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JOURNAL OF MEDICINE

Oral findings in asthmatic children
Spinal epidural anaesthesia versus spinal anaesthesia in high risk geriatric patients
Muscular Relaxation - psychotherapeutic technique
A confusional tumour of the tongue
Cystic Adenomatoid Malformation a Complicated Pneumonia

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Fraud in Medical Research?

H Kumar

Proper scientific research is the foundation that provides the evidence to enhance patient care. At present medical research (either basic or clinical research) is conducted observing ethical guidelines and then the data is published in peer-reviewed journals. Once the articles are published in high impact factor peer-reviewed journals, they are accepted as benchmarks for the future. But the weak link in this chain is the verification and scrutiny of the accuracy of the data submitted for publication. Two recent high profile scandals in the scientific community have drawn attention to this area of weakness in the system. Two papers on stem-cell research, one by a group from Korea and another a Japanese-based group were investigated and the authors were forced to admit that some part of their data which had been published in Nature, (which is the most respected scientific journal in the world) were falsified or misrepresented.

There is very heavy pressure on those who are doing full-time research and those employed in academic posts to publish papers, as these publications are the yardstick by which their performance is assessed. In the case of clinical drug trials, the Licensing authorities carry out regular audits to check the veracity of the data. But it is staggering to realize that for scientific and other clinical publications most journals just blindly trust the authors not to provide incorrect or false information. In reality, it is very easy to do what cricket players have been accused of doing – either spot fixing (where the data is tweaked here and there to spice it up), or match fixing (where the entire paper can be given a different spin by altering or falsifying the data).

As clinicians, we blindly believe and quote published data and swear by it when we apply it to our clinical practice. So there is a crying need to set up an active vigilance system to check the veracity of all published data. Such a move may be time consuming and expensive but it is a worthwhile exercise as otherwise all our medical research and discoveries may have no valid foundation. The two recent cases of scientific fraud which came to light may just be the tip of the iceberg and call for serious introspection and corrective measures on the part of the medical scientific community.
As Physicians, we have a very important role to play in giving confidence to people who suffer from various kinds of ailments. In fact, we are always playing this role, knowingly or unknowingly by just being there for the patient and providing moral support, even if we are unable to provide effective treatment with medicines. The following parables narrated by Amma illustrate this point.

Two boys went to a swimming pool. One of them was an experienced swimmer and the other was just a beginner. An observer was sitting by the side of the pool noticed that the boy who knew to swim well was looking panic stricken and was not able to swim more than a few strokes. On the other hand the boy who was just a beginner was swimming fearlessly even in the deep part of the pool. He asked the boy who knew to swim well why he was unable to swim properly. The boy replied, “when I began to swim, I was suddenly overcome by doubt and fear about whether I would be able to swim properly and so my legs felt very heavy, I kept gulping water and went into a panic and so was unable to swim.”

The observer then asked the other boy how he was able to swim so well although he was a beginner. The boy replied “my mother was sitting by the side of the pool and I was sure that if I had any difficulty then she would be there to save me. This gave me great confidence and so I was able to swim even in the deep part of the pool.”

So the confidence given by the boy’s mother by her mere presence enabled him to perform far beyond his actual ability.

The second story is about a young man who parked his car on a country road without applying the hand brake. The car was parked on a slope. It rolled and fell into a nearby field.

A farmer who was passing that way offered to help the young man. He brought his horse and harnessed it to the car and instructed the horse to pull. “Femy pull as hard as you can,” said the farmer. The horse was unable to pull the car out of the field. The farmer repeated the instructions twice, but there was no effective result. Then the farmer said, “Benny pull the car” and suddenly the horse successfully pulled the car out of the field. The young man asked the farmer, “did you get the name of the horse wrong when you first asked him to pull the car?” The farmer replied, “No, the name of the horse is Femy, but when I said - Benny pull the car, Femy thought that there was one more horse pulling with him and this gave him the confidence and strength to effectively pull the car out.”

If we have somebody to hold our hands, even if that person is not visible or is not present physically at that time, we can realize our full potential and overcome adverse situations. This is the confidence that we as physicians need to give patients with chronic disease. Those who are struggling to overcome their physical disabilities will get great encouragement from a kind word or a loving pat from a physician. The thought that we are there to take care of them itself provides self belief and motivates the patient.
Oral findings in asthmatic children

Ektah K, Arun R J, Elza T

ABSTRACT

Asthma is a chronic inflammatory condition that causes the airways to constrict and produce excess mucus which makes breathing difficult. It is reversible, either spontaneously or can be controlled with the help of drugs. Asthma medication consists of bronchodilators, corticosteroids and anticholinergic drugs. The effect of these drugs on oral health is the subject of concern among dental practitioners. Asthmatic patients taking medication show higher risk of developing dental caries, dental erosion, periodontal diseases and oral candidiasis. Hence, patients with bronchial asthma on medication should receive special prophylactic attention. This article aims to review the oral problems encountered in patients with asthma under medications.

INTRODUCTION

Asthma is a major global health problem and it’s prevalence is increasing in most countries, especially among children. It is a leading cause for childhood hospitalisation. According to Global Alliance against Chronic Respiratory Diseases, in the year 2010, worldwide, 1 billion people suffered from chronic lung diseases, of which 300 million were affected with asthma.

DEFINITION

Asthma is a disorder defined by its clinical, physiological and pathological characteristics as follows. “Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. The chronic inflammation is associated with airway hyper responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night or in early morning. These episodes are usually associated with widespread, but variable, airflow obstruction within the lungs that is often reversible either spontaneously or with treatment”.

Asthma treatment has two main objectives: to control, as well as to reduce the airway inflammation, and reopen the airways. The treatment of asthma starts with avoidance of stimuli, but controlling the symptoms with anti-asthmatic medicines is the main component of most asthma treatments. Drugs that achieve the first objective are called controllers and those that achieve the second are called relievers. Controllers are medications taken daily on a long term basis to keep asthma under control mainly through anti-inflammatory effects. They include anti-inflammatory agents, long acting beta agonist (LABA) and leukotriene modifiers. Relievers are medications used on an as-needed basis, which act quickly to reverse bronchoconstriction and relieve its symptoms. They are also known as rescue medications and consist of short-acting beta-agonists (SABA), systemic corticosteroids and anticholinergic drugs. They relieve the symptoms of asthma by relaxing the muscles that tighten around the airways. This action rapidly opens the airways, letting more air come in and out of the lungs. As a result, breathing improves.

Although the pathophysiology is well understood, morbidity and mortality rates are increasing. This high prevalence of childhood asthma necessitates that dental practitioners be familiar with this disease and the effects of asthma medication on oral health. This paper will review some of the oral problems encountered in patients with asthma under medications.

ASTHMA AND DENTAL CARIES.

Epidemiological studies investigating the effect of asthma on dental caries are conflicting. However, majority of the studies conclude that asthmatic children have higher dental caries prevalence. A study by Stensson et al indicated that preschool children with asthma have a higher prevalence of caries than children without asthma. McDerra et al. pointed out that asthmatic children have more tooth decay affecting permanent teeth. Ersin et al. showed that, through its disease status and its pharmacotherapy, includes some risk factors such as a decrease in the salivary flow rate and salivary pH for caries development. A study by Reddy et al. also suggested that asthmatic children have a high prevalence of caries and this increases with the severity of bronchial asthma. Shashikiran and co-workers revealed that asthmatic patients, especially those using salbutamol inhalers, have more caries than the control group. A study by Milano M et al showed that increased frequency of asthma medication use was associated with increased likelihood of caries experience.

Studies have shown that prolonged use of beta 2 agonist can decrease the salivary flow. Ryberg et al. observed that the secretion rates of whole and parotid saliva decreased by 26% and 36% re spectively.

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atively in asthmatics on beta-2 agonist when compared to non asthmatics control group. The increase in risk of dental caries in asthmatic children medicated with beta-2 agonist was most often associated with a decrease in the salivary flow rate and the increase in lactobacilli and Streptococcus mutans. The diminished flow rate also decreases the availability of biologically active bacterial components like amylase, calcium ions, secretory IgA, peroxidase and lysozyme which in turn favors both bacterial colonization (increase in lactobacilli and Streptococcus Mutans in oral cavity) and plaque growth, leading to increase in caries rate.14

Low pH is a risk factor for demineralization of the tooth. Adolescents and young adults with asthma showed lower plaque initial pH values and plaque pH drop after a sucrose rinse compared to the control group.7 Kargul et al15 showed significant decrease in the pH of saliva and plaque, below critical pH of enamel dimerisation of 5.5, 30 minutes after treatment with beta-2 agonist inhalers. This is because beta-2 agonist can cause relaxation of smooth muscles such as lower esophageal sphincter leading to gastro esophageal reflux symptoms.16 Frequent consumption of acid beverages to compensate for reduced salivary flow and dry mouth is common among asthmatic children.17 Both these factors contribute to the further decrease in salivary pH.

The increased susceptibility to dental caries can also be due to the frequent use of anti-asthmatic medications containing fermentable carbohydrate. Some dry powder inhalers contain sugar – lactose monohydrate, so that the patient can tolerate the taste when it is delivered. Although it is one of the least cariogenic sugars, frequent oral inhalation of these sugar containing drugs combined with decrease in salivary flow rate may contribute to an increase risk of caries.18 Reddy et al19 has pointed out that highest caries prevalence in asthmatic is seen in those children taking medication in syrup form. Associations between increasing prevalence of caries and lower salivary flow rate with increasing severity of asthma were observed, most likely due to the increased dosage and frequency of medication required to treat more severe asthma.9,19,20

Shashikaran et al10 analysed the drug-related effect and observed that beclamethasone inhaler showed an increase in caries but not very significant when compared to salbutamol inhaler and salbutamol tablets. The salbutamol tablets showed an increase in caries more than beclamethasone inhaler but less than salbutamol inhaler. This can be attributed to its systemic effect on the salivary secretions. Salbutamol inhaler showed higher degree of caries than beclamethasone inhaler and salbutamol tablets. It could be due to its local effects of decreased pH and altered salivary secretion levels and salivary composition.

Frequent consumption of sweet drinks and sweets between meals can also be one of the reasons for the increase in caries rate in asthmatic children.21 This increase in intake of the drinks may be either an attempt to wash away the taste of inhaled medications, or to counter the desiccating effect of mouth breathing and decrease in the salivary flow caused by beta-2 agonist.9,22

Often asthmatic children lead restricted life style and are not able to participate in normal childhood activities. McDerra et al7 reported that families may indulge children with frequent consumption of sweets, leading to an increase in caries rate. Moreover, increased attention to their general asthmatic condition may result in oral hygiene being neglected.15

In recent studies investigating the oral health of younger asthmatics, it was concluded that it was not the disease per se that caused a higher caries prevalence but rather caries-related factors, such as a lower salivary secretion rate, frequent mouth breathing and a higher consumption of sugary drinks.6

**ASTHMA AND ORAL CANDIDIASIS**

Oro-pharyngeal candidiasis is often associated with the use of inhaled corticosteroids.23 This adverse effect may be attributed to the topical effect of these drugs on the oral mucosa, as only 10%-20% of the inhaled drug reaches lungs, rest remains in oro pharynx. This is seen mainly among patients who use high dose of inhaled corticosteroids regularly.24 Most commonly seen as a pseudomembrane lesion (thrush) which clinically presents as white, soft plaque that leaves a painful erythematous eroded or ulcerated surface. The common sites are buccal mucosa, oropharynx and lateral aspect of the tongue.

Generalized immunosuppressive and anti-inflammatory effect of steroids is thought to play a major role in pathogenesis of candidiasis. Fukushima et al25 showed in a study that ICS can decrease salivary IgA, which can contribute to the development of oral candidiasis.

Knight and Fletche26 reported a higher level of salivary glucose in asthmatics treated with ICS than the control group. Also, many of the dry powder inhalers contained lactose monohydrate as the carrier vehicle in proportion of 10–25 mg per dose.18 This higher glucose concentration can also promote growth, proliferation and adhesion of Candida to the oral mucosal cells.27 As mentioned earlier, asthmatics who are medicated with beta-2 agonist show a decreased salivary flow rate. This decreased salivary flow rate can be associated with higher oral Candida counts.28

**ASTHMA AND PERIODONTAL DISEASES.**

Increased level of gingivitis has been observed with the use of LABA and ICS.29,30 This can be explained by an altered immune response and the dehydration of
Alveolar mucosa due to mouth breathing.

The key factor in destruction of the periodontal tissues is the interaction between bacterial and immunological factors. Saliva contains secretory IgA (sIgA) actively secreted by the salivary glands, which acts as the first line of defense for the mucosa by binding to the soluble and particulate antigen. Stimulated whole and parotid saliva from patients with chronic periodontal disease was shown to contain elevated levels of sIgA, and the concentration of sIgA tended to be correlated with the severity of disease. Moreover, in some studies, reduction of sIgA level in saliva of asthmatics has been reported. In contrast, Hyyppa found that allergic rhinitis associated with bronchial asthma is accompanied by a reduction of sIgA in saliva, suggesting that the allergen is able to penetrate into the oral mucosa from the nasal passage and reach the sublingual gland.

Asthma And Dental Erosion

McDerra and Wotman reported that children with asthma had more calculus than normal children. Higher prevalence of calculus in asthmatic children is due to increased levels of calcium and phosphorous in submaxillary saliva and parotid saliva. This can also contribute to increase in periodontal problems.

Asthma And Dental Erosion

McDerra and Shaw investigated erosion in children on a found that children with asthma had more dental erosion than healthy controls.

Anti-asthmatic drugs particularly the newer dry powder inhalers can cause tooth erosion in children. The powder versions of preventer therapies e.g. Becotide and Bricanyl, the mainstays of asthma treatment, are acidic with a pH below 5.5. Reports from clinical experiments demonstrated a fall in the pH of interdental plaque and saliva during the thirty minutes following the use of inhaler medication for asthma. Enamel starts to dissolve below pH 5.5. The powder in the puffers can erode the tooth enamel when used regularly.

Another possible explanation for erosion in asthmatic patient is that they have a high incidence of gastro-esophageal reflux. It has been established that 50-60% of children who are asthmatic suffer from acid regurgitation. The mechanism of development of gastro-esophageal reflux in asthmatic patients include an increase in the pressure gradient differential between thorax and abdomen, alteration in the diaphragm function, autonomic dysregulation and high prevalence of hiatal hernia. One of the important factor which promotes gastro-esophageal reflux in asthmatic patients may be the asthmatic drugs itself. Al-Dlaigan et al revealed in his study that certain inhaled beta -2 adreno-receptor drugs which are partly swallowed when used, may decrease the lower esophageal sphincter pressure and the esophageal contraction amplitude. The relaxation is associated with GOR. The relationship between dental erosion and GOR is well documented.

Miscellaneous Finding

Ulcerations: this is mainly due to xerostomia and immunosuppression caused by inhaled drugs.

Altered taste: xerostomia results in incomplete food solubilization and diminishes the transport of tastant molecules to taste buds.

Halitosis: this could be due to oral infection and xerostomia.

Precautionary Measures

1. Educate asthmatic patients about their susceptibility to oral health problems and encourage regular dental check-ups. Adopt caries preventive measures like fluoride supplements and pit and fissure sealants.

2. Patients may also be advised to use saliva substitutes, sip plain water and use a fluoridated mouthrinse daily to compensate for xerostomia. A study by Kargul et al. showed that chewing sugar-free gum for at least one minute after using an inhaler can neutralize the interdental plaque pH. Therefore, the use of sugar-free chewing gum to stimulate salivary flow and buffer oral acids is encouraged.

3. It has been shown that dry powder inhalers used for asthma have an acidic pH. Hence, patients should be encouraged to rinse their mouth with neutral pH or basic mouthrinses, such as liquid antacids, sodium bicarbonate in water, milk or neutral sodium fluoride mouthrinses immediately after using inhalers. Patients should also be instructed not to brush their teeth immediately after exposure to acids as it may damage the already weakened enamel.

4. Train patients to use their inhaler properly. Advice the use of a spacer device which can be attached to the inhalers by minimizing the oropharyngeal deposition of the drug and maximizing the lung deposition, thereby reducing the local effect of steroids in causing oral candidiasis. By providing a spacer between the inhaler and the mouth, the velocity of the powder is reduced, thus reducing the ferocity of the impact of the powder on the oropharynx. This time lag in delivery permits more of the propellant to evaporate; hence more particles are inhaled into the lung.
5. Use of antimicrobial mouthrinses helps to prevent colonisation of candida. Controlled administration of topical antmycotics, such as nystatin, is also shown to prevent oral candidiasis.

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Management of Stage Ib Carcinoma of Cervix

Beena K*, Anand R K**, Vishnu R N*

ABSTRACT

Management of FIGO stage IB cervical cancer is slightly controversial with different options of management like surgery, radiation, concurrent chemoradiation or surgery followed by radiation. Each modality has got its own merits and demerits and choice of treatment depends on age, stage subgrouping, performance status of the patient and complications of treatment. Single modality treatment is the preferred approach in early stage cervical cancer in order to avoid complications associated with combined modality.

Keywords: Radical surgery, Radical radiotherapy, Stage IB, Adjuvant radiation.

INTRODUCTION

To be or not to be? So sayeth Shakespeare in his Hamlet. However, as much as concerns us in the management of early carcinoma cervix is shall it be the knife or the ray. Countless gallons of water have flowed under the Thames or kindred bridges ever since the first surgeon or the first radiotherapist treated early carcinoma of cervix of border line operability. But the controversy rages on, the respective faithful vociferously supporting their own schools of thought. To top everything off, there is dearth of adequately powered randomized control trials providing convincing evidence as regards the relative merits and demerits of surgery Vis a Vis radiotherapy in early carcinoma cervix.

At this point of time it may be safely stated that with proper risk stratification, stage I B and II A carcinoma of cervix can be cured by radical surgery or radiotherapy (RT) but only that you have to expect different types of complications. While radiotherapy is feasible and effective in almost all patients with 5 year survival ranging from 80% to 90%, radical surgery offers advantages of evaluating the pathology, better risk stratification and hence tailored adjuvant radiotherapy. The 5 year cure rate after surgery in early stage cervical tumors is around 60% to 90%4, 5: although in most cases, this is achieved with adjuvant therapy. Institutional policy guidelines, patient factors and physician preference would hence decide individualized treatment decisions.

STANDARD TREATMENT OPTIONS FOR I b TUMOURS:

1. Radiation therapy: External-beam pelvic radiation therapy combined with two or more intracavitary brachytherapy applications is appropriate therapy for stage IA2 and I b1 lesions. Although low-dose rate (LDR) brachytherapy, typically with cesium (Cs 137), has been the traditional approach, the use of high-dose rate (HDR) therapy, with iridium Ir 192, is rapidly increasing. HDR brachytherapy provides the advantage of eliminating radiation exposure to medical personnel, a shorter treatment time, patient convenience, and outpatient management. In three randomized trials, HDR brachytherapy was comparable with LDR brachytherapy in terms of local-regional control and complication rates18,20. The American Brachytherapy Society has published guidelines for the use of LDR and HDR brachytherapy as components of cervical cancer treatment21, 22. For stage I b2 lesions, radio sensitizing chemotherapy is indicated. The role of radio sensitizing chemotherapy in I a 2 and I b1 lesions is untested and likely to be of only marginal benefit since the cure rates with radiation alone exceed or approach 90%.

2. Radical hysterectomy and bilateral pelvic lymphadenectomy.

3. Postoperative total pelvic radiation therapy plus chemotherapy following radical hysterectomy and bilateral pelvic lymphadenectomy. Radiation in the range of 50 Gy administered for 5 weeks plus chemotherapy with cisplatin should be considered in patients at high risk of recurrence including those with positive pelvic nodes, positive surgical margins, and residual parametrial disease12-17. Radiation therapy alone for patients with more than one intermediate risk factors (lymphovascular emboli, cervical deep stromal invasion, tumor size more than 4 cm) and no adjuvant treatment for low risk cases10.

4. Radiation therapy plus chemotherapy with cisplatin or cisplatin/5-FU for patients with stage Ib bulky tumors12,17, 23.
EVIDENCE: IS IT FOR RADIOTHERAPY?

Early authors to look into this controversial area were Newton M et al.1 and Morley and Seski et al.2. In prospective study of the treatment of 119 patients with Stage I carcinoma of cervix by radical hysterectomy alone (58 patients) or radiotherapy alone (61 patients) Newton et al. reported 10 year survival rates of 75 and 65 percent re-spectively, the differences not being statistically significant. In Morley and Seski’s study, of 446 patients with stage I b disease recruited between 1945 and 1975 and treated with radical hysterectomy with bilateral pelvic lymphadenectomy or external radiation and brachytherapy, reported crude 5 year survival of 87.7% and 83% respectively.

The only prospective randomized controlled trial between surgery and radio-therapy in early carcinoma cervix was reported by Landoni et al. in 19733. During a pe-riod of 5 years, 343 patients with stage I B and II A cervical carcinoma were randomized between surgery (n=172) and radiotherapy (n=171). Adjuvant Radiotherapy was given for patients found to have pathological T2 b or greater lesions with margins smaller than 3 mm, cut through, or positive lymphnodes. The primary outcome measured were 5 year survival and rate of complications. The secondary outcome measured was recurrence of the disease.

With a median follow up of 87 months, the study found out that the 5 year overall and disease free survival was identical between the two groups. Cervical diameter > 4 cms revealed itself to be an independent unfavorable pathological prognostic factor. In these group of women treated in the radiotherapy arm, the rate of pelvic relapse was more than twice the rate of distant relapse (30% vs 13%). In addition, the rate of pelvic relapse among those who had radiotherapy alone was higher than among those who had surgery plus adjuvant irradiation (16 [70%] vs. 9 [53%], p=0.46).

Of the surgery group, 28% had severe morbidity compared with 12% of patients in the radiotherapy group (P = 0.0004). In subset analysis, patients who received combined surgery and radiotherapy had the worst morbidity. Adjuvant radiotherapy had to be given to 62 (54%) of the 114 patients in surgery arm with cervical diameter < 4 cms and to 46 patients (84%) of the 55 surgery group patients with cervical diameter > 4 cms. Overall 64% surgery group patients received RT.

The authors suggested that the optimum candidates for primary radical surgery are women with normal ovarian function and cervical diameters of 4 cm or smaller, whereas radiotherapy is preferable for postmenopausal women. Women whose cervical diameters are larger than 4 cm should be identified before surgery so that they can benefit from tailored treatment: radical radiotherapy, with the option of concomitant radio sensitising chemotherapy (CT) to improve the local control of the disease, or cisplatin-based chemotherapy followed by radical surgery. The result of this study suggests only patients with limited disease that can be completely excised may be offered the option of primary surgery alone.

This study was widely criticized by surgeons for the broad use of RT and higher complications in the surgery arm. But later authors have investigated the use of adjuvant radiation more critically.

Sedlis et al. examined the role of post op adjuvant radiotherapy in women with node negative carcinoma cervix and certain poor prognostic factors (deep stromal invasion, capillary lymphatic space involvement (CLSI) or tumor diameter > 4 cms) who underwent radical hysterectomy with pelvic lymphadenectomy, eligible patients being randomized to receive external beam radiotherapy or observation.10 The study group included 277 patients, 137 randomized to pelvic RT and 140 to observation. When analyzed, the data showed a definite reduction in recurrence rates in the RT arm compared to observation arm (17.5% vs. 30.7%) with a p value of 0.007 and an improvement in progression free survival (p = 0.009). However, overall survival difference did not reach levels of statistical significance (p = 0.074) neither did the toxicity (p = 0.083). The prevalence of adeno carcinomatous, adenosquamous histology or tumor size > 4 cms was higher in RT arm. But this did not reduce the effectiveness of RT and subset analysis showed control rate of these tumors were high with RT. The disparity between recurrence results and survival, which usually should parallel each other, has been attributed to small sample size.

Intergroup trial 0107 by Peters WA et al. showed a statistically significant benefit in terms of both progression free survival and overall survival for post op RT + CT versus RT alone for women with Ia2, Ib, Ila after surgery and had either of the three high risk features; positive nodes, positive parametria or positive surgical margins11.

Hence adjuvant radiation with or without cisplatin based chemotherapy is recommended to patients with unfavorable pathological finding based on a scheme of risk stratification. Low risk patients have less than 4 cms tumor and none of the unfavorable pathological factors and may be safely left alone without adjuvant therapy. Intermediate risk patients have any two of the following risk factors viz. deep invasion of cervical stroma, CLSI, tumour size > 4 cm and are treated with post op adjuvant radiotherapy. The high risk patients who have any one of the following features like lymph node metastases, positive surgical margins, parametrial extension would merit addition of concurrent cisplatin based chemotherapy as well to radiation.
It is worth referring the NCCN guidelines on management of early cervical cancer at this point of time. The panelists recommend surgery i.e. radical hysterectomy with bilateral pelvic lymphadenectomy with or without paraaortic lymph node sampling for stage Ib1, IIa with cervical diameter < 4cms (category 1 recommendation). For more advanced disease i.e. Ib2,IIa with cervical diameters > 4cms category one recommendation is concurrent chemoradiation. The surgical option has only a category 2B recommendation status in these patients [24]. Studies by Keys et al. (GOG 123) and by Morris et al. (RTOG 9001) have shown that in patients with bulky disease of the cervix who are treated with radiation the addition of concurrent cisplatin containing chemotherapy significantly improves survival.

The case for neoadjuvant chemotherapy followed by surgery for bulky disease is largely investigational; the EORTC is currently conducting a phase III randomized controlled trial (EORTC 55994) of neo adjuvant cisplatin based chemotherapy followed by surgery versus RT plus chemotherapy in stage Ib and II a cervical cancer.

So it naturally follows that you cannot recommend any one treatment as the only option for early carcinoma of the cervix. However certain pertinent conclusions as regards recommending radiotherapy as the first line approach do emerge from the above trials and NCCN guidelines.

Firstly, consider this. Treatment of early carcinoma of the cervix promises acceptable cure rates, whatever be the modality of treatment you choose. Once your patient is going to get cured and survive long, the next thing that would decide choice of initial therapy is morbidity and consequentially, quality of life issues. As evidenced by the Landoni trial, in the surgery group 28% patients showed severe (grade 2—3) morbidity that required medical or surgical treatment, compared to 12% patients in the radiotherapy group, (p = 0.00004). It should also be remembered that although the two groups were equally matched, the age of patients in radiotherapy arm was slightly higher compared to surgery arm but had a lower morbidity.

Next, would surgery obviate the need for further radiotherapy? Unlikely, as shown by Landoni trial 64% (108/169) of women in the surgery arm required post op adjuvant radiation depending on pathological findings. It therefore follows that a patient who underwent surgery as a first option has a higher statistical probability of undergoing a second treatment thus prolonging hospital stay, and increased attendant costs. We have seen that adjuvant treatment cannot be omitted safely in any group other than the low risk patients. Also the quoted trial results show that those patients who received both radiotherapy and surgery had the greatest morbidity compromising quality of life. Renal complications like hydronephroureteroses, lower limb edema, bladder and bowel morbidity are more common and compromising in women who undergo both surgery and radiotherapy. Conversely the low rate of major complications after radiotherapy suggests that this approach is reasonably well tolerated. Hence it would seem logical to treat these patients initially itself with radiotherapy with or without concurrent chemotherapy.

**INDIAN SCENARIO**

Cervical cancer continues to remain the most common malignancy affecting women in India. According to the WHO/ICO Report fact-sheet published in 2010, which is based on the GLOBOCAN 2008 data, every year 1, 34, 420 women are diagnosed with cervical cancer and 72, 825 women die from this disease in India[26]. The projections for 2025, is of concern, with 2, 03, 757 new cases and1,15,171 cervical cancer deaths predicted[26]. This scenario, coupled with the fact that nearly 80% cervical cancers are associated with 4 HPV strains[16], [18], [31], [33], should have logically made the introduction of HPV vaccines (covering these 4 strains) a game changer in this area. But far from it, a recent parliamentary panel ruling, has stopped the clinical trials of HPV vaccines in India (which was a joint programme of the ICMR and an NGO funded by the Gates Foundation 27). With preventive strategies still in the nascent stages, more thrust needs to be put on cervical cancer screening. But as per the ‘WHO-WHS India’ data, the cervical cancer screening coverage in the country is a meagre 2.6%, [4.9% in urban women of 18-69 years, and 2.3% in rural women of 18-69 years]. Various factors including knowledge-related, resource factors, and psychosocial factors contribute to this scenario[28]. With preventive, as well as screening, programmes falling by the wayside, with difficulties in effective implementation, the onus is on the therapeutic strategies, to combat this grave health situation.

Moreover carcinoma cervix is in the main a disease of the lower socioeconomic strata. Radiotherapy is easier to deliver for the vast majority of our poor patients, the elderly, or who have severe medical contraindications to the surgical approach. Radiotherapy does away with the risks of anaesthesia and the operative scar, and iatrogenic mortality as well being virtually nonexistent. Recent advances in imaging, planning, and delivery of radiotherapy using cutting edge technology like intensity modulated radiotherapy (IMRT) and image guided radiotherapy (IGRT) have done much to mitigate short and long term morbidity from radiotherapy and improve precision of treatment delivery. Granted, these paradigm shifts in therapy are beyond the reach of majority of our population given the costs and availability. But where feasible they make the choice of treatment a further narrow one.

Lastly, there is the valid question regarding manpow-
er logistics. Radical surgical approach to cervical cancer requires skilled surgeons, with oncological expertise. Error in clinical judgment of the stage of the disease, in a country where meticulous FIGO staging procedures like examination under anaesthesia (EUA) or advanced radiological investigations are not routinely undertaken would be much more unforgiving and disastrous when approached with the knife than the ray. Such luxuries are currently lacking in India outside major metropolitan cities and premier institutions, lacunae in health care which have to be met. In contrast radical radiotherapy is much more freely available across the country, and does not require much technical expertise. It is safer and economical considering our financially and nutritionally deprived patients.

CONCLUSION

All this has been said not to belittle the role of surgery in the management of early carcinoma cervix. This article merely is an attempt to outline the general spheres of radiotherapy and surgery with specific pertinence to the Indian scenario. Younger patients, properly selected would benefit from surgery due to preservation of sexual and ovarian function. Older, post menopausal patients would be best treated with radical radiotherapy. Likewise patients with bulky disease would best benefit from some form of combined modality approach like concurrent chemo radiation. Where indicated, adjuvant therapy has to supplement surgery. Hence it is up to the treating physicians to take competent decisions taking patient factors and preferences into consideration.

REFERENCES

24, 2002.
In the grip of a serious illness

Balakrishnan V

“The natural healing force within each of us is the greatest force in getting well.”
- Hippocrates

On February 6, 2012 I returned home late, totally stressed out. My tummy was upset and I visited the toilet a couple of times passing some loose stools. Further I developed high temperature with shivering, cough and breathlessness. The breathlessness rapidly progressed to make me feel quite restless and in acute discomfort. I had a sleepless night, feeling really miserable; the next morning was no better. I was scared to think of the night that would follow. Never in the past several months had I suffered so much in such a short time. My feeling was that my cardiac status was down, that it had acutely deteriorated and left ventricular failure was the cause of my acute distress. I talked this over with Sarala, my wife, and we decided to go to AIMS (Amrita Institute of Medical Sciences) and meet my most dependable physician, cardiologist Dr Haridas. I had so much confidence in him as he had looked after me through many years and saved me from a number of critical situations. We contacted him over the phone. He was in the Cath Lab and we were asked to meet him there. We proceeded straight to the Cath Lab where Hari was waiting for us.

Haridas listened to my story and examined me in detail. Further, he got an ECG done and also an ECHO (Echocardiography). These were found to be normal. Anyway, by around 5 pm, he admitted me to the CCU (Critical Care Unit) for observation, but I politely requested him to put me in a general room and avoid the CCU. I knew the advantages of a CCU, but the mental loneliness felt in a CCU was daunting to me. Dr Haridas agreed though with much reluctance. I was started on many drugs, some old and a few new. He also put me on intermittent oxygen inhalation and periodic nebulization. That made me feel somewhat better, yet I was not comfortable during the night.

On 8th February, Wednesday, a number of blood tests were performed on me. My white blood cell counts were elevated indicative of an acute infection. The professor of medicine, Dr Ganapathi Rao, a reputed physician, was called in consultation. A chest X-ray revealed extensive consolidation in both lung fields typical of severe bilateral pneumonia. The picture was alarming. My doctors were worried. There were certain high risk factors in my case: my advanced age, cardiac status, a long history of diabetes mellitus, and the bilateral nature of the disease. To identify the organism causing the pneumonia, my sputum was subjected to Gram’s stain, a special staining method to identify the causative organism; the Gram’s stain showed positive cocci which suggested a common pneumonia-causing bacteria- pneumococci. To confirm it, we had to wait till the sputum culture results arrived, which would take another couple of days. Since it would not be prudent to wait for two or three days in a very sick patient, the doctors took the provisional decision to start me on a combination of antibiotics. They showed the concession of allowing me to have a peep into my chest film, which I thought was really scary.

A day later, I was told that my repeat chest x-ray had shown minimal signs of improvement. However, my symptoms remained the same, even though the fever had abated. Hopeful watchfulness was the only thing a doctor could do under such circumstances.

Our daughter Viju arrived from Doha to be of help to us. Narayanan, Viju’s husband frequently enquired on the phone. All this while our son Balc and his wife Prathibha in the US, were daily pouring in their enquiries. Balc too booked his tickets to Kochi.

Helpless as I was, my mind went over the many hospital admissions I had had. This was my eighth admission in AIMS in the last eleven years.

Dept. of Gastroenterology, AIMS, Kochi.
Suffering had by now become my second nature. I had gradually become immune to physical pain. I had developed a nonchalance to suffering and had no anxiety that usually accompanied a serious illness. Often anxiety aggravates physical pain. I accepted my illness and decided to face it courageously. I stopped worrying about it and erected a mental barrier between me and my illness. What helped me in this was my unflinching faith in God. I entrusted myself to him. I realized however much I wouldn’t make any difference and that only divine power could decide my fate. Though I was a doctor and a scientist and trained to think rationally, my science is underlined by the belief that in realms that transcend all scientific laws are the powers of nature that reign supreme. I felt calm and relaxed amidst all the turbulence.

On the 13th of February, the seventh day of my hospitalization, the chest x-ray was repeated and to everybody’s surprise, it showed deterioration. Meanwhile my cough had worsened and I was significantly breathless. Doctors met and discussed and sought the opinion of the pulmonologist, Dr Rajesh. The cultures of sputum did not grow any organism, so there was no clue to the infecting agent. It was suspected that Klebsiella, a type of bacteria associated with severe infections, was responsible. It was a difficult organism to treat. I was started on a new set of intravenous antibiotics.

I was aware that this was one of the worst crises in my life. The next day, 14 February, I was quite ill with cough, breathlessness and extreme fatigue. Doctor Haridas insisted on transferring me to the CCU, but I was still mulishly adamant. I preferred to stay in the room. I don’t know what went into my head that day. Looking back I think I was being foolish and unreasonable. I should have listened to my doctors, Haridas and Ganapathi Rao. My thinking was warped. The doctors out of consideration yielded to my entreaties, but later I realized my mistake. By now things must have been quite serious as a few other specialists too were seeing me. In the evening doctors came and saw me and finally Dr Haridas decided to shift me to the CCU brushing aside my objections. He told me, “Sir, So far I have never gone against your wishes. This time I am taking the decision into my own hands.”

And this time I did not dare question my doctors’ superior wisdom. I simply yielded. Things then moved pretty fast. I was quickly wheeled into the CCU. There was a team waiting there. People in green caps, masks and overalls were moving around. I lay there on the trolley, staring at the wide expanse of uniformly and brightly lit white ceiling. I was very weak and could not think with clarity. I had been in CCUs many times earlier, but this time it gave me a feeling of a different world, away from the real world. I felt I was totally in their power, a group of angels bent upon me with the sole purpose of saving me from something sinister. I completely and willingly surrendered. The next thing I remember was I was put on a Bi-Pap machine, a machine to forcefully assist my natural breathing. I felt more relaxed and free. I have seen patients with respiratory difficulty being assisted using a Bi-Pap machine, but had never been put on one myself. The lights dimmed after some time, save for a weak spot light, the bustle subsided, most of the angels surrounding me had withdrawn and I felt as though I was slipping into a peaceful slumber.

I woke up sometime in the middle of the night I presumed, with dryness in my throat, and an intense urge to pass urine. I stirred and tried to move my limbs, but found I was physically restricted by what looked like tubes and cables. In the dim light I could see that there were wires that ran from my chest to a machine above, that blinked with multicoloured lights, which I could make out was a monitor. They had fixed leads on my chest to monitor my heart rate, blood pressure and respiratory rate. The clothes-clip like small device with a blinking red light clipped on to my left thumb, I knew, was the pulse-oximeter that was connected by a wire to the monitor overhead. This device continuously displayed my blood oxygen saturation. I understood, from whispers among the staff, that my blood oxygen saturation was below the expected level due to my breathing difficulty. Good that the monitor was somewhat away from my head level so that I could not read the flickering letters and numbers on its screen. Otherwise I would have been preoccupied watching its readings and imagining things. On my right forearm was connected an intravenous line carrying a drip of some fluid. This perhaps also served as a line for pushing medicines in case of an emergency. On my right arm I could feel the grip of a partially inflated blood pressure cuff which periodically would be automatically inflated with air,
tighty gripping around my arm for the automatic recording of blood pressure and then like a cycle tube that is being deflated the cuff would lose air to come back to its previous flat state. All these I could feel lying there. Luckily there was no tube stuck in my mouth and throat nor a catheter pushed into my urethra which could have been worse. I was feeling my throat parched and badly needed a sip of water. I grunted and tried to clear my throat and stirred around but could not get up due to my bound state. I had to wait and catch the attention of a nurse who quickly came to my rescue and talked to my bound state. I had to wait and catch the attention of a nurse who quickly came to my rescue and talked to me, gave me some fluid to wet my throat and lips and helped me to ease my bladder in the most uncomfortable posture. I could not ease my bladder properly. The nurse was kind to me. I was told by him that the Bi-Pap had been disconnected but I might be connected to it in case my blood oxygen saturation drops. I could get reasonable sleep that night considering the state I was in. I definitely felt far more comfortable than in the previous nights and I felt thankful to my doctors. I felt foolish to have resisted the attempts to transfer me to the CCU earlier.

In the morning I was given a quick swab, my bed linen changed and I underwent a portable x-ray examination of the chest. I had a couple of needle pricks to collect blood samples for a few tests. By now I felt somewhat fresh. Nursing personnel were smartly moving around the wards attending to various patients. There was a quiet efficiency about them and their confident and kind demeanour infused a sense of confidence in the patients too. And then switching the lights on, walked in my wife with a relieved face for the first time in the past many days, that brought forth all the positive feelings gushing in me and I gave her one of my best smiles. That day was quiet and proceeded peacefully.

By the second day in the CCU my appetite had improved. For the first time after admission to the hospital about a week back, my food tasted good and I ate with some relish. As a doctor with a number of years of experience, I have learnt a few crucial practical clues, like many of my professional colleagues. When we reach by the side of a sick patient, there are a few quick questions we ask of the patient the answers to which give us an overall feel of how the patient is doing without going into the specifics of his complaint. The simple queries I ask the patient after greeting him are, “How do you feel today? In good spirits or do you feel down? How was your sleep? Did you eat your food and how is your appetite? Have you moved your bowels? Is your urination normal? Do you feel like conversing to your close relatives? Do you feel like reading a book, listening to music or watching television? Have you seen today’s newspapers?” All these are simple enough but give you an idea whether your patient is regaining his zest for life. A sick or suffering patient generally will not. Applying my own yardstick I knew I was on my way to recovery. There is nothing as powerful as the human mind.

In the CCU my health improved steadily. Doctors Haridas and Ganapathi Rao gave me wonderful care, the best care anyone could get. I felt both these doctors were not just great physicians but also fabulous human beings. They gave me love and confidence. After five or six days in the CCU, I was shifted back to my room. I was so happy to be back again with my family. When you are ill, there is nothing which could lift your mood like the support and love of your family. A patient’s positive attitude goes a long way in his recovery from illness. Modern intensive care units are a blessing to patients who are critically ill. All doctors know only too well that innumerable lives are saved from a critical phase of illness by the dedicated care that a CCU provides, aided by the many life-saving gadgets and availability of emergency life-saving medicines. Even more importantly, the constant care and continuous monitoring which are available in the CCU could ensure critical interventions. The availability of trained medical personnel, including doctors all the while could be ensured only in CCUs. As a doctor who has been admitted in CCUs several times, I could vouchsafe that, my life has been saved more than once by being admitted there.

I am writing these lines with deep sorrow overwhelming me. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness. Hari (Dr Haridas) who looked after me during my recent illness and many earlier spells of illness with extreme affection is no more. He passed away during my recent illness and many earlier spells of illness.
staff. I felt deeply indebted to Amma (Matha Amritanandamayi), whose divine blessings shed light on millions of lives that otherwise would have been submerged in bitter darkness. I had mentioned in earlier sections of my book (this excerpt is from a forthcoming book by the author) about my preoccupation with department building, and research and the paucity of time available for satisfactory clinical work and the resultant irritability and moods that I would experience during my tenure at the Trivandum Medical College. During the Medical College days, I had much academic satisfaction but as a clinician I felt I should have had more time to spend with my patients.

Later, when I started working in the Sudheendra Hospital, where I was free from the pressures of department building or research, I was left with sufficient time for patient care so that I really enjoyed the time spent with patients. I felt I was back to genuine clinical medicine. The former one was a typical governmental teaching institution; the second was a regular private hospital. I could spend more time with my patients, listen to them more patiently, talk to them leisurely and give them enough reassurance. I was relaxed and happier in my role as a clinician. But I missed the opportunity to carry on with my research and teaching.

My third tenure, at AIMS, which, though a private tertiary teaching institute, was different in that it was presided over by the world renowned spiritual guru, Amma. There was an atmosphere of charity, spirituality and service about this institution. The ambience was different. The institution offered me enough unhurried time for patient care and had a good infrastructure for research as well. There were teaching opportunities too. The general atmosphere of this institute was congenial and inspiring. The spiritual influence of Amma prevailed in the hospital. Amma’s message to the world is simple: Give love and compassion to all living beings. Perhaps the effect of this influence, along with the many spells of illness and suffering that I had been through, my advancing years and to a certain extent my own attempts at self-realisation and self-improvement, I presume, had brought about subtle changes in my personality and attitude to other human beings and life in general. I suspect that I have become more mellow, more patient and tolerant than before. I have started seeing life in a broader perspective, and have become less self-centred. This has been my transformation. I have found that more than looking for goals in life, I should, in the coming years look forward to making living the goal of my life. If only I had learnt this lesson many, many years ago!
Comparison of efficacy and safety of sequential combined spinal epidural anaesthesia versus spinal anaesthesia in high risk geriatric patients.

Rajan S, Seetharaman M, Nair SG

ABSTRACT

Context: With sequential combined spinal epidural anaesthesia the advantages of both spinal and epidural anaesthesia can be obtained avoiding many of the side effects of spinal anaesthesia. Aim of study: To compare efficacy and safety of sequential combined spinal epidural anaesthesia versus spinal anaesthesia in high risk geriatric patients undergoing major orthopaedic procedure. Material and methods: The study was a prospective, randomized comparative one conducted in 60 patients aged 65 to 80 years of ASA III and IV, posted for major orthopedic surgical procedures. Group A received sequential combined spinal epidural anaesthesia with 1 ml of 0.5% hyperbaric bupivacaine and 25 µg fentanyl spinally. Group B received spinal anaesthesia with 2 ml of 0.5% hyperbaric bupivacaine and 25 µg fentanyl. In group A, 1.5-2 ml of 0.5% isobaric bupivacaine was given for every unblocked segment through epidural route to extend block to T10. In group B if after 10 to 15 min the block did not reach T10 sensory level, supplementation with general anaesthesia was given. Motor block of lower limbs was assessed bilaterally using Bromage Scale. Results: Onset of block (8.8 ± 1.7 vs 10.4 ± 1.7 min) and time to achieve Bromage I block (11.6 ± 1.6 vs 12.9 ± 1.8 min) were longer in CSEA group than spinal group. Level of block achieved was higher in spinal group compared to CSEA (T6 vs T10). No significant difference was observed with duration of analgesia. There was significant fall in MAP in the spinal group in the initial 30 min. Conclusion: Sequential combined spinal epidural technique is effective and safe, with stable haemodynamics and prolonged analgesia compared to spinal anaesthesia in geriatric patients undergoing major orthopaedic surgery.

Key words: sequential combined spinal epidural anaesthesia, high risk, geriatric patients

INTRODUCTION

The block in sequential combined spinal epidural anaesthesia (CSEA) results from a relatively small amount of the spinal local anaesthetic followed by the epidural drug which help to increase the subarachnoid block to desired level. It is now being used in elderly high risk patients for orthopaedic surgery with encouraging results.1 With sequential CSEA the advantages of both spinal and epidural anaesthesia can be obtained avoiding many of the side effects of spinal anaesthesia.

AIM OF STUDY

To compare the efficacy and safety of sequential combined spinal epidural anaesthesia versus spinal anaesthesia in high risk geriatric patients undergoing major orthopaedic procedures.

MATERIAL AND METHODS

It was a prospective, randomized comparative study conducted between August 2009 and November 2011. After obtaining approval from the institution ethical committee and informed written consent, 60 patients aged 65 to 80 years of both sexes, belonging to American Society of Anesthesiology (ASA) physical status III and IV, posted for major orthopedic surgical procedures were included in the study. Any patients with absolute contraindication for regional anaesthesia were excluded. The patients were randomly allocated into two equal groups by a sealed envelope technique. Group A received sequential CSEA whereas Group B received spinal anaesthesia.

All patients had standard monitoring like electrocardiogram, non invasive blood pressure (NIBP), pulse oximeter and invasive monitoring such as central venous pressure (CVP), if specific indication was present. A preload of 500 ml normal saline was given to every patient before start of procedure.

Group A patients received sequential CSEA with 1 ml of 0.5% hyperbaric bupivacaine and 25 µg fentanyl through 27G Whitacre spinal needle which was introduced through a 16G Touhy needle in the epidural space. The spinal needle was withdrawn after injection of drug into CSF, 16G epidural catheter was then inserted and secured. The patient was kept sitting for 5 min and then placed in supine portion.

Group B received spinal anaesthesia with 2 ml of 0.5% hyperbaric bupivacaine and 25 µg fentanyl through 25 G Whitacre spinal needle in sitting position. They were also kept sitting for 5 min and was then made supine for surgery. Sensory block was assessed after 10 min by pin prick method. In group A, 1.5-2 ml of 0.5% isobaric bupivacaine was given for every unblocked segment through epidural route to extend block to T10. In group B if after 10 to 15 min the block did not reach T10 sensory level, supplementation with general anaesthesia was given.

Motor block of lower limbs was assessed bilaterally using Bromage Scale.
The following variables were recorded onset and level of sensory block, degree of motor block, duration of analgesia and supplementation with general anaesthe-
sia. Systolic arterial blood pressure (SBP) and heart rate (HR) were monitored before administering anaesthesia and throughout the intraoperative period. If SBP was <90 mm Hg, small incremental dose of ephedrine 6 mg was administered intravenously (IV). Bradycardia, (HR < 60/min) was treated with 0.6 to 1.2 mg atropine IV. Sedation was provided with midazolam 1-3 mg IV in titrated doses.

In group A, to prolong anaesthesia, all patients received first epidural top up with 5 ml of 0.5% isobaric bupivacaine one and half hours after start of surgery. Blood loss of more than 15% was managed with transfusion of blood in both the groups. After surgery, all the patients were shifted to post anaesthesia care unit (PACU). Patients in Group A received 0.125% of 8 to 10 ml bupivacaine through epidural catheter and group B received parenteral opioids on demand. Close monitoring of vital parameters continued throughout the stay in PACU.

Data was analyzed using SPSS 11.0 software. Difference between means were analyzed using “Normal test for means” and corresponding ‘P’ values were calculated. Normal test for significant difference between two proportions were also used for analysis. The level of statistical significance was ‘P’ value < 0.05.

OBSERVATIONS:

Distribution of patients in both groups were similar with respect to demographics and type and duration of operative procedures.

Onset of block in Group B was earlier as compared to Group A (8.8 vs 10.4 min) and time to achieve Bromage 1 motor block was significantly faster in Group B compared to Group A (11.6 ± 1.6 vs 12.9 ± 1.8 min) which were statistically significant (p = 0.002 and 0.006). When the duration of analgesia of both groups were compared, there was no significant difference between two groups (Table 1). The highest level of sensory block achieved by a majority of patients (56.7 %) in Group A was T10. But it was T6 in majority (60 %) of patients in Group B (Table 2).

When preinduction MAP was compared to MAP at 1 min there was no significant change in both groups. But when preinduction MAP was compared to subsequent MAP readings at 3, 5, 10, 15 and 30 min, there was a significant fall in MAP observed in spinal group (Table 3, Figure 1). There was no significant difference between mean HR in both groups throughout the observation period with reference to the preinduction values (Table 4, Figure 2).

The difference in incidence of hypotension and bradycardia between the groups were great. In group A, the incidence of hypotension and bradycardia was 10% each, whereas in group B it was 80% and 70% respectively. Only 10% in group A required vasoconstrictor while it was 80% in group B. In spite of rapid extension of sequential CSEA block, very low incidence of hypotension was seen which was significantly less than spinal block. Only 10% (3/30) of patients in group A suffered hypotension and required a single dose vasoconstrictor (ephe-drine 6 mg) to maintain SBP to 100 mm Hg, whereas in group B 80% (24/30) suffered hypotension and required single dose ephedrine 6 mg, 40% of them required two incremental doses of vasopressor to maintain SBP to 100 mm Hg.

In group B, 2 ml of 0.5% hyperbaric bupivacaine with fentanyl produced analgesia for 2½ hrs in 90% cases but 10% required supplementation with general anaesthesia.

DISCUSSION:

Geriatric patients because of many associated co-morbidities especially enhanced atherosclerosis may not tolerate hypotension following spinal anaesthesia well. Level of block obtained following a spinal anaesthesia is approximately 3-4 spinal segments higher in elderly compared with young adult patients. The sequential CSEA is particularly advantageous in old high risk orthopaedic patients where slower onset of sympathetic block is desirable to reduce haemodynamic side effects.

Previous studies have shown that CSEA provides surgical conditions comparable to spinal anaesthesia which is quick and reliable, with advantages compared with epidural block alone. To reduce the incidence and severity of hypotension sequential CSEA technique has been described. Here the dose of local anaesthetic given spinally will be inadequate for performing the surgery and it will produce less intense hypotension. The block is then extended with supplemental doses of epidural local anaesthetic. The advantage is that the onset of block is not delayed but desired level of sensory block can be obtained. A slower onset, lower level and longer time to achieve Bromage 1 block allows cardiovascular system to adapt to changes.

It has been a common practice to add opioids to spinal anaesthetics. This will help to reduce the dose of local anaesthetic which will in turn reduce the degree of hypotension. In the present study 25µ fentanyl was added to local anaesthetic in both the groups to convert an inadequate dose of local anaesthetic to an adequate dose. These effects were proven by studies by David et al. Spinal deposition of fentanyl in dose of 25µ or less is unlikely to result in respiratory depression.

In our study the aim of injecting hyperbaric bupiva-
caine in sitting position and to keep the patient in the
same position for 5 min was to restrict the sympathetic block. Three patients in group A developed hypotension, though the sensory level was T6. As a result of advanced age, the compensatory mechanisms were not as effective as in the younger age group, thus they developed hypotension even at this level.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean ± SD</th>
<th>P value</th>
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<tr>
<td>Gp A</td>
<td>0.4 ± 1.7</td>
<td>8.8 ± 1.7</td>
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<tr>
<td>Gp B</td>
<td>1.2 ± 1.8</td>
<td>10.6 ± 1.0</td>
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<tr>
<td>Duration of analgesia</td>
<td>201 ± 3</td>
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</tbody>
</table>

Table 1: Comparison of onset of block, time to Bromage I block and duration of analgesia

<table>
<thead>
<tr>
<th>Level of block</th>
<th>Group A</th>
<th>Group B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4</td>
<td>2 (6.7)</td>
<td>2 (3.3)</td>
<td></td>
</tr>
<tr>
<td>T6</td>
<td>18 (90.0)</td>
<td>18 (90.0)</td>
<td>36 (18.0)</td>
</tr>
<tr>
<td>T10</td>
<td>17 (36.3)</td>
<td>17 (36.3)</td>
<td>34 (36.3)</td>
</tr>
<tr>
<td>T12</td>
<td>1 (3.3)</td>
<td>1 (3.3)</td>
<td>2 (3.3)</td>
</tr>
<tr>
<td>L2</td>
<td>2 (6.7)</td>
<td>2 (6.7)</td>
<td>4 (6.7)</td>
</tr>
<tr>
<td>L3</td>
<td>2 (6.7)</td>
<td>2 (6.7)</td>
<td>4 (6.7)</td>
</tr>
<tr>
<td>L4</td>
<td>2 (6.7)</td>
<td>3 (3.3)</td>
<td>5 (3.3)</td>
</tr>
<tr>
<td>L5</td>
<td>2 (6.7)</td>
<td>3 (3.3)</td>
<td>5 (3.3)</td>
</tr>
<tr>
<td>ST</td>
<td>2 (6.7)</td>
<td>2 (6.7)</td>
<td>4 (6.7)</td>
</tr>
<tr>
<td>S4</td>
<td>1 (3.3)</td>
<td>1 (3.3)</td>
<td>2 (3.3)</td>
</tr>
</tbody>
</table>

Table 2: Highest level of sensory block achieved by patients in both groups

The onset of blockade in CSEA was delayed because of the lower dose of drug used. Though duration of analgesia was similar in both groups, the provision to provide analgesia throughout the postoperative period made CSEA a more attractive proposition. However, there is increased risk of postdural puncture headache and cauda equina syndrome with CSEA.10

**CONCLUSION:**

Sequential combined spinal epidural technique is effective and safe, with stable haemodynamics and prolonged analgesia as compared to spinal anaesthesia in geriatric patients undergoing major orthopaedic surgery.
Comparison of efficacy and safety of sequential combined spinal epidural anaesthesia versus spinal anaesthesia in high risk geriatric patients.

REFERENCES


The role of divine proportion in the perception of beauty: A cross sectional study


ABSTRACT

Everyone admires beauty and its unique balance in nature. This balance and perception of beauty has been attributed to the ‘golden’ number or the Divine Proportion that gives certain things their exquisiteness. The introduction of a standard called the Divine Proportion for the evaluation of a profile can lead orthodontic, orthopedic and surgical treatment to obtain maximum facial beauty.

Aims & Objectives: To investigate the relationship of certain measured proportions in facial profiles of young females to the divine proportion and to identify those proportions in facial profiles that are significant to the perception of beauty.

Materials & Methods: Profile photographs of 50 females with acceptable profiles between the ages of 18 and 20 were taken. Silhouettes of their standardized profile photographs were prepared using Adobe Photoshop, which were scored by 20 judges using a visual analog scale. The silhouettes were grouped based on the scores. Five anatomical landmarks were identified on the silhouettes, six linear dimensions measured and five ratios calculated. Student’s t test was used to compare the subjects’ profile proportions.

Results & Conclusions: It was concluded that the measured proportions R1 (Tr-Me:Tr-Sn) and R2 (Tr-Me:N-Me) in facial profiles with higher esthetic scores were closer to the divine proportion. In facial profiles with lower esthetic scores, none of the ratios approximated the divine proportion. The ratios R1 (Tr-Me:Tr-Sn), R2 (Tr-Me:N-Me), R3 (Tr-Sn:Sn-Me) and R5 (N-Sn:St-Me) were the more influential ratios which guided the judges’ perception of the beauty of the profiles.

Key words: Divine proportion, Beauty, Silhouette

INTRODUCTION

The writer Margaret Wolfe Hungerford (1878) said “Beauty is in the eye of the beholder”. Perceptions of facial beauty have genetic, environmental and cultural foundations. The origin of our perceptions of beauty and harmony is justly called a ‘sense’ since it involves no intellectual element, no reflection on principles and causes. Though not an understandable or quantifiable entity, everyone admires beauty and its unique balance in nature. This balance and perception of beauty has been attributed to the ‘golden’ number or the ratio that gives certain things their exquisiteness.

The “divine proportion” is one of the several terms used to describe the division of a line such that the ratio of the smaller section to the larger section is the same as that of the larger section to the whole. Other names given to this ratio include the “golden proportion,” and the “golden section”. This ratio can be expressed mathematically as 1.618:1 or 1:0.618. There have been many claims that the divine proportion was used in Greek art and architecture by the sculptor Phidias. This has led to its nickname as the “Phi” ratio. The term “divine proportion” was first used by the Italian Renaissance mathematician Fra Luca Pacioli.

Some authors have suggested that divine proportion provides a guide for the ideal sizes of teeth. Ricketts advocated the use of these divine proportion ratios as guides for planning orthognathic surgery. Marquardt, who developed a beauty mask based on the divine proportion, showed that regardless of race or age, a face is deemed beautiful if it conforms to this beauty mask.

The human face must also conform to the divine proportion in order to be biologically efficient and viable. Development towards ideal proportion maximizes efficiency and health. Patients who are dolichofacial tend to have upper airway obstructions and TMJ disorders and patients who are extremely brachyfacial tend to have severe myofacial pain and temporo-mandibular joint disorder. Thus it can be inferred that faces that do not conform to the divine proportion not only have esthetic problems but have physiologic problems as well.

The introduction of a standard called the Divine Proportion for the evaluation of a profile can lead orthodontic, orthopedic and surgical treatment to obtain maximum facial beauty. Jahanbin et al hypothesized that the values of certain measured proportions in beautiful faces are likely to approximate the Divine Proportion. This study was carried out with the following aims and objectives:

1. To investigate the relationship of certain measured proportions in facial profiles of young females to the divine proportion.
2. To identify measured proportions in facial profiles that are significant to the perception of beauty.
MATERIALS AND METHODS

Fifty female dental students with acceptable profiles between the ages of 18 and 20 years were invited to participate in this investigation. Subjects with gross facial deformity/asymmetry, history of orthodontic treatment, or extraction of teeth, except for third molars or cosmetic surgeries on the face were excluded. The aim of this study was explained and informed consent was obtained from each participant.

In the first part of the investigation, a clinical examination of the study subjects was carried out following which, the subjects’ standardized profile photographs were taken. During this procedure, the subjects were requested to adopt normal facial expression, without any asymmetry, sagittal and vertical deviations, and to maintain normal lip position (without excessive or decreased lip protrusion). The operator ensured that the subjects removed their glasses and any jewellery in the head and neck region and that the subject’s forehead and neck were clearly visible while the photograph was taken. The subjects’ heads were oriented in the natural head position, and a standardized right profile photograph of each subject was taken using a digital camera. The distance between the photographic equipment and the subjects was 150 cm. All the photographs were taken by the same operator.

In order to take the photographs in natural head position, subjects were asked to stand up and look straight into their eyes’ image in the mirror located on the wall in front of them at the same level as their pupils. In this position, the lips had to be relaxed, adopting the position they normally show during the day.

All 50 photographs were then converted to black and white (silhouette), using the Adobe Photoshop program and then cropped to include only the facial outline (figure 1). The silhouettes were then placed into a power point slide show to be displayed for the judges who rated these silhouettes.

The panel of judges consisted of 10 males and 10 females, which comprised of two orthodontists (one male and one female), four maxillofacial surgeons (two males and two females), four senior dental students (2 males and two females), and 10 laymen (five males and five females) with no dental training. They were then asked to score the profiles according to their preference for what was more or less attractive. A 100 mm visual analog scale score sheet was created to record the judges’ esthetic scores for each silhouette on a scale of 0 (least attractive) to 100 (most attractive).

To assess intra-assessor reliability, the judges rated the entire samples once again, approximately 3 weeks after the first rating with the same method. At this session the images were shown randomly. In this way, at the end of two sessions there were 40 scores for each subject. The mean of the scores for each profile was calculated, based on which, the profiles were categorized into two groups:

Group A: 25 profiles with higher esthetic scores
Group B: 25 profiles with lower esthetic scores

In the second part of this study and in order to evaluate the Divine Proportion in subjects’ profiles, five anatomic landmarks were identified (figure 1) on each silhouette as follows: (21)

1. Trichion (Tr): The superior border of the anatomical forehead, the hairline.
2. Soft tissue nasion (N): The most concave point of the tissue overlying the area of the frontonasal suture.
3. Subnasale (Sn): A point located at the junction between the lower border of the nose and the beginning of the upper lip at the midsagittal plane.
4. Stomion (St): The median point of the oral embrasure when the lips are closed.
5. Soft tissue menton (Me): The most inferior point on the soft tissue chin.

After identification of mentioned landmarks, six linear dimensions were measured. A pointed divider which could be fixed in position with a screw thread was used. Measurements were made in a straight line with the pointed members held on the landmarks identified. Then the divider tips were placed on a white paper that was placed on a cork board. Gentle pressure was applied on the divider so that the tips perforated the paper. Then the perforations were joined by a straight line and it was measured with a digital vernier caliper. The instrumental error of -0.02 mm was subtracted.

The following ratios were then calculated:

R1: Tr to Me (1.618): Tr to Sn (1.0)
R2: Tr to Me (1.618): N to Me (1.0)
R3: Tr to Sn (1.618): Sn to Me (1.0)
R4: Sn to Me (1.618): St to Me (1.0)
R5: N to Sn (1.618): St to Me (1.0).

All the manual procedures were undertaken by the same operator and all of these processes were repeated two times to reduce errors. The Student’s t test was used to compare the subjects’ profile proportions. In this study, P < 0.05 was used as the level of statistical significance.
Figure 1: The landmarks on the silhouettes

<table>
<thead>
<tr>
<th>Ratio</th>
<th>N</th>
<th>Mean ± Standard Deviation</th>
<th>Difference (Divine proportion – Ratio)</th>
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<tbody>
<tr>
<td>R1 Tr-Me:Tr-Sn</td>
<td>25</td>
<td>1.58424 ± 0.034609</td>
<td>0.034</td>
</tr>
<tr>
<td>R2 Tr-Me:N-Me</td>
<td>25</td>
<td>1.57976 ± 0.063001</td>
<td>0.039</td>
</tr>
<tr>
<td>R3 Tr-Sn:Sn-Me</td>
<td>25</td>
<td>1.69252 ± 0.091672</td>
<td>0.074</td>
</tr>
<tr>
<td>R4 Sn-Me:St-Me</td>
<td>25</td>
<td>1.47852 ± 0.05446</td>
<td>0.140</td>
</tr>
<tr>
<td>R5 N-Sn:St-Me</td>
<td>25</td>
<td>1.53976 ± 0.091158</td>
<td>0.079</td>
</tr>
</tbody>
</table>

Table – 1: Average values for five facial profile proportions in 25 subjects with higher esthetic scores (Group – A)

<table>
<thead>
<tr>
<th>Ratio</th>
<th>N</th>
<th>Mean</th>
<th>Difference (Divine proportion – Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 Tr-Me:Tr-Sn</td>
<td>25</td>
<td>1.52896 ± 0.07604</td>
<td>0.090</td>
</tr>
<tr>
<td>R2 Tr-Me:N-Me</td>
<td>25</td>
<td>1.541 ± 0.091377</td>
<td>0.077</td>
</tr>
<tr>
<td>R3 Tr-Sn:Sn-Me</td>
<td>25</td>
<td>1.90344 ± 0.187325</td>
<td>0.285</td>
</tr>
<tr>
<td>R4 Sn-Me:St-Me</td>
<td>25</td>
<td>1.46804 ± 0.066739</td>
<td>0.150</td>
</tr>
<tr>
<td>R5 N-Sn:St-Me</td>
<td>25</td>
<td>1.13148 ± 0.103861</td>
<td>0.487</td>
</tr>
</tbody>
</table>

Table – 2: Average values for five profile proportions in 25 subjects with lower esthetic scores (Group - B)
The average values for five facial profile proportions in 25 subjects with higher esthetic scores (Group A) are summarized in table 1. In Group A, the ratios R1 and R2 (with the mean of 1.58) were closer to the Divine Proportion. The average values for five profile proportions in 25 subjects with lower esthetic scores (Group B) are summarized in table 2. In Group B, none of the ratios approximated the divine proportion. However, none of the ratios had the mean of 1.618. Comparison of profile proportions in group A and group B (table 3) revealed statistically significant differences in ratios R1, R2, R3 and R5.

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Students t test (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 Tr-Me:Tr-Sn</td>
<td>A</td>
<td>25</td>
<td>1.58424 ± 0.034609</td>
<td>0.00225*</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>25</td>
<td>1.52896 ± 0.07604</td>
<td></td>
</tr>
<tr>
<td>R2 Tr-Me:N-Me</td>
<td>A</td>
<td>25</td>
<td>1.57976 ± 0.063001</td>
<td>0.00551*</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>25</td>
<td>1.541 ± 0.091377</td>
<td></td>
</tr>
<tr>
<td>R3 Tr-Sn:Sn-Me</td>
<td>A</td>
<td>25</td>
<td>1.69252 ± 0.091672</td>
<td>0.00000*</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>25</td>
<td>1.90344 ± 0.187325</td>
<td></td>
</tr>
<tr>
<td>R4 Sn-Me:St-Me</td>
<td>A</td>
<td>25</td>
<td>1.47852 ± 0.05446</td>
<td>0.54595</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>25</td>
<td>1.46804 ± 0.066739</td>
<td></td>
</tr>
<tr>
<td>R5 N-Sn:St-Me</td>
<td>A</td>
<td>25</td>
<td>1.53976 ± 0.091158</td>
<td>0.001748*</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>25</td>
<td>1.13148 ± 0.103861</td>
<td></td>
</tr>
</tbody>
</table>

Table – 3: Comparison of profile proportions in group A and group B

* Significant

**RESULTS**

The average values for five facial profile proportions in 25 subjects with higher esthetic scores (Group A) are summarized in table 1. In Group A, the ratios R1 and R2 (with the mean of 1.58) were closer to the Divine Proportion. The average values for five profile proportions in 25 subjects with lower esthetic scores (Group B) are summarized in table 2. In Group B, none of the ratios approximated the divine proportion. However, none of the ratios had the mean of 1.618. Comparison of profile proportions in group A and group B (table 3) revealed statistically significant differences in ratios R1, R2, R3 and R5.

**DISCUSSION**

Many guidelines, norms and standards have been proposed to describe ideal proportions in the human face, and for a long time golden proportions have supposedly been apparent in the ideal face. Underneath skin color and hair texture, lies the facial architecture that must conform to the universal standard based on the divine proportion14.

The age group of subjects in this study was 18 to 20 years because, between the ages of 14 to 24, the mature face is usually quite attractive in a nurturing way for parents and in a sexually attractive way for a mate. From about 24 years of age, the post pubescent adult face begins to slowly and progressively become less attractive. In the present study, only female subjects were selected as the human male face is considered to be generally less attractive than the human female face in the post pubescent period14. Again, selecting only female subjects in age group of 18 to 20 years limited the scope of the variables in the study and also decreased the dilution of results.

Subjects with history of orthodontic treatment, or extraction of teeth, except for third molars or cosmetic surgeries on the face were excluded in order to assess profiles which have not been altered due to treatment.

The present study used silhouettes for evaluating the divine proportion in profiles because this eliminated all extrinsic and intrinsic distracting variables (such as hair style, make-up, skin complexion) that could influence an evaluator’s esthetic score rating. Studies of facial attractiveness in the orthodontic literature have concentrated on the profile outline by using tracings or silhouettes instead of profile photographs22. Barrer and Ghafari assessed profile silhouettes before and after orthodontic treatment. Their results also supported the use of the silhouette in the evaluation of profiles23.

In the present study, 10 males and 10 females were selected on the panel of judges to eliminate any gender bias that may be associated with perception of beauty. The rating of facial attractiveness will always be some-
what subjective, making it difficult to correlate changes in esthetics with any particular facial measurement. By using lay people as judges, as well as professionals trained in assessment of facial appearance, we hoped to obtain as realistic a rating of beauty as possible. This method was consistent with that of Farkas.

The use of the visual analog scale was based on the work of Howells and Shaw and by Phillips and others. The visual analog scale was popular with judges and allowed ratings to be given quickly and provided more flexibility than numeric scales or equal appearing interval scales.

In this study, among the 25 subjects with higher esthetic scores, it was observed that ratios R1 and R2 with mean of 1.58 were closer to the divine proportion, where as in group B, none of the ratios approximated the divine proportion. These results are in agreement with Pancherz et al who reported that on comparing attractive and non attractive patients, deviations from the divine proportion values for all variables were larger in the non attractive sample.

However, comparison of profile proportions between the two groups revealed that the ratios R1, R2, R3 and R5 showed statistically significant variations. This implies that ratios R1, R2, R3 and R5 were the influential ratios which guided the judges’ perception in giving a higher or lower rating to the subjects. This is in contrast with the study by Jahanbin et al in an Iranian population, who reported that ratios R1 and R2 showed maximum variations.

Though the present study attempted to investigate the relationship of measured proportions in facial profiles to the divine proportion, considering the numerous factors which are influential in determination of beauty of a profile, it may be concluded that if the divine proportion is to be used as an aid to treatment planning, it should perhaps be used along with other factors.

CONCLUSIONS
The following conclusions were drawn from the results of the present study:

1. The measured proportions R1 (Tr-Me:Tr-Sn) and R2 (Tr-Me:N-Me) in facial profiles with higher esthetic scores were closer to the divine proportion.
2. In facial profiles with lower esthetic scores, none of the ratios approximated the divine proportion.
3. The ratios R1 (Tr-Me:Tr-Sn), R2 (Tr-Me:N-Me), R3 (Tr-Sn:Sn-Me) and R5 (N-Sn:St-Me) were the more influential ratios which guided the judges’ perception of the beauty of the profiles.

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Cognitive profile of children with Attention Deficit-Hyperactivity Disorder


ABSTRACT

Attention deficit-hyperactivity disorder (ADHD) is a developmental, neurobiological disorder affecting academic, social and emotional adjustment in children. Characteristics of ADHD include challenges with inattention, impulsivity and hyperactivity, or a combination of all three. In this study we aim to identify a cognitive profile of deficits in children with ADHD as assessed by the Malin’s Intelligence Scale for Indian Children (MISIC). A purposive random sampling of 60 children aged 6 to 13 years, with a diagnosis of ADHD was done. The SWAN rating Scale for ADHD and MISIC was administered to each child. Descriptive analysis and One-sample t-test was used for data analysis. Children with ADHD scored significantly low in Arithmetic, Information, Digit Span, Picture Completion, Block Design, Object assembly, and Coding sub-scales of MISIC (AID-PBOC profile). It was also found that they are having normal performance in sub-scales of Similarities, Comprehension, and Mazes (SC-M profile).

Key Words: ADHD, Cognitive profile, MISIC

INTRODUCTION

Attention deficit-hyperactivity disorder (ADHD) is one of the most prevalent disorders among school-aged children. It is a developmental, neurobiological disorder affecting academic, social and emotional adjustment in children. Characteristics of ADHD include challenges with inattention, impulsivity and hyperactivity, or a combination of all three. ADHD is believed to develop during early childhood and often continues throughout adolescence and adulthood. Although the exact cause of ADHD is not known, many causal factors have been implicated, including hereditary, neurological, pre and post-natal factors, and toxic influences. ADHD occurs more frequently in family members of individuals who have been diagnosed with the disorder, which suggests that there may be a hereditary component involved. Imaging studies of brain areas show activity in specific regions involved in attention processes and inhibitory responses suggesting neurological involvement in causation of ADHD.

Children with ADHD have been shown to have greater impaired attention, less impulse control, distractibility, and restlessness. They also have higher rates of both specific and generalized learning disabilities, poor reading skills and speech and language problems when compared with healthy controls. Co-morbid conditions, such as learning disabilities, conduct disorder, oppositional-defiance disorder, academic underachievement, and social skill deficits are often seen with ADHD. The diagnosis of ADHD is based on evaluation of hallmark behaviors using standardized rating scales as well as by structured clinical interview with the caregiver and behavioural observation. Full scale IQ assessment is administered to find deficits in cognitive functions. The profile of cognitive deficits often positively correlates with the core deficits of ADHD and reasons for academic under achievement. Cognitive impairments that accompany ADHD need to be considered as part of a comprehensive clinical formulation and multidisciplinary treatment plan. 80% of children diagnosed with ADHD have shown significant signs of academic performance problems. As many as 56% require academic tutoring, about 30% repeat at least one grade in school, and between 30% and 40% are placed in special education.

Intellectual measures such as Wechsler Intelligence Scale for Children (WISC) have been reported to be sensitive to discriminating children with ADHD from children without ADHD. A study by Mayes and Calhoun shows that children with ADHD scored lowest on working memory index and perceptual speed index. Although the Malin’s Intelligence Scale for Indian Children (MISIC), an Indian adaptation...
of WISC, was not developed as a diagnostic tool for ADHD, it has been widely used by clinicians during ADHD diagnosis (Pfeiffer et al., 2000). Since MISIC is a commonly used standardized IQ assessment in India, in this study we aimed to get a better understanding of the pattern of cognitive performance in ADHD children as assessed by the MISIC. This will help in substantiating the diagnosis of ADHD as well as help in treatment planning.

METHOD

The sample selected by purposive random sampling, comprised of 60 children aged 6 to 13 years (M = 9, SD = 1.8). They were referred by the Pediatric Neurologist with a diagnosis of ADHD, for behavioral intervention. Those children who had gross neurological, sensory, or motor impairment, as well as a history of seizure disorder were excluded. Other exclusion criteria were an IQ score less than 70, and a score below 12 in The SWAN rating Scale for ADHD (SWAN). After collecting socio-demographic details from the subjects, SWAN was administered. Those who scored above 12 points in SWAN were included in the study and Malin’s Intelligence Scale for Indian Children (MISIC) was administered individually.

The SWAN rating Scale for ADHD: It is used to assess the severity of ADHD. It is a structured interview completed by the investigator based on information from the parents. The questionnaire contains 18 items, each item rated in a 4 point scale. The total score determines the severity of ADHD symptoms. Higher scores indicate greater severity of ADHD. Psychometric properties for the SWAN were adequate, with high internal consistency and moderate test-retest reliability.

Malin’s Intelligence Scale for Indian Children (MISIC): It is an adaptation of the Wechsler Intelligence Scale for Children. It is used to assess the cognitive abilities of children aged 6 to 15 years. This battery comprises of 11 subtests through which an IQ score is obtained. It contains 11 subtests, namely Information, Similarities, Arithmetic, Vocabulary (optional), Comprehension, Digit Span, Picture Completion, Block Design, Object Assembly, Coding, and Mazes. Verbal IQ (VIQ), Performance IQ (PIQ) and Full Scale IQ (FSIQ) scores can be calculated based on the raw scores obtained in these subtests. The test-retest reliability of the battery is high and it has adequate congruent validity.

Statistical analysis was done using SPSS software, version 11. Descriptive analysis was done to obtain mean, standard deviation, and range of the scores on each variable. One-sample t-test was used to compare the mean scores of sub-scales with the normative sample scores. Since an IQ score above 90 is considered to be normal, the test value for one-sample t-test was fixed to be ‘90’.

RESULT

On analyzing the 10 subscales of the MISIC, lowest mean scores were obtained in object assembly (OA = 73.43), arithmetic (Arit = 80.37), and digit span (DS = 80.15) sub-scales. The group performed poorly on other subscales like information (Inf = 86.15), picture completion (PC = 83.05), block design (BD = 82.88), and coding (Cod = 83.37). The highest scores were found on the subscales of similarities (Sim = 89.17), comprehension (Comp = 87.67) and mazes (Maz = 97.48). The full-scale IQ (FSIQ = 83.73), verbal IQ (VIQ = 83.75), and performance IQ (PIQ = 83.58), are found to be at below the average level.

<table>
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<th>Subtest</th>
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<th>SD</th>
<th>Mean Difference</th>
<th>Sig. (2-tailed)</th>
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<td>VIQ</td>
<td>68 - 97</td>
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<td>6.289</td>
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<td>PIQ</td>
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<td>11.613</td>
<td>-11.050*</td>
<td>.000</td>
</tr>
<tr>
<td>Cod</td>
<td>59 - 107</td>
<td>83.37</td>
<td>10.718</td>
<td>-4.794*</td>
<td>.000</td>
</tr>
<tr>
<td>Maz</td>
<td>72 - 150</td>
<td>97.48</td>
<td>15.482</td>
<td>3.744*</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 1: Mean scores of children with ADHD (N = 60) on MISIC and result of One-sample t-test.

*The mean difference significant at the 0.05 level

When the mean values on each subscale was compared with the normative sample using One-sample t-test (Test value = 90), differences were found to be statistically significant (at 95% confidence interval) in all sub-scales except on comprehension and similarities. Even though the difference is significant, the mean difference on mazes sub-scale is positive, indicating normal
level of performance (TQ = 97.48). This indicates that the ADHD children performed at an equal level to the normal functioning scores in normative sample on comprehension, similarities and mazes, suggesting absence of deficits in areas assessed using those sub-scales.

Figure 1 provides a graphical representation of the cognitive profile of children with ADHD, as assessed using MISIC. From the graph it can be easily read that mean scores on arithmetic, digit span, picture completion, block design, object assembly, and coding sub-scales are below an IQ score of ‘85’. The score for information sub-scale is just above the 85 mark. The mean score of comprehension and similarities are nearing the normal level of 90 and the score for mazes is well above the normal level.

**DISCUSSION**

The objective of this study was to identify a pattern of cognitive performance in ADHD children as assessed by the MISIC. Present study revealed that children with ADHD had lower FSIQ when compare to normative sample. From analysis of MISIC data, we can identify a profile where children with ADHD scored significantly low in Arithmetic, Information, Digit Span, Picture Completion, Block Design, Object assembly, and Coding (AID-PBOC profile). Along with that it was also found that they are having normal performance in sub-scales of Similarities, Comprehension, and Mazes (SC-M profile).

**AID-PBOC profile:** Children with ADHD are showing poor performance in seven sub-scales of MISIC. Arithmetic, Information and Digit span (AID) are based on verbal tasks and Picture completion, Block design, Object assembly and Coding (PBOC) are based on performance tasks.

Arithmetic subtest assesses the child’s numerical reasoning. Arithmetic sub-scale task involves mental manipulation, concentration, short and long term memory, numerical reasoning and sequencing. In this subtest in addition to simple calculations, the experimenter orally presents word problems. Thus the child needs to comprehend arithmetical narrative rather than remembering the mastered basic arithmetic skills. In the context of arithmetic, the working memory system is thought to be involved in the memorization of numbers during the arithmetic process, the spatial representation of multi-digit problems, and the initiating, directing, and monitoring of procedures in complex arithmetic problems (McLean & Hitch, 1999). Information measures child’s ability to acquire, retain, and retrieve general factual knowledge. It involves long-term memory, and the ability to retain and retrieve knowledge from school and environment. Digit Span forward subtest on the MISIC requires participants to mentally encode and immediately recall series of verbally presented numbers in the serial order. Children with ADHD have difficulty in getting alert to the verbal stimulus and to maintain that alertness or attention throughout the task. In Digit Span backward subtest, participants have to mentally encode and reverse serial order in which series of numbers are presented. Children with ADHD have deficits in working memory which makes then unable to hold and manipulate the information in order to give a good performance.

In Picture Completion sub-test the child views a picture with an important part missing and identifies the missing part. This subtest measures visual perception and organization, concentration, and visual recognition of essential details of objects. Block Design measures the ability to analyze and synthesize abstract visual stimuli and nonverbal concept formation. It involves visual perception and organization, visual-motor co-ordination, spatial visualization, learning and the ability to separate figure and ground in the visual card. Object assembly assesses visual-motor perception and organization, and construction skills. Low score suggest low visual concept formation, rigid visual reasoning, and poor concentration. Lower scores in Block Design and Object Assembly in ADHD groups have been reported in earlier studies also (Zambrano-Sanchez et al, 2010). Coding assesses the child’s visuo-motor skills, visual scanning, cognitive flexibility and processing speed. The task also needs sustained attention and less distractibility to code more
number of boxes without error to obtain a good score. The finding that children with ADHD perform poorly in Coding is consistent with several previous studies (Mayes and Calhoun 2004, 2006)  

SC-M profile: On three sub-scales of MISIC, the children with ADHD performed at par with the normal range in normative sample. Similarities, and Comprehension (SC) are based on verbal tasks and Mazes (M) is based on performance task. Similarities assess verbal reasoning and concept formation. It also involves auditory comprehension, and verbal expression. Comprehension measures verbal reasoning and conceptualization, and the ability to evaluate and utilize past experiences. It also involves knowledge of conventional standards of behavior, social judgment, and common sense. Mazes assess inductive non-verbal reasoning skills and visual-motor speed with accuracy.

A profile of cognitive deficits as assessed by MISIC, is identified through the study. The AID-PBOC profile (Poor performance in arithmetic, information, digit span, picture completion, block design, object assembly, and coding sub-scales) will support the diagnosis of ADHD. The study also points to the strong areas in ADHD children, as indicated by SC-M profile (Normal performance in similarities, comprehension, and mazes sub-scales). In educational situations, and intervention planning it is essential that we understand the nature of the weak areas, what skills need to be learned to strengthen those areas, and how the strong areas can be used to help remediate the child's weak areas.

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Progressive Muscular Relaxation as a Multi-pronged psychotherapeutic technique for Insomnia

Gitanjali N, Sreehari R

ABSTRACT
Insomnia is a distressing condition of unsatisfactory quantity and/or quality of sleep with multiple physiological and psychological consequences. We report how progressive muscular relaxation was applied to improve the sleep quality in a 55 year old lady with 8 months history of insomnia and associated depressive symptoms. The speedy relief in this patient makes a case for trying cognitive behavioural measures first to treat insomnia.

Keywords: Primary insomnia, Progressive Muscular Relaxation

INTRODUCTION
Primary insomnia is characterized by unsatisfactory quantity and/or quality of sleep, which persists for a considerable period of time and is not a result of a comorbid medical or psychiatric condition. Sleep deprivation has short and long term physiological and psychological consequences. Insomnia contributes to decreased quality of life, reduced immunity, impaired cognitive and functional status. The prevalence rate of insomnia ranges from 10 to 15% among the general population in India. Spielman’s three factor model of insomnia emphasizes the interaction of predisposing, precipitating, and perpetuating factors at different levels to initiate and sustain the course of insomnia. The integrative theoretical model (Fig.1) points to the interaction of sleep-interfering processes and sleep-interpreting processes in the development and maintenance of insomnia leading to the vicious cycle of sleeplessness.

Figure: 1 An Integrative Model of Insomnia

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Research to evaluate and formulate treatments for insomnia is often beset by the problem that insomnia is usually of multifactoral etiology. Various treatment modalities have been extensively researched in the western population such as Cognitive Behaviour Therapy for Insomnia (CBT-I), relaxation training, stimulus control therapy, sleep restriction therapy and sleep hygiene education for enhancing sleep. CBT-I is a multimodal therapy which includes cognitive techniques and behavioural interventions that helps to break the vicious cycle of insomnia thereby improving sleep efficacy. Relaxation based interventions, used independently or as a part of CBT-I, focus primarily on reducing somatic hyper arousal. Progressive Muscular Relaxation (PMR) is a method of systematically tensing and relaxing various muscles of the body that helps to decrease the physiological and cognitive states of arousal that interfere with sleep. It facilitates a functional pre-sleep process characterized by cognitive and physiological deactivation. PMR helps in improving the sleep pattern as well as a reduction in the dose of medication required. It is a relatively feasible method and lacks any adverse effects usually indicated in the use of long term tranquillizers.

CASE REPORT

A 55 yrs old housewife, Keralite living in Mumbai, middle SES, premorbidly anxious, with no family or past history of mental illness or insomnia, 6 yrs post menopause, was referred from General Medicine department to Clinical Psychology department for management of psychogenic insomnia resistant to tranquillizers. Patient gave a history of difficulty initiating and maintaining sleep since 8 months. This was precipitated by her son getting involved in an intercaste affair which was distressing to the patient. However, even after that issue was resolved, patient continued to have insomnia in spite of being started on Zolpidem and Trifluoperazine. As the insomnia continued, patient became more and more anxious and sad. Her social and occupational functioning declined as she became increasingly preoccupied about lack of sleep throughout daytime.

At the time of initial assessment, she reported being able to get less than two hours of disturbed sleep at night. She appeared worried and harassed. She was not sure if she actually slept during these 2 hours as she could sense any small movement or sound in the room. The Insomnia Severity Index (ISI) score indicated severe clinical insomnia and Beck Depression Inventory (BDI) score indicated moderate levels of depressive symptoms that included low mood, increased tendency to cry, poor concentration, fatigue, poor appetite and loss of sexual interest (See Table 1).

Intervention involved insomnia focused cognitive therapy that addressed patient’s anxiety due to anticipation of sleepless night and the catastrophizing of the consequences of poor sleep. The link between this anxiety and psychophysiological hyperarousal and the resultant difficulty slipping into sleep was explained. Focus was shifted from insomnia to sleep-interfering anxiety about insomnia as the treatment target. The patient underwent 3 sessions of progressive muscular relaxation on consecutive days. Patient was demonstrated that PMR could help her become less worried, and more relaxed. Patient was instructed to do twice daily - once at a specific convenient time during the day and once after settling to sleep at night, which patient needed to continue only until she fell asleep. She was also asked to initiate PMR if she woke up in the middle of the night.

During review one week later, she appeared cheerful and hopeful. She reported better sleep though she still had some difficulty maintaining it without breaks in sleep. Her BDI score came down to mild range of depressive symptoms and ISI score now indicated sub threshold insomnia only. She returned to Mumbai and continued the PMR as told. The patient’s rating returned by post one month later showed that depressive symptoms had further reduced to normal levels and the gains made in sleep in the one week review were maintained (See Table 1).

Table 1: Scores on patient self report of insomnia severity and depression pre and post intervention.

<table>
<thead>
<tr>
<th>Self-Rating scales</th>
<th>Scores</th>
<th>Before intervention</th>
<th>1 week later</th>
<th>1 month later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insomnia Severity Index</td>
<td></td>
<td>28</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Beck Depression Inventory</td>
<td>25</td>
<td></td>
<td>9</td>
<td>6</td>
</tr>
</tbody>
</table>

DISCUSSION

Insomnia has become an increasingly common, yet distressing problem among people across gender, ages and socio-economic classes. Effectiveness of tranquillizers to cure insomnia in the long run is debatable and they also have the risk of dependency. There are various cognitive and behavioural treatment strategies for insomnia that have been found effective in the Western population. However, our patients do not
have the luxury of undergoing prolonged and elaborate treatments due to economic constraints and various psychosocial factors; one of the main factors being the average Keralite’s limited awareness of psychological processes and their unwillingness to spend time and effort to analyze and modify their dysfunctional thought patterns. Hence it is essential to identify brief yet effective treatment strategies suitable in our setting.

The initial intake consisted of assessment that included the therapist and the patient understanding the predisposing, precipitating and maintaining factors. This helped in educating the patient about the pathogenesis of insomnia in a way that patient could identify and understand better. Reassuring and instilling hope of improvement were essential to ensure patient cooperation. PMR benefited the patient through multiple therapeutic pathways. First, the stepwise manner in which PMR is done requires focusing on each muscle group, tensing and relaxing it. Having changed the goal of treatment to being able to relax after going to bed rather than trying to sleep, PMR could effectively help patient reach a relaxed state. This made the patient relieved and confident that the therapy was working from day one. Patient also felt happy that she now knew of a method to fall asleep which she could do by self. Secondly, the patient was required to stay focused on each muscle group and remember the consecutive steps. This prevented patient’s mind wandering off to worrying thoughts that could keep the patient in a hyper-aroused state. Thirdly, when the patient repeatedly does PMR after settling in bed for sleep, over time the act of doing PMR, relaxed state and sleep initiation get connected leading to associative conditioning. Subsequently, even starting to do PMR facilitates sleep initiation by becoming a cue for getting relaxed and falling asleep. In the present case, the quick improvement in a week’s time was not just a placebo effect as the gains were maintained even after a month.

The above case suggests the benefit of trying cognitive behavioural measures first to treat insomnia. PMR as a treatment is especially useful among patients who insist on not taking medicines, or for those patients in whom tranquillizers may be contraindicated. Controlled studies need to be done in future to establish the effectiveness of PMR as a treatment strategy for primary insomnia in the way it has been applied in the present case.

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A confusional tumour of the tongue

Madhumita K, Midhuna P C

ABSTRACT
Granular cell tumour (GCT) is a fairly rare benign lesion typically seen in intra oral sites though there are several cases reported in extra oral sites. A review of the literature also reveal malignant versions of Granular cell tumours. This tumour has been coined with different terminologies due its controversial histological origin. We report a case of a granular cell tumour of the tongue in a 37 year old male patient.

INTRODUCTION
The history of granular cell tumours dates back to 1926 when Russian pathologist Alexi Ivanovich Abrikossoff supposed the tumour to be of muscular origin and termed it granular cell myoblastoma1,2,3. Though its histogenic origin remains unclear, the finding of nerve sheath differentiation in these tumours has confirmed their neural origin4,5. GCT typically presents as a solitary tumour but cases of multicentric presentations have also been reported6.

CASE REPORT
A 37 year old male patient presented to us with the complaint of swelling over posterior aspect of tongue for the past 1 year which was progressively increasing in size. He did not have complaints of associated pain, bleeding, or dysphagia. An intra oral examination revealed the presence of a hard hemispherical non tender submucosal swelling over posterior aspect of tongue in midline. The patient underwent excision biopsy of the tumour. Sections showed tissue lined by stratified squamous epithelium with marked pseudoepitheliomatous hyperplasia with formation of occasional keratin pearls. Sub epithelium showed nests of granular cells which was seen extending between the muscle bundles. IHC studies showed S100 positive in the tumor cells and Ki-67 positivity index was low. Thus a diagnosis of granular cell tumour was made.

DISCUSSION
Granular cell tumours are neoplasms that more commonly affect females in the 4th-5th decade of life7. These lesions may mimic several other benign lesions which include lipomas, dermoid cysts, benign mesenchymal neoplasms or neuramas.8,9. 70% of these lesions affecting the head and neck region are intraoral.8 Other sites affected are varied including the skin, nervous system, gastrointestinal tract, urinary bladder, female reproductive tract, bronchus 8,9. Majority of these tumours are asymptomatic and measures not more than 3 cm8.

1-3% of the GCTs present in a malignant way10. An AFIP study stated any 3 of the following 6 criteria for the tumour to be categorized as histologically malignant

1) >2 mitoses/10 fields at 200X magnification
2) necrosis
3) high nuclear-cytoplasmic ratio
4) spindling
5) vesicular nuclei with large nucleoli
6) pleomorphism.

It is classified as atypical GCT if 2 of the above mentioned criteria are met with11.

Cases of co existence of malignant and benign lesions have also been cited in literature12.

The key to differentiate between a benign and malignant lesion includes particular note of the tumour size, rapid progression of swelling, invasion of adjacent structures and distant metastasis12. Unlike other malignant conditions there is no universally accepted staging system for these tumours.

Surgical excision is the treatment of choice but extent and location of tumour as well as lack of capsule may not always allow an excision with a safe margin13. Other modalities of treatment like radiotherapy and chemotherapy have not proven to be effective in curing these lesions.

The characteristic marked pseudoepitheliomatous hyperplasia is deceiving as they closely resemble carcinoma1. Definitive diagnosis is made by immunohistochemistry as the tumour cells react strongly with S100 protein and thus considered precursors of Schwann cells. Other immunohistochemical analyzers include myelin base proteins, CD-68, P75, neuron specific enolase14. A low Ki 67 index is a good prognostic factor but if Ki 67 is >10% it is indicative of malignancy11.

Usually recurrences are uncommon if surgical resection is adequate. But literature states that recurrence rates can vary from 2-50% and sometimes even noted several years later.

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based on the infiltrative pattern. Thus regular follow-up of these patients are needed to rule out malignant transformation but the slow growth and rare aggressiveness of the tumor lend it a good prognosis.

Figure 1: Hematoxylin and eosin stain showing marked pseudoepitheliomatous hyperplasia

Figure 2: S 100 positivity

Figure 3: Cytokeratin uptake which is negative in granular cells but positive in the epithelium
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**Congenital Cystic Adenomatoid Malformation Presenting as Complicated Pneumonia**

Sruthi G*, Sajitha S*, Naveen V**, Geetha V***

*dept. of pediatrics, ** pediatric Surgery **pathology, AiMS, Kochi

**INTRODUCTION**

Congenital cystic adenomatoid malformation (CCAM) is a rare embryonic congenital disorder of the lung. The diagnosis of this condition may be missed in a developing country where infective conditions of lung are much more common. We present a 15 month old girl child who presented with persistent lower lobe pneumonia. She needed multiple hospital admissions and repeated courses of antibiotics before a diagnosis was reached.

**CASE REPORT**

A fifteen months old previously asymptomatic girl was referred to our hospital with history of high grade intermittent fever of 21 days. She also had cough and breathing difficulty of 1 week duration. She was diagnosed as a case of right lower lobe consolidation and received multiple courses of intravenous antibiotics from other hospitals. She was referred to our hospital as she persisted to be symptomatic. At admission to our hospital the child was febrile, toxic and tachypnoeic. Oxygen saturation was 98% in room air. There was no tracheal or mediastinal shift. Clinical examination also showed reduced air entry, increased vocal fremitus and impaired resonance over the right infraaxillary, inter scapular and infrascapular areas. A high pitched bronchial breath sound was audible over the right interscapular area.

A clinical diagnosis of right lower lobe consolidation was made. Chest Xray showed opacities in the right lower lobe with multiple thick walled pneumatoceles (Fig1). Investigations showed neutrophilic leucocytosis, microcytic hypochromic anemia with raised inflammatory markers. She was started on injection Ceftriaxone, Vancomycin, nebulised bronchodilators and other supportive measures after collecting samples for relevant cultures. As the child was still symptomatic after 3 weeks of treatment, a CT Chest with contrast was done which was reported as breaking down consolidation with cavitory changes in the right lower lobe. Mantoux and gastric aspirate for AFB were negative. An ECHO was done and vegetations were ruled out. The child improved symptomatically with treatment and became afebrile within 72 hours of initiating treatment. Blood and urine cultures were sterile. IV antibiotics were continued for 21 days as the possibility of staphylococcal pneumonia was considered. Chest Xray repeated after 3 weeks of treatment showed clearance of opacities but a large septated lesion persisted in the right lower lobe (Figure 2). CT Chest with contrast was repeated which showed thick walled multi septated cystic lesions in the lower lobe of the right lung, the vascular supply of which was from pulmonary artery with drainage into pulmonary vein (Figure 3). A possibility of CCAM was considered.

The child was taken up for surgery. At thoracotomy, pleura over the involved part of the lung was thickened. Dense adhesions were seen between the lung, diaphragm and pleura. A large thick walled cystic area was seen in the posterior lateral part of the right lower lobe. Right lower lobectomy was done. Histopathology of the resected lung showed a thick wall cyst lined with focal flattened epithelium resting on loose mesenchymal tissue consistent with Type IV CCAM (Figure 4). The immediate post operative period was uneventful. The patient is on regular follow up for the past five months and has remained asymptomatic.

**DISCUSSION**

Congenital cystic adenomatoid malformation of the lung is a rare developmental anomaly caused by abnormal fetal development of terminal respiratory structures resulting in adenomatoid proliferation of bronchiolar elements and cyst formation. Its exact pathogenesis is still uncertain. Studies have investigated role of HoxB5 gene and protein expression as well as other growth factors such as platelet derived growth factor-BB1. CCAM was first acknowledged as a separate entity and introduced into English medical literature by Chin and Tang in 1949. A classification system was proposed by Stocker et
al who classified CCAM into three types based on clinical, gross pathological and histopathological features. Recently Stocker has added two more types to the existing classification based on anatomic and microscopic properties of pulmonary airway and has used the term congenital pulmonary airway malformation (CPAM) for the anomaly.

The left lung is involved as often as the right lung with single lobe disease observed four times more often than multi lobe disease. The clinical spectrum varies depending on the extent of malformation in the lung and the presence of associated conditions. In neonatal period they present as acute respiratory distress secondary to air trapping or because of mass effect and pulmonary compression or hypoplasia. It may remain asymptomatic and be discovered later in life on routine chest X rays or present beyond neonatal period as recurrent or persistent pneumonia or pneumothorax. Malignant changes have also been reported later on in life.

CCAM should also be differentiated from other cystic lesions in the lung in children like pulmonary sequestration, bronchogenic cyst, congenital lobar emphysema, diaphragmatic hernia and cystic bronchiectasis. Chest radiography is essential in the work up of a child with suspected CCAM. Computed tomography of thorax provides a safe and rapid means of defining the extent of CCAM in all age groups. The typical appearance of CCAM is of a multilocular cystic lesion with thin walls surrounded by normal lung parenchyma. In this patient, persistent secondary infection complicated the appearance of the lesion.

The definitive treatment of CCAM is surgery. In lobectomy the remaining lung grows and expands well enough so that total lung volume and pulmonary function tests return to normal. Histopathology of the resected lung in this patient showed a thick walled cyst lined with flattened epithelium resting on loose mesenchymal tissue consistent with Type IV CCAM. Prenatal diagnosis of CCAM by ultrasound has improved the management of fetus as well as helped to define the natural history and pathophysiology of this malformation.

It is important to be extra vigilant and actively seek alternative diagnosis in children who present with persistent chest infections or recurrent chest infections involving the same lobe. Although rare it is important to recognize CCAM early in life so that appropriate surgical intervention can be done early thereby preventing the consequences of recurrent infection.
Figure 3- HRCT chest showing thick walled multi-septated cystic lesion in the lower lobe of the right lung.

Figure 4- Histopathology of the resected lung in this patient showed a thick walled cyst lined with flattened epithelium resting on loose mesenchymal tissue consistent with Type IV CCAM.

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Fever with thrombocytopenia - thinking outside Dengue


ABSTRACT

Hantavirus belongs to the bunyavirus family of viruses. Hantaviruses have the potential to cause two different types of diseases in human: hemorrhagic fever with renal syndrome (HFRS) and hantavirus cardiopulmonary syndrome (HCPS). A 62 year old gentleman presented with complaints of fever for 6 days with myalgia and flu like symptoms and was detected to have thrombocytopenia. Patient subsequently developed sudden onset breathlessness and hypotension and was detected to have ARDS and Acute Kidney injury. Patient had a negative dengue and leptospiral serology. Since our patient had pulmonary and renal involvement with thrombocytopenia and fever, hanta virus was considered as a clinical possibility and hence serum samples were sent for testing which turned out to be positive. This was the first recorded case of Hanta virus in our institution and the first native case reported from Kerala. Hantaviral infection might be underestimated due to the lack of clinical suspicion, and the lack of simple standardized laboratory diagnostics in hospitals, especially in the developing countries.

Key Words: hantavirus, hemorrhagic fever with renal syndrome, HFRS, hantavirus cardio pulmonary syndrome, HCPS, fever with thrombocytopenia.

INTRODUCTION

Hanta virus Infection: Hantavirus belongs to the bunyavirus family of viruses. It is made up of negative sense, single stranded RNA. They are enveloped viruses. They replicate exclusively in the host cell cytoplasm. Entry into host cells is thought to occur by attachment of the virions to cellular receptors and subsequent endocytosis. Rodents are the natural host. Incubation period of the virus is 1-5 weeks. There are two types of clinical manifestation Haemorrhagic fever with renal syndrome (HFRS) and Hantavirus cardiopulmonary syndrome (HCPS). The major disease burden in the world is of HFRS. It is generally suspected when a patient presents with fever, myalgia, thrombocytopenia, proteinuria, renal failure and respiratory compromise.

With our patient having pulmonary and renal involvement with thrombocytopenia and fever, Hanta virus was considered as a clinical possibility and hence serum samples were sent for testing which turned out to be positive.

PRESENTATION OF CASE

A 62 year old gentleman presented with complaints of fever for 6 days with myalgia and flu like symptoms. He was previously admitted in another hospital and was detected to have thrombocytopenia. He was suspected to have Dengue fever and treated symptomatically with IV fluids and third generation cephalosporins, despite a negative dengue serology.

Patient did not have any other localizing symptoms like dysuria or increased frequency of urination, cough, headache, abdominal pain, loose stools or vomiting.

On examination the patient was found to be tachypnoeic (Respiratory Rate-24), his saturation was 97% on room air. He was febrile with a temperature of 100°F. The patient had no signs of dehydration. His pulse rate was 88/min. BP -110/90mm Hg with no postural drop. Systemic examination did not yield any further clues.

LABORATORY TESTS ON ADMISSION

Lymphocytes -21.5
Urine routine- 2-3 pus cells protein 1+, LDH-620, CK-98.8
Urea-43.2 creatinine- 2.05  Na- 128.7, K- 4.5  Mg-1.6 Ca- 7.6  PO4- 2.6
TB- 1.26 DB- 0.34 Total protein- 5.07 Albumin- 3.02 AST- 158.5 ALT- 143.8 ALP-106

The patient developed sudden onset breathlessness on third day of admission, and on examination he was found to be in respiratory distress with a respiratory rate of 45/min. His respiratory system examination was otherwise unremarkable. ABG- pH -7.347, pCO2 -16.3, pO2 – 82.9, SpO2-99.6 %, Lac- 1.5 on 5litres O2 (FiO2-36); PaO2/FiO2- 227; and was shifted to intensive care unit. The patient also developed hypotension with a blood pressure of 90/60 mm of Hg. The patient had a sudden drop of platelet count from 50,000 to 8000.

The sudden deterioration of the patient was attributed to ARDS secondary to Sepsis. The patient was intubated and ventilated in view of his respiratory compromise. However the patient became oliguric and his creatinine increased to 8mg/dl and he had to be initiated on haemodialysis. The patient underwent eight cycles of haemodialysis, after which his urine output gradually improved and haemodialysis was stopped. His Dengue (NS1, IgM and IgG) and Leptospira (IgM) serology came negative and the possibility of Hanta Virus infection was thought of and investigated. He was weaned off gradually from the ventilator, and shifted back to the ward. His creatinine gradually stabilised and his urine output gradually returned to normal. He developed Ventilator associated pneumonia and was treated with Tigecycline for a Klebsiella growth from tracheal secretion .The patient went into a diuretic phase of renal failure prior to discharge.

In the meanwhile his hanta viro serology had arrived and IgM was positive (0.204, control < 0.124) . A second blood sample was sent after 3 weeks (Convalescent) for IgG hanta, which too was positive (0.195 control < 0.135).

**DISCUSSION OF THE DIAGNOSIS**

Human infection with Hantavirus results from exposure to aerosolized rodent excreta containing pathogenic virus in a suitable environment for transmission. In 1966, Thottapalayam virus was the first indigenous Indian Hantavirus species isolated from the spleen of a shrew. In USA, there was an advent of the disease in May 1993. At that time it was thought that it might become an important tool of biological warfare. However luckily later on it was found to be lacking many aspects of a classical biological warfare tool.

**HFRS**

Onset of disease is with fever and influenza like symptoms. Hemorrhagic manifestations seen are flushing of the face and injection of the conjunctiva . Febrile phase lasts for 3-5 days, hypotensive phase (shock) for few hours to few days; oliguric phase for around 3-7 days and finally a diuretic phase. Initially it resembles that of flu like illness. Urinalysis reveals albuminuria/proteinuria. Thrombocytopenia is seen. 1/3rd of death occur during the hypotensive phase. One half of the fatalities occur during the phase of renal failure. There are three ways in which the disease may manifest.

a) Fever with shock with MODS  
b) Fever with oliguria and acute renal failure  
c) Fever with no renal failure.

**HCPS**

Prodromal symptoms are fever, headache, chills and myalgia. Cardiopulmonary symptoms are pulmonary edema, dyspnoea and hypoxemia. Severe illness may progress to cardiac depression respiratory failure, acidosis and fatal arrythmias, thrombocytopenia and hemoconcentration.

**MICROBIOLOGY**

Anti Hantavirus IgM and IgG are the usually performed tests. They are done in both acute and in convalescent sera. Only 20% of acute HFRS cases are positive for Hantavirus RNA. Reverse transcriptase PCR is not recommended for routine diagnosis because of high false negatives.

**CLINICAL MANAGEMENT**

No specific treatment is available currently for both HFRS/HPS .Early admission for ICU for haemodynamic support; mechanical ventilation for respiratory compromise should be kept in mind. Steroids are of questionable benefit in HFRS and HPS cases. Ribavarin is found to have an anti Hantaviral effect and has been used in HFRS treatment in China.

**CONCLUSION**

This was the first recorded case of Hanta virus in our institution and the first native case reported from Kerala. Our case had manifestation of both HFRS and HCPS with patient developing both respiratory and renal failure with thrombocytopenia which is common to both the spectra. The virus by itself is a rarity. Also it is frequently underdiagnosed and hence the number of cases is very few. However a strong index of suspicion is needed among practitioners whenever a patient presents with the above mentioned clinical features and a Hanta virus serology should be sent for in such cases. The facilities for testing Hantavirus should also
be made available throughout the country to facilitate easy diagnosis and accurate epidemiological data of the virus in our country.

ACKNOWLEDGEMENT

Dr Sara Chandy- Scientist, Department of Clinical Virology, CMC Vellore who has indigenously developed the serology for Hanta virus detection for her help in running serology on our samples.

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Case reports should include a brief abstract describing the case(s) and literature review. Reviews must have an abstract included, which can be unstructured. Editorials need not include an abstract.

Examples or references to figures or tables should not be listed in the abstract.

ORIGINAL ARTICLES: All original manuscripts should include the following:

Abstract: Structured abstract as described above.

Introduction: The specific aim(s) and a priori hypothesis need to be stated.

Methods: must include sufficient information to judge the quality of the work, including statistical analysis and study power where appropriate.

Results: Please do not duplicate results present in the text and tables.

Discussions: Consider including a brief statement of the major findings, the meaning of the study including possible explanations and implications for clinicians, the findings in relation to other studies and consideration of important differences in results, the strengths and weaknesses of the present study, and what is now the unanswered questions and future research needs.

Authors are required to include in addition to a structured abstract, a separate paragraph with 4-8 bullet points under the heading what is known on the subject and what this research adds. This information will be included as a table at the end of the article, and is to be aimed at simply explaining the study’s importance and knowledge gained from it to those who are non-experts in the particular fields.

RANDOMIZED CLINICAL TRIALS (RCTs): RCTs are encouraged and will be fast tracked in the review and publishing schedules. Randomised clinical trials must all report their data in accordance with CONSORT (Consolidated Standards of Reporting Trials) statement. This ensures that you provide enough information for editors, peer reviewers, and readers to see how the trial was performed and to judge whether the findings are likely to be reliable. Please provide the following, as described in the CONSORT statement:

Five extra sub голови section in the main text of the paper: Protocol, assignment, monitoring, participant flow and follow up, analysis.

A completed checklist for editors and reviewers for publication showing that you have described 21 key points in your report.

All RCTs must meet CONSORT guidelines, and include the CONSORT checklist with submissions. We may choose not to use all of the sub headings in the published version of the paper for reasons of readability.

For further queries please visit: http://www.consort-statement.org/

SYSTEMATIC AND CLINICAL REVIEWS: Reviews of systematic and clinical topics are encouraged for publication. Include a brief methods section on how the information was found. An abstract must be included. Inclusion of illustrations to illustrate teaching concepts is strongly encouraged. Reviews should not be longer than 2500 – 3000 words, excluding references, tables and illustrations.

CASE REPORTS: Selected case reports will be considered but should write to report new clinical observations, new method of treatment or interesting cases that carry a message to the reader for diagnosis or treatment of patients. Case reports must be short and focused, and consists of not more than 1000 words excluding references. An abstract should accompany the report.

EDITORIALS: Editorials must consist of not more than 1000 words excluding references.

DEBATES: They must be written by different authors for the pros and cons, and will be crisp and short in nature, consisting of not more than 1000 words excluding references.

LETTERS TO THE EDITOR: Letters to the editor will be considered if they are written on published articles or reviews. Letters must be submitted within three months of the original or review articles. Letters should be no more than 400 words, should cite the previous article that appeared in the Amrita Journal that is being discussed, and should include not less than 5 other references.

REFERENCES: All the references should be numbered consecutively and be listed according to the order in which they are referred to in the text of the manuscript. The references should be typed double-spaced and abbreviations of journals must conform to those used in Indian Medicals of the National Library of Medicine. The format should conform to the example listed below.

References to an article with 3 or less authors:


References to an article with more than 3 authors:


References to a chapter in a book:


References to a chapter in a textbook:


TABLES: Each table should have an appropriate title, self-explanatory, and should not duplicate the text. The data should be logical and well organised so that it can be used to compare or classify related items. Table should be numbered consecutively in Arabic numerals beginning with 1.

ILLUSTRATIONS: Colour illustrations are allowed, and will not usually attract a cost to authors.

One set of original illustrations should be mailed. All the illustrations of graphs, artwork, and photographs should be numbered in consecutive Arabic numerals and submitted. A label should be affixed to the back of each illustration with the name of the senior author, manuscript title, figure number and an arrow indicating the top of the figure. The legend(s) of all figures should be typed double-spaced on a separate sheet of paper. When appropriate, arrows should be placed on photographs and drawings to indicate the portions to which reference is made. In the legends for photomicrographs, the magnification and stain utilized should be included.

RAPID COMMUNICATIONS: Rapid communications are welcomed and are guaranteed rapid decision and publication if accepted.

INVESTIGATION INVOVING HUMAN SUBJECTS: All clinical research papers submitted which involve human or and/or animal experiments must be accompanied by evidence of Institutional Review Board or Ethics Committee Review. The date the project was approved, when applicable, should be included.

MEASUREMENTS: All measurements should be in metric units.
Oral findings in asthmatic children
Spinal epidural anaesthesia versus spinal anaesthesia in high risk geriatric patients
Muscular Relaxation - psychotherapeutic technique
A confusional tumour of the tongue
Cystic Adenomatoid Malformation a Complicated Pneumonia