanka. *Sri Lanka Journal of Dermatology* 2001; 5:1-2.
2. Salgado S. Eliminating leprosy from Sri Lanka; the launch of a social marketing campaign. *Ceylon Medical Journal*. *Ceylon Medical Journal* 1993;38:95-97
3. Kasturiaratchi ND, Settinayake S, Grewal P. Processes and challenges: how the Sri Lankan health system managed the integration of leprosy services. *Leprosy Review* 2002;73:177-85

4. Kumarasinghe SPW. Some useful clinical clues and techniques in diagnosis of tuberculoid leprosy. *International Journal of Dermatology* 2001;40:301-303.
5. Kumarasinghe SPW, Kumarasinghe MP, Amarasinghe UTP. Tap sign in tuberculoid and borderline tuberculoid leprosy. *International Journal of Leprosy*. 2004; 72:291-295.
6. Kumarasinghe SPW, Ruberu DK, Fernando S, Ekanayake M. Sensory testing with folded paper - a comparison with standardized nylon monofilaments. *Sri Lanka Journal of Dermatology* 2004;8:8-12