EDITORIAL

Research Philosophy in Medicine  
S. Sultan Ahmed  

ORIGINAL ARTICLES

Comparison of the Efficacy and Cost-effectiveness of Highly Purified Urinary Follicle Stimulating Hormone (HP-uFSH) and Recombinant Follicle Stimulating Hormone (rFSH) in Poor Responders  
Mustafa Kara, Kenan Sofuoğlu, Tayfun Kutlu, Belgin Devranoglu and Tansel Cetinkaya  

Comparison of Incidence of Post-obturation Flare-ups Following Single and Multiple Visit Root Canal Treatment  
Talha M Siddiqui, Aisha Wali, Khalid Shafiq, Noman Qamar, Kehkishan Azam and Nimeneen Tahir  

Diabetes Mellitus Type 2 as a Major Risk Factor of Developing Alzheimer’s Disease in Pakistani Population  
Nelofer Sultan, Zeenat Ayoob and Masood A. Qureshi  

Comparison of Efficacy and Safety Profile of Gabapentin and Carbamazepine in Painful Diabetic Neuropathy  
Raana Mahmood, Moosa Khan, Itrat Jawed and Iffat Mahmood  

Recognizing the Sensory Abilities in Cerebral Palsy Children  
Nabila Soomro, Brigitte Kamran, Rukhsana Bibi and Syed Imran Ahmed  

Stapled Hemorrhoidectomy in Third Degree Hemorrhoids: A Prospective Study  
Bashir Ahmed Shaikh, Asma Niaz Khan, Foad Moosa and Naheed Sultan  

SHORT COMMUNICATIONS

Frequency of Head and Neck Lesions according to Histopathologic Diagnosis  
Arsala Urooj, Talat Mirza, Anwar Ali, Mohammad Akbar Agha and Salik Rasool  

Oral Health Among Tobacco-Chewers in an Urban Area of Karachi  
Farzeen Tanwir and Amna Tariq  

Awareness and Adherence to Occupational Therapy among Doctors in a Tertiary Care Hospitals  
Farida Kamran, Abdul Malik, Sarwat Malik, Shahidda Z. Khan, Birgitte Kamran.  

INSTRUCTIONS TO AUTHORS
In medicine, the main pursuit is to preserve health and cure disease. The present state of medical practice suggests that a solution is still far to seek. During its advance through the centuries, however, medicine has always been driven into action and from numerous realms of empiricism has gained useful information.

While it is true that medicine is an art which may have been glorified unduly in the past, it is as much a science as well especially in the present day world. Like any other discipline of science no real progress in medicine has ever been made without research. There can be no progress in medicine when there is a fixed creed. A creed in medicine means that all future practice and treatment shall be based upon certain doctrines, dogmas and rules that have been formulated and beyond which it is heresy.

While philosophy is amongst many things a search for truth; research can be defined as diligent search, experimentation, investigation, inquiry and finally as quest for unraveling the vistas of science. Biologic research and thought have been dominated by aims to analyze and summate. In general, research is undertaken to solve problems. It thereby increases fundamental knowledge, improves practical work, or both. In applied research, practical improvements are the immediate goals, but good research aims in addition for general knowledge. One thus could summarize the general aims of research as: (1) to understand the natural phenomenon, (2) to predict and control and (3) to enjoy fruits of inquiry.

Research in medicine is undertaken to prove new hypotheses to prove or disprove existing ideas and practices in light of new knowledge, to devise new techniques and therapeutic modalities and finally to make the medical system more efficient for patient care. Research thus has two products- its results and its influence on attitudes and thoughts.

Research is often unconsciously associated with laboratories, test tubes and instruments of precision. Much investigation, of course is done in this way and yet research after all chiefly depends upon the state of mind. It is scientific curiosity that pushes us to find how and why the wheels go round, to ascertain the facts and truths of nature as they are and not necessarily as someone else says they are. Research in medicine is in fact undertaken in three main categories:

1. **Biomedical**: dealing with mechanism of diseases;
2. **Clinical**: dealing with clinical status, diagnosis, therapy and prognosis of diseases and
3. **Health Services Research**: dealing with needs for and functioning of health services.

There is no fixed pattern that is adopted in experimental medicine. All methods of inquiry however, imply logic and seek insight, the success of which is determined by information, perspective and power of thinking. A diligent search for truth is usually sought in following manner:

1. **Accumulation of information**: by the scientific method requires repeated observations by one observer. Since only within very narrow boundaries can man observe the phenomena which surround him; most of them naturally escape his senses and independent information is therefore required by others. Since a researcher does not limit himself to seeing; he thinks and insists on learning the meaning of the phenomenon whose existence has been revealed to him by observation. He therefore performs

2. **Experimentation**: the experimental method distinguishes its signs from all other forms: of inquiry, although it shares with them, trial, error and chance success. This method has not been applied successfully to all problems of science. It is especially difficult to study the causes of past events which are unlike events that can be made to occur in the present. Since experiment has been confused quite often with observation, these could be defined in a philosophical sense as “observation shows, experiment teaches”.

An experiment is best conducted by analyzing the observations by synthesis or summation. A control experiment is carried out to change systematically certain conditions of experiment and to note changes and results, while all of the conditions of experiment are kept constant and randomized. The objective is to ascertain the effects of the independent variable.

Finally 3. Reasoning is applied to both ideas and results of experimentation. The development and the communication of ideas are important processes of science and are basic to its progress. Italicize Reasoning may be logical or intuitive.
Inductive reasoning is a principle method of science, but deductive reasoning may be of use chiefly when there is a well developed body of theory to work from; historically deductive reasoning has been of exceptional use even when the body of information was small. The science of mathematics is a highly developed application of logic. The use of statistical arithmetic permits both logical analysis of data into factors and synthesis into more comprehensive concepts.

Only a few ideas which represent creative thinking are derived by the conscientious application of the processes of logic. Logic is more often applied in the proof of the idea after it has been formed. The individual is usually unable to verbalize the steps by which the concept developed. The idea may appear suddenly and the individual may report that he has no conscious recall of its genesis. From many stand points, intuitive reasoning is a different phenomenon from the conscious application of logic. In this era of creativity, basic to the scientist as well as to art, control is largely lacking. The principles which govern the acceptability of ideas or results are:

1. **Validity:** A test is valid when it measures the property that is intended to measure. Most biologic tests require the comparison of new test results with a standard. The standard must therefore represent the activity which the test is intended to measure.

2. **Reliability:** Expression of test reliability indicates the internal consistency of the test that is how well it agrees with itself. There are several different ways of measuring test reliability; a test/retest procedure may be followed, which involves repeating the test two or more times with time as a variable; and finally tests of the same function may be carried out by two or more laboratory groups, each following the standard procedure. The validity of a test is limited by its reliability.

3. **Standardization:** This entails setting up of selection criteria, international standards and statistical aids. Units should be defined in terms of weight of the standard, never in terms of biologic response. National and international standards should be set up for many of the tests in common use. Comparison of the substance being bio-assayed with response to the standard must be done with time constant. The experiment must be tailored to the basic purpose of the project; and results weighed in terms of coincidences, errors of the project; and application of results to the population at large and not to the test group only.

4. **Intervention:** effects that is effects which measured after known intervention is undertaken.

Every medical person, whether a general practitioner or a specialist should have some research problem however simple it may be, under consideration. Indeed many of the greatest researches in medicine have been not from research institutions, but by clinicians and often by general practitioners. Koch, for instance, was a Prussian country doctor. Crawford W. Long was a country physician in Georgia. Jenner was an ordinary practising physician.

One could site many more anecdotes how research has helped the medical field, it would suffice to indicate that cardiac patients who only up to thirty years ago had to contend with digoxin and mercurial diuretics now enjoy the benefits of coronary revascularization, various mechanical devices and even transplantation of the badly diseased hearts. Also consider the development of concept system from Aristotle to Majusi and now to artificial hearts of Jarvis.

In short, experimental medicine, as we conceive it, includes the problem of medicine as a whole and comprises both the theory and the practice of medicine. It may involve biochemical and basic laboratory work, but clinical work overshadows. Logic and statistics are indeed applied as proof of ideas but intuitive reasoning retains its place. It does solve problems, increases knowledge and improves practical work.

I conclude by quoting Sir William Osler who said: “It is astonishing with how little reading a doctor can practise medicine, but it is not astonishing how badly he may do it”. Let us follow Dr. Horsley, who said in his presidential address in 1929 that “if every medical man, whether generalist or specialist were to ponder, undertake some problem, no matter how simple and ask counsel from those who can help, it would be a stimulus, a happiness and efficiency to work, which can be obtained in no other way”.

**REFERENCES**


Comparison of the Efficacy and Cost-effectiveness of Highly Purified Urinary Follicle Stimulating Hormone (HP-uFSH) and Recombinant Follicle Stimulating Hormone (rFSH) in Poor Responders

Mustafa Kara,¹ Kenan Sofuoglu,² Tayfun Kutlu,² Belgin Devranoglu² and Tansel Cetinkaya²

ABSTRACT

Aim: We aimed to compare the clinical results and effectiveness of two gonadothropin treatment protocols; HP-uFSH and rFSH in poor responders.

Materials and Methods: While HP-uFSH was given to 58 patients, rFSH was given to 62 patients. The patient selection criteria were the same (FSH value > 15 iu/l or antral follicle number < 4, on the second day of menstruation).

Results: Endometrial thickness on hCG day (mm) was 9.0 ± 2.7 and 7.8 ± 2.7 in HP-uFSH group and rFSH group, respectively and this difference was statistically significant. Contrarily, fertilization rate (%) was better in rFSH than HP-uFSH (76.6 ± 15.9 vs. 68.2 ± 17.8) and this value was also statistically significant. Percentage of cancelled cycles (%) was 14 ± 34 in HP-uFSH group and this parameter was significantly lower than rFSH group (29 ± 45).

Conclusion: rFSH is as efficacious as HP-uFSH in poor responders. Fertilization rate was better in rFSH than HP-uFSH. Since rFSH is more expensive, the final treatment cost with rFSH to obtain a pregnancy was slightly higher, but this difference was not statistically significant (20060 TL vs. 17150 TL).

Key words: Follicle stimulating hormone, luteinizing hormone, ovulation induction, in vitro fertilization, embryo transfer.

INTRODUCTION

IVF-ICSI is performed widely in the world and controlled ovarian hyperstimulation (COH) is an essential part of this technique. COH improves chances of fertilization and allows an increased number of embryos for transfer to give acceptable success rates.¹ ² ³ FSH and Luteinizing hormone (LH) play key role in folliculogenesis. They must be balanced with each other. Very low LH levels may result in relatively low E2 serum levels and bad IVF-ICSI outcome. Urinary FSH was performed through immunoextraction by using monoclonal antibodies to obtain HP-uFSH. This molecule contains 75 iu FSH activity, less than 0.1 iu LH activity and less than 5% proteins and hence can be given subcutaneously. rFSH is produced genetically in mammalian cells and this invention is a milestone in infertility. Urinary FSH or HP-uFSH show batch to batch variations and their sources are limited. However rFSH does not show variation and its sources are unlimited.² ³ ⁴ ⁵ ⁶ ⁷ ⁸

Poor responders are one of the most important problems in IVF-ICSI. Such patients require markedly increased quantity of gonadotropin to achieve pregnancy. Poor response to gonadotropins is a result of diminished ovarian reserve. This can be due to advanced chronologic age, prior ovarian surgery, endometriosis.⁵ ⁶ Microdose flare protocol is typically used in poor responders. When COH is performed with gonadothropins containing little or no LH activity, the outcome of the IVF-ICSI is not influenced because of the endogenous LH).³ ⁶ ⁷ On the other hand, some randomized trials suggest that rFSH treatment will result in negative outcome in poor responders because of low LH level.⁸

In the light of the current knowledge the aim of our study was to demonstrate the outcome of the IVF-ICSI in poor responders treated with HP-uFSH and rFSH.

METHODS

This retrospective study aimed to compare follicular development and cost of therapy with rFSH (Gonal-F® 150 Merck-Serono, Switzerland) or HP-uFSH (Fostimon MP® 150 IBSA, Switzerland) in women undergoing IVF-ICSI treatment. The patient characteristics (basal hormone levels, duration of infertility and age of the patients) were analyzed. The groups were homogenous in terms of these parameters. Only poor responders
RESULTS

One hundred and twenty women were included in the study. Sixty two patients were given rFSH while HP-uFSH was given to 58. Characteristics of the two groups were identical (Table 1). Mean age of the patients were 34.5 ± 4.8 and 34.8 ± 3.7 for HP-uFSH and rFSH, respectively. Duration of infertility, basal FSH level and basal E2 level were also similar.

Table 1: Characteristics of the patients. ns means nonsignificant

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HP-uFSH (N=58)</th>
<th>rFSH (N=62)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>34.5 ± 4.8</td>
<td>34.8 ± 3.7</td>
<td>ns</td>
</tr>
<tr>
<td>Duration of infertility</td>
<td>8.8 ± 5.0</td>
<td>10.2 ± 4.7</td>
<td>ns</td>
</tr>
<tr>
<td>Basal FSH level (iu/l)</td>
<td>10.3 ± 3.6</td>
<td>9.1 ± 3.6</td>
<td>ns</td>
</tr>
<tr>
<td>Basal E2 level (pg/ml)</td>
<td>59.8 ± 38.3</td>
<td>52.9 ± 24.6</td>
<td>ns</td>
</tr>
</tbody>
</table>

Endometrial thickness on hCG day was significantly better in HP-uFSH group (9.0 ± 2.7 vs. 7.8 ± 2.7). On the other hand, number of follicles 12-17mm at hCG and number of follicles >18mm at hCG were better in rFSH group than HP-uFSH (3.5 ± 4.3 vs. 2.2 ± 1.8 and 0.8 ± 1.1 vs. 0.7 ± 0.8), respectively and these differences were not statistically significant. Fertilization rates; 76.6 ± 15.9 vs. 68.2 ± 17.8 for rFSH and HP-uFSH, respectively were statistically significant (Table 2). Duration of follicular phase or size of dominant follicle at the hCG day were similar.

Table 2: Comparison of the IVF-ICSI outcomes of the patients who were given HP-uFSH and rFSH. mm means millimeter, ns nonsignificant, s significant

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HP-uFSH (N=58)</th>
<th>rFSH (N=62)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of follicular phase (day)</td>
<td>9.7 ± 2.4</td>
<td>10.0 ± 1.6</td>
<td>ns</td>
</tr>
<tr>
<td>Endometrial thickness on hCG day(mm)</td>
<td>9.0 ± 2.7</td>
<td>7.8 ± 2.7</td>
<td>s</td>
</tr>
<tr>
<td>No. of follicles 12-17mm at hCG</td>
<td>2.2 ± 1.8</td>
<td>3.5 ± 4.3</td>
<td>ns</td>
</tr>
<tr>
<td>No. of follicles &gt;18mm at hCG</td>
<td>0.7 ± 0.8</td>
<td>0.8 ± 1.1</td>
<td>ns</td>
</tr>
<tr>
<td>Size of dominant follicles at hCG(mm)</td>
<td>17.4 ± 6.6</td>
<td>16.8 ± 8.3</td>
<td>ns</td>
</tr>
<tr>
<td>Fertilization rate (%)</td>
<td>68.2 ± 17.8</td>
<td>76.6 ± 15.9</td>
<td>s</td>
</tr>
</tbody>
</table>

Total FSH dose was 4194.8 ± 1450.4 for HP-uFSH and 4370.1 ± 1059.7 for rFSH. Mean vial number 28.0 ± 9.6 and 28.9 ± 7.0 for HP-uFSH and rFSH, respectively was not found to be statistically significant. Mean expense per cycle was 1715 TL (currency in Turkish Liras approximately equal to 1000 US dollars) for HP-uFSH and 2608 TL (currency in Turkish Liras approximately equal to 1520 US dollars) for rFSH. Because the pregnancy rates were better in rFSH (13 ± 33 vs. 10 ± 30), expense for obtaining pregnancy

Comparison of the efficacy and (HP-uFSH) and (rFSH) in poor responders

was close to the other group. Expense for obtaining pregnancy was lower in HP-uFSH group (17150 TL vs. 20060 TL) but not statistically significant (Table 3).

Table 3: Demonstration of the efficacy and cost-effectiveness of the two treatment modality. TL means Turkish Liras, IU means Int’l Unit

<table>
<thead>
<tr>
<th></th>
<th>HP-uFSH (Fostimon®150)</th>
<th>rFSH (Gonal-F®150)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of per vial (TL)</td>
<td>61.25</td>
<td>90.25</td>
<td></td>
</tr>
<tr>
<td>Total FSH dose (IU)</td>
<td>4194.8 ± 1450.4</td>
<td>4370.1 ± 1059.7</td>
<td>ns</td>
</tr>
<tr>
<td>Mean vial number</td>
<td>28.0 ± 9.6</td>
<td>28.9 ± 7.0</td>
<td>ns</td>
</tr>
<tr>
<td>Percent of cancelled</td>
<td>14 ± 34</td>
<td>29 ± 45</td>
<td>s</td>
</tr>
<tr>
<td>3 cycles (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean expense per</td>
<td>1715</td>
<td>2608</td>
<td>ns</td>
</tr>
<tr>
<td>cycle (TL)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of pregnancies</td>
<td>10 ± 30</td>
<td>13 ± 33</td>
<td>ns</td>
</tr>
<tr>
<td>(%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expense for obtaining</td>
<td>17150</td>
<td>20060</td>
<td>ns</td>
</tr>
<tr>
<td>per pregnancy (TL)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION

HP-uFSH and rFSH can be used clinically to perform COH. It is reported that successful folliculogenesis was obtained in hypophysectomized animals with only FSH stimulation without LH effect. Actually, FSH plays a role in recruitment, selection and dominance stages of folliculogenesis while LH acts in final maturation and ovulation. Paradoxically, supraphysiologic levels of LH increases follicular atresia and deteriorate development of the oocyte. Consequently, there is definitely described LH range and within this interval the LH positively affects the follicular development. This value is reported to be 1.0-6.0 iu/l in different studies.9-12

Usually short stimulation protocols are used in poor responders. There is no concensus about approach to the patients with limited ovarian reserve. Independent of the protocol that was used, the ovarian answer is not changed in poor responder cases. Increasing gonadotropins above the definite level is not useful. Short-term Gonadotropin releasing hormone analogs (GnRH α) can be administered with GnRH α. It is aimed to augment the efficacy of exogenous hormones by utilizing flare-up effect on endogenous gonadotropins. On the other hand, increased endogenous gonadotropin levels occurred because of short or co-flare protocols which cause excessive androgen release from ovaries, maintaining of corpus luteum, corruption of the oocyte quality and decreased fertilization. Another problem in the short protocol is premature LH peak due to uncontrolled increase of earlier endogenous LH and this condition may result in cycle cancellation. GnRH antagonists can be an alternative choice in these circumstances.13-15

The pituitary desensitization can be achieved with more potent suppressors, such as GnRH antagonists. When GnRH antagonists are used, recombinant LH (rLH) is a necessary tool.16

Persistence of corpus luteum is prevented by GnRHa administered at the beginning of follicular phase in microdose flare protocol. Despite low GnRHa levels, the flare-up effect occurs and stimulation of the exogenous gonadotropins is supported by endogenous hormones. In our study, the microdose flare protocol was performed parallel to many other reported similar case series in the literature. The risk of spontaneous LH surge is minimal in microdose protocol, so the follow-up is simple and accurate.17-20

The type of gonadotropin used in poor responders is controversial. Some studies suggest that rFSH is more efficient than urinary or HP-uFSH, while others suggest that the given drug must also have LH activity.6-8

Raga et al, compared the efficacy of rFSH and a combination of HP-uFSH and human menopausal gonadotropin (HMG) and suggested that rFSH may be chosen as first line therapy.15 De Placido et al studied 26 women and gave all the patients HP-uFSH at the first cycle and rFSH at the second cycle. They observed an increased number of oocytes retrieved, serum E2 level on hCG day and fertilization rates with rFSH.614 Our findings also suggest that the fertilization rates are better in rFSH group.

The restricted number of patients in our study may be criticized. But one should realize that this study reflects the results of a group of patients whose members are inhabitants of low socio-economic level with low financial support to complete a successful treatment program. One may also find many reported case series with similar restricted patient numbers.2,11,13-14,17

This study was designed to show the outcome of the treatment using HP-uFSH and rFSH in poor responders. The two drugs were equally effective in our study (mean vial number, total FSH dose used, duration of follicular phase, number of follicles 12-17mm at hCG)

Endometrial thickness on hCG day was better in HP-uFSH group, but higher fertilization rate was achieved in rFSH group. Therefore, similar pregnancy rate was achieved in both groups. Interestingly, cycle cancellation rate was lower in HP-uFSH group.

The results of our study suggest that rFSH is as efficacious as HP-uFSH in a group of poor responders. However, prospective and randomized trials are required to further evaluate the influence of rFSH and HP-uFSH on implantation, serum E2 level, oocyte and embryo quality.

Contributions: Each author participated sufficiently in the work to take public responsibility for the content.

REFERENCES


Comparison of Incidence of Post-obturation Flare-ups Following Single and Multiple Visit Root Canal Treatment

Talha M Siddiqui, Aisha Wali, Khalid Shaﬁq, Noman Qamar, Kehkishan Azam and Nirmeen Tahir

ABSTRACT

Introduction: Post-operative pain and discomfort after endodontic treatment is an unwanted occasion for both the patient and the dentist. A flare up is a true complication characterized by the development of pain and swelling and requires emergency treatment. Certain factors such as pre-operative pain, numbers of appointments, use of intra-canal medication and tooth location, predispose to the development of post-operative pain and flare-ups.

Aim: The purpose of this study is to analyze the incidence of post-obturation flare-ups in teeth following single visit and multiple visits Root Canal Treatment in Operative dentistry Department, Baqai Dental College, 2010 to 2011. To observe effect of: (1) skill and experience, (2) Single and multiple visits (3) Gender.

Methodology: Total 60 patients requiring endodontic treatment in single rooted teeth were identiﬁed and included in this study. The patients were randomly assigned and treated in the department of Operative dentistry, Baqai Dental College into two groups. The teeth of patients in group 1 were with vital inflamed pulp treated in single visit. Group 2 were with vital inflamed pulp treated in multiple visits. They were asked whether they had experienced any postoperative pain within 1 hr, within 24 hrs, within 48 hrs. Dental practitioners included in this study were fresh graduates (C1), graduates with 5 years (C2) and 10+years (C3) clinical experience. Data was analyzed statistically using the chi-square test, SPSS version 19. P-value was set at 0.001.

Results: 3 males and 5 females patients complained of pain within 24 hrs of obturation that was sharp in nature and spontaneous; no complaint of pain was reported after 24 hrs without medication. The flare-up incidence came out to be 13.3%. All patients in this study suffered irreversible pulpitis in which 25 were obturated in single visit, 30 in multiple visits in which 5:3complained of pain after obturation within 24 hrs. Fresh graduates performed root canal therapy on 20 patients, 20 with 5+years and 20 with 10+years clinical experience and the flare-up ratio regarding clinical experience was found to be 4:3:1 respectively.

Conclusion: It was concluded that the incidence of flare-up or post obturation pain is related to the number of visits, clinical experience of the dentist and gender of the patient.

Key words: Post operative flare-ups, single and multiple visit root canal treatment, clinical skills.

INTRODUCTION

Post-operative pain and discomfort after endodontic treatment is an unpleasant situation for both the patient and the clinician. Although post-operative pain associated with root canal therapy is a poor indicator of long-term success, the occurrence and control of pain are of clinical interest in endodontics. Certain factors such as pre-operative pain, number of appointments, use of intra-canal medication and tooth location predispose to the development of post-operative pain and flare-ups. It has also been observed that female patients had more post-operative pain than male patients. Maxillary lateral incisor shows a higher incidence of post-operative pain due to missed canals.

Flare-up is defined as complaint of pain or swelling, or combination of both within a few hours to a few days after root canal treatment procedure. This usually disrupts patient’s lifestyle and requires unscheduled visit.

Current literature on single visit versus multiple visit endodontics provides conflicting opinion and recommendations, however recent clinical reports, have shown that patients generally tolerate and prefer single visit root canal therapy. Therefore, single visit root canal treatment has become a common practice as it has several advantages, including a reduced flare-up rate, decreased number of operative procedures and no risks of inter-appointment leakage through temporary restorations. Some studies report slightly more post-obturation pain following single visit as compare to multiple visit procedure while others, no significant difference was found in the post-obturation pain experienced by patients following single or multiple visit treatment procedures.
The purpose of this study was to see the incidence of post-obturation flare-ups in teeth following single visit and multiple visits Root Canal Treatment in Operative Dentistry Department and its relation with the clinical experience of the dentist at Baqai Dental College between 2010 and 2011.

MATERIALS AND METHODS

This clinical trial conducted at Operative Dentistry Department, Baqai Dental College, 2010-2011, comprised 60 patients of pulp pathosis requiring root canal therapy who were invited to participate. These patients were randomly assigned for single and multiple visit treatment. The dental practitioners included in this study were fresh graduates, graduates with 5+ years and graduates with 10+ years of clinical experience.

The patients were informed of the risks, aims and possible conclusions of the study and they signed informed consents. All Patients with vital pulp without periapical radiolucency were included in the study. Patients were excluded from the study if one or more of the following conditions were observed: (1) debilitating disease (2) radiolucency before starting the treatment (3) antibiotic therapy given pre-operatively or post-operatively (4) extrusion of filling material into periapical tissues (5) sinus tract (6) tooth within cystic cavity or tumor lining (7) tooth mobility.

The pulp vitality was determined by hot and cold thermal test. After administering local anesthesia using 2% lignocaine 1:80,000 epinephrine, an access cavity was made and working length was determined radiographically. The root canals were cleaned and shaped using the step-back technique, K-hand files and Gates-Glidden drills (Dentsply/Maillefer, Ballaigues, Switzerland). Each K-file was followed by irrigation of the canal with 2mL sodium hypochlorite (2.25%) in a syringe with a 27-gauge needle. Irrigation was carried out with an endodontic Monoject syringe (3 mL, 27-gauge needle; Pierre Rolland, Merignac, France) to ensure that the irrigant reached the apex. Each root canal was dried with paper points (K Dent, Korea), filled with gutta percha points (K Dent, Korea) using lateral condensation obturation technique and sealapex (Sybron endo, CA) as a sealer. Patients with 2 visit root canal treatment were recalled after one week for obturation. At the end of initial appointment, the root canals were medicated with Ca(OH)2; and covered by a dry sterile cotton pellet and sealed by temporary filling material, cavit (3M ESPE, Germany). The patients were asked to note the time duration, if they experienced postobturation pain within 1 hr, within 24 hrs or within 48 hrs. Flare-up is defined as complaint of pain or swelling, or combination of both within a few hours to a few days after root canal treatment procedure.11 The level of pain was recorded as no pain, mild pain, moderate pain and severe pain. Patients with severe post obturation pain or occurrence of swelling were classified as flare-ups. The incidence of post obturation discomfort was recorded and expressed as percentages.23 Data was statistically analyzed using chi-square test, SPSS version 19. Significant p level was set at .001. A standard form was constructed to evaluate comparison of post-obturation flare-ups following single and multiple visit root canal treatment.

RESULTS

The study comprised of 60 cases of pulp pathosis with vital pulp requiring root canal treatment of which, 30 were males and 30 were females. In 3 males and 5 female patients, there was a complaint of pain within 24 hrs of obturation that was sharp in nature and spontaneous. No complaint of pain was reported after 24 hrs without medication. The flare-up incidence came out to be 13.3%. In females 5 out of 30 experienced pain, whereas 3 males complained of pain out of 30, so the ratio came out to be 5:3 (Table 1).

Table 1: Incidence of post obturation flare-ups

<table>
<thead>
<tr>
<th>Group</th>
<th>No. in Study</th>
<th>No. Flare-ups</th>
<th>Flare-ups Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>30</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>27</td>
<td>3</td>
</tr>
</tbody>
</table>

All patients in this study suffered irreversible pulpitis in which 30 were obturated in single visit and 30 in 2 visits, in which 5:3 came out with pain after obturation within 24 hrs (Table 2).

Table 2: Incidence of post obturation flare-ups

<table>
<thead>
<tr>
<th>Group</th>
<th>No. in Study</th>
<th>No. Flare-ups</th>
<th>Flare-ups Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Visit</td>
<td>30</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>Multiple Visit</td>
<td>30</td>
<td>27</td>
<td>3</td>
</tr>
</tbody>
</table>

Fresh graduates performed root canal therapy on 20 patients, 20 by 5+years and 20 by 10+years clinical experience, so the flare-up ratio regarding clinical experience is 4:2:1. (Table 3).

Table 3: Incidence of post obturation flare-ups

<table>
<thead>
<tr>
<th>Group</th>
<th>No. in Study</th>
<th>No. Flare-ups</th>
<th>Flare-ups Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Graduate</td>
<td>20</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>5+ Years Clinical Experience</td>
<td>20</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>10+ Years Clinical Experience</td>
<td>20</td>
<td>19</td>
<td>1</td>
</tr>
</tbody>
</table>
DISCUSSION

Root canal treatment is a procedure that requires skills and experience. In this study, the frequency rate came out to be 13.3%, a high incidence of flare-up results when root canal was performed in single visit. Despite disadvantages, many endodontists prefer to complete root canal in single visit rather than multiple visits, as it is less time consuming and many patients insist to get the root canal treatment completed in a single visit. In recent decades, the discussion on single and multiple root canal treatment has gained attention. However, until now, no consensus has been reached, many endodontists do not prefer to complete the root canal treatment in single visit in order to prevent post obturation flare-ups. In this study the result showed that out of 30 patients who were obturated in a single visit, 5 patients returned with the complaint of severe pain within 24 hrs, while 3 patients out of 30 patients complained of severe pain within 24 hrs obturated in multiple visits, the ratio came out to be 5:3. So more flare-ups occurred in single visit than in the multiple visit group, showing a disadvantage for single visit treatment and we have also observed during our study that, in Pakistan and probably in most developing countries, patients do not seek dentists for treatment until and unless experienced severe pain, tried self prescribed analgesics and insisted that their root canal treatment should be completed in a single visit. Pre-operative symptoms of severe pain and swelling may explain the high incidence of flare-ups reported in the present study.

The study also showed that female patients experienced more post-obturation pain than male patients; the study reported 5 females and 3 male patients, so the ratio came out to be 5:3. Various studies showed that female patients have more sensitive responses to root canal treatment than male patients, since the definition of flare-ups is relatively subjective, it may be easier for female than male patients to feel and remember the discomfort after root canal treatment even when they undergo the same treatment. This might have led to more female cases of flare-ups being reported by this clinical trial.

This clinical study was related to post-treatment flare-ups, as many variables such as the criteria for evaluating the results and the root canal treatment technique needed to be classified. In previous studies, post-obturation pain after nonsurgical Root Canal Treatment has been reported to range from approximately 3% to more than 50%,27-28 this is in contrast with the findings of Eleazzer & Eleazzer29 who reported fewer flare-ups for the single visit group 3.0% and 8.0% for the multiple visit group. Other studies also have reported lower incidence figures for endodontic flare-ups30-31 in the United States of America reported an incidence of 3.17%,30 while in Brazil reported a further lower figure of 1.58%. The present study showed incidence of 13.3% after root canal treatment,25 it appears when root canal treatment is performed with scientifically based techniques, by skilful operators low overall incidence of endodontics flare-ups can be expected. In this study, we also included operators with 5+years and 10+years clinical experiences, each of them performed 20 patients respectively and the fresh graduates performed root canal treatment on 20 patients, out of which 4 patients reported severe pain. It was expected that fresh graduates will come up with more flare-ups when compared to teeth treated by operators with 5+ and 10+ clinical experience. This can possibly be explained by operators with sufficient Root canal treatment experience using sound biological principles and contemporary techniques, can achieve good endodontic outcomes after Root canal treatment, resulting in difference in the occurrence of flare-ups between the operators with 5+ and 10+ clinical experience and fresh graduates. This clearly indicates that clinical experience also matters in the outcome of flareup incidence, the ratio came out to be 4:3:1. Therefore the higher flare-up incidence rate should not be marked as a key factor for the single visit endodontic therapy; it should however stress the fact that a thorough understanding of the basic endodontic principles is important in considering each case on an individual basis before making a decision as to whether or not it can be completed in one visit.

CONCLUSION

The present study concluded that incidence of post-operative flare-up was high and depends upon the number of visits, gender and the clinical experience. These factors play a strong role in flare-up incidence or post obturation pain.

REFERENCES


Diabetes Mellitus Type 2 as a Major Risk Factor of Developing Alzheimer’s Disease in Pakistani Population

Nelofer Sultana,1 Zeenat Ayoob2 and Masood A. Qureshi3

ABSTRACT

Background: Diabetes mellitus type-2 (DMT2) could increase the risk of Alzheimer’s disease (AD) specifically related dementia, through several biological pathways, but the relationship between DM and the development of AD remains uncertain.

Objectives: The aim of the present study was to explore the status of diabetes as one of the major risk factors of cognitive decline and dementia in AD and to compare the risk of developing AD among subjects with and without DM.

Methods: The baseline examination was conducted from January 2008 to October 2010 on 611 subjects of both sexes who were above 50 years of age, to detect the prevalent cases of dementia. The Mini-Mental State Examination (MMSE) was done on all of these subjects. At each follow-up, random blood glucose levels were determined; all participants underwent a comprehensive clinical examination.

Results: The study shows that risk of “dementia” increases with age, duration of diabetes and relevant conditions e.g. obesity. The risk of “Dementia increases with duration of diabetes and the chi-square tests verify the claim. The calculated chi-square test statistics value was found to be 130.26 with degrees of freedom 9, corresponding p-value is (<0.005). It was also found that obese diabetics had higher risk of developing AD, as well as those having borderline diabetes were also at the higher risk.

Conclusion: The present study revealed that DMT2 is one of the major risk factors that would increase the risk of AD; but along with other factors like obesity, lifestyle and aging, it can lead to AD and related pathological conditions in individuals markedly characterized by dementia and cognitive decline.

Keywords: Diabetes mellitus type-2 (DMT2), alzheimer’s disease (AD), dementia, cognitive decline, obesity.

INTRODUCTION

Incidence rates for AD have been studied extensively throughout the world.1-4 Studies from various populations although have consistently shown an association between diabetes and cognitive deficits or dementia,4-5 but the precise relationship remains unclear. Insulin resistance is present in most diabetic patients and is associated with compensatory hyperinsulinemia, which is one of the suggested mechanisms to explain the increased risk of Alzheimer’s disease in diabetic patients.6-8 Now-a-days Type-2 DM is common in old age5,9 that can be a risk factor for dementia and cognitive decline.10,11 Few evidences also support the association of borderline diabetics and risk of dementia and Alzheimer’s disease.12 Besides adding many complications in body, diabetes can contribute to poor memory and lessen cerebral intellectual functions in an assortment of ways. The complications related to it and its pathophysiology as obesity, daily stress, aging and unhealthy lifestyles may worsen the hyperglycemia that is reported to be among a few reasons that put our population at higher risk of memory and thinking problems as we grow older.13 The findings are of great concern, as prevalence of diabetes is alarmingly increasing in Pakistan27 and hence may contribute to the growing number of Alzheimer’s cases in coming years.

OBJECTIVES

To explore the status of diabetes as one of the major risk factors of cognitive decline and dementia in AD.

To compare the risk of developing AD among subjects with and without DM.

METHODOLOGY

a Males and females of 50 years and above.
b Complaints of memory loss reflected in everyday problems such as difficulty in remembering names of the individuals following introduction, misplacing objects, difficulty remembering multiple items to be purchased or multiple tasks to be performed, problems remembering telephone numbers or zip codes and difficulty recalling information quickly or following distraction. Onset of memory loss should be described as a gradual phenomenon, without sudden worsening in recent months.

c Presence of dementia with and without diabetes.

This study included 611 subjects who were above 50 years of age, to detect the prevalence of dementia. The Mini-Mental State Examination (MMSE) was done on all of these subjects. We considered the range from zero to 30, in which 27-30 was normal cognition, 21-26 was mild dementia while 10-20 was considered as moderate dementia and patient of severe dementia scored < 10. Non-diabetic older patients (n=324) and diabetics (n=287) were selected (Age >50Yrs) for this study. All preliminary diagnosed AD participants underwent a comprehensive clinical examination and cognitive tests, as detected previously. The diagnosis of AD was similar to that of international criteria and required gradual onset, progressive deterioration and lack of any other specific causes of dementia. The Mini-Mental State Examination (MMSE) was done on all of these subjects, while our criterion for identifying Alzheimer’s disease was similar to those used by the National Institute of Neurological and Communicative Disorders and Stroke-Alzheimer’s Disease and Related Disorders Association (NINCDS-ADRDA). At each follow-up random blood glucose level was determined, the virtually pain free method was used by using ACCU-CHEK-Active. Patients were monitored for degrees of cognitive impairment and dementia. Statistical analysis was based on incident tables to evaluate the association between the presence or absence of dementia with or without diabetes and was determined by chi-square test for independence between variables.

RESULTS

The risk of “Dementia” increases with duration of diabetes and the chi-square tests verify the claim. The calculated chi-square test statistics value was found to be 130.26 with degrees of freedom 9, corresponding p-value is (<0.005).

DISCUSSION

In Pakistan, diabetes is reported as a common metabolic disorder, along with other risk factors like obesity and cardiovascular problems. However in older individuals dementia is a cognitive problem when observed neurologically in diabetic patients with AD. It was hypothesized earlier that perhaps the changes in the insulin receptors in diabetes, obesity and related insulin resistance may contribute to decreased sensitivity to insulin that can reduce synaptic plasticity in aging. These effects appear to be due to raised brain insulin level as observed in aging, obesity and diabetes which decreases the clearance of β amyloid thus increasing amyloid toxicity. But there is a continuous lack of knowledge about mechanisms that can lead to impaired cognitive function in hyperglycemic patients.

According to the recent studies, the association between diabetes and dementia is unlikely to be due to the potential confusing effects of demographic variables such as age or sex, educational level or socioeconomic status (Shafqat, 2008). Moreover the kind of usual
neuropsychological routines observed in these patients may be the result of various interrelated pathological processes developed with the duration of disease, such as damaging effects of hyperglycemia on the brain can be linked with complications of cerebrovascular disease which is known to be the major cause of the decline in processing, perception & reaction time. It has been suggested that duration of diabetes is responsible for changes in insulin signaling that may be a major cause of hyperglycemic brain cells leading to damaging effects like damaged blood vessels, nerve cell death or the acquisition of amyloid deposits. Our data revealed that the older population with diabetes having obesity reported memory problems mostly when compared with non-diabetic and non-obese individuals. In our population though the actual number of diabetic patients is higher but patients who developed dementia are less and this has limited the statistical analysis for the identification of such risk factors for dementia in this subgroup. In the present study, we found that clinical cognitive decline was also becoming a common occurrence in a sample of older individuals with base line diabetes and was predicted by decline in cognitive functions. These findings are of potential clinical importance and further confirmatory studies are needed in both diabetic and non-diabetic populations. However, the control over increasing trend of obesity and diabetes or hyperglycemia can help our population minimize the detrimental effects on brain and its functions.

CONCLUSION

Our study revealed that “Type-2 Diabetes” is a major factor (disease) that will increase the risk of AD in Pakistan; along with other factors like obesity, lifestyle and aging. Prolonged duration of diabetes can lead to AD and related pathological conditions in individuals markedly characterized by dementia and cognitive decline. Several limitations of our study warrant further discussion. Our epidemiological observations, coupled with emerging experimental evidence, support a possible role of diabetes in the pathogenesis of AD. Our data also raise the possibility that obesity and related factors like gender, age and lifestyles might provide a link and could be useful for early detection of risk and prevention of AD and its related dementia.

REFERENCES


22 Luchsinger JA. Insulin Resistance, Type 2 Diabetes and AD: Cerebrovascular Disease or Neurodegeneration. Neurology 2010; 75:758-59.


Comparison of Efficacy and Safety Profile of Gabapentin and Carbamazepine in Painful Diabetic Neuropathy

Raana Mahmood,1 Moosa Khan,2 Itrat Jawed3 and Iffat Mahmood4

ABSTRACT

Objective: Comparison of efficacy and safety profile of Gabapentin and Carbamazepine in painful diabetic neuropathy.

Study Design: open label 12 weeks randomized controlled trial.

Settings: The present study was conducted in Department of Pharmacology & Therapeutics Basic Medical Sciences Institute (BMSI), Jinnah Postgraduate Medical Center (JPMC) in collaboration of Diabetic Clinic of Medical Unit III of JPMC Karachi.


Subjects and Methods: 60 diagnosed patients of painful diabetic neuropathy were selected for 12 weeks trial after taking written consent. The patients were randomly placed into two groups, 30 patients each. One group received Gabapentin (n=30) while the other received Carbamazepine (n=30).

Results: The primary outcome was reduction in pain scale. It was compared on 11-point numerical visual analog scale (VAS). In Gabapentin group the reduction in pain VAS was 6.17±0.15 on day 0 to 3.5±0.15 on day 90. The percentage of change was 43.3% from baseline (p-value 0.001). In carbamazepine group the reduction in pain VAS was 6.07±0.13 on day 0 to 4.23±0.13 on day 90. The percentage of change was 30.4% (p-value 0.001). The secondary outcome was improvement in sleep interference that is measured on 11-point numerical VAS of sleep interference. It also improved in both groups which is highly significant.

Conclusion: In patients of diabetic painful neuropathy treatment of Gabapentin and Carbamazepine both are effective but Gabapentin is superior in relieving symptoms than Carbamazepine.

Key words: DM: Diabetes Mellitus, PDPN: Painful Diabetic Peripheral Neuropathy, DPN: Diabetic Peripheral Neuropathy, VAS: Visual Analog Scale.

INTRODUCTION

Diabetic neuropathy is defined as clinically diagnosed signs or symptoms of nerve dysfunction in diabetic patients after exclusion of other causes of neuropathy.1 Diabetic peripheral neuropathy is defined as bilaterally decreased or absent ankle reflexes or decreased vibration, pinprick, fine touch or temperature perception in distal lower extremities at screening.2 The peripheral neuropathy is one of the most common long standing complications of both type1 and type2 diabetes.3 The incidence of diabetes mellitus is increasing all over the world. The projected incidence will be 3 million till 2025.4 The studies claim that one-third of diabetic patients develop peripheral diabetic neuropathy.5-6 In cross sectional study in UK, the overall prevalence of chronic pain for diabetic peripheral neuropathy of more than a year was estimated to be 16.2% among the patients with diabetes compared with 4.9% in people free from diabetes.7 Diabetes mellitus is one of the major causes of neuropathic pain, as long-term it damages the micro-vessels supplying the nerves so it causes the damage in nervous system which remains unnoticed initially. There are different factors which are considered by diabetes control and complications trial, it has shown that tight glycemic control in insulin-dependent diabetes can decrease the risk of diabetic neuropathy 62%.8 Baron (2000) claimed that diabetes causes damage to peripheral nerves which results hyper-excitation by causing increased sensitivity of nociceptors which leads to hyper-excitation in central neurons dorsal route ganglia. All Diabetic neuropathy does not cause pain only 20%-60% experiences chronic pain.

1 Department of Pharmacology, Karachi Medical and Dental College, CDGK, Karachi, Pakistan.
2 Department of Pharmacology & Therapeutics, BMSI, Jinnah Postgraduate Medical Center, Karachi, Pakistan.
3 Department of ENT, Abbasi Shaheed Hospital, Karachi Medical and Dental College, CDGK, Karachi, Pakistan.
4 Department of Chemistry, Federal Urdu University, Karachi, Pakistan.

Correspondence: Dr. Raana Mahmood, Department of Pharmacology, Karachi Medical and Dental College, Karachi, Pakistan.

Email: raanamzafar@hotmail.co.uk
According to Boulton’s classification of diabetic peripheral neuropathy (table 1,2) it may be focal or diffused, most common among the neuropathies are the chronic sensorimotor, distal symmetrical poly neuropathy and autonomic neuropathies although patients may have more than one type of painful diabetic neuropathy.1

Table 1: Classification of diabetic neuropathy. Adapted from Boulton et al.10

<table>
<thead>
<tr>
<th>Poly neuropathy</th>
<th>Mononeuropathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory</td>
<td>Isolated peripheral</td>
</tr>
<tr>
<td>Acute sensory</td>
<td>Mononeuritis multiplex</td>
</tr>
<tr>
<td>Chronic sensorimotor</td>
<td>Truncal Motor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Autonomic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular</td>
</tr>
<tr>
<td>Gastrointestinal</td>
</tr>
<tr>
<td>Genitourinary</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proximal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truncal</td>
</tr>
</tbody>
</table>

Focal and multifocal painful neuropathy
- Cranial (e.g. N.III mononeuropathic pain)
- Focal limb (e.g. entrapment neuropathic pain)
- Amyotrophy (proximal motor)
- Truncal radiculo neuropathic pain

Generalised symmetrical painful neuropathy
- Acute sensory (always painful)
- Chronic sensorimotor (DPNP)
- Chronic predominantly sensory

Key: DPNP = diabetic peripheral neuropathic pain

PATIENTS AND METHODS

This was an open label randomized controlled trial conducted in the Department of Pharmacology and Therapeutics, Basic Medical Sciences Institute (BMSI), Jinnah Postgraduate Medical Centre (JPMC), Karachi in collaboration with Diabetic Clinic of Medical Unit III, JPMC, after approval from ethical committee of JPMC. The study participants included were selected from the diabetic clinic, irrespective of gender, age and duration of diabetes. Patients having diabetic peripheral neuropathic pain in extremities were type 2 diabetes and the pain were at least 4 on 11 point numerical visual analog scale were selected and enrolled from medical OPD of JPMC. 

PAIN DIARY:

Pain diary was provided to the enrolled patients to note the daily pain intensity on an 11 point numerical scale, the scale starts from 0 no pain to 10 was the worst possible pain.

SLEEP DIARY:

The sleep diary was provided to the enrolled patients to note the sleep interference. The scale started from 0 which means pain does not interfere with sleep whereas 10 was considered as completely interference with sleep. Patient was directed to note the sleep interference after awakening on every day.

GROUPING OF PATIENTS:

Sixty diagnosed patients of painful diabetic neuropathy were included in 12 weeks trial after taking written consent. The patients were randomly placed into two groups. 30 patients were in each group. One group received Gabapentin and the other group received Carbamazepine. The drugs were started with low dose and gradually increased with monitoring of response and adverse effects. In Gabapentin group, it was given 100 mg BD to 300 mg TDS and in Carbamazepine group the dose was started from 200 mg BD to 400 mg TDS. The detailed history was taken and clinical examination including general physical examination, respiratory system, GIT, CVS and CNS of patients were examined.

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Patients</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabapentin</td>
<td>30</td>
<td>Cap. Gabapentin (200-900 mg/day)</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>30</td>
<td>Tab. Carbamazepine (400-1200 mg/day)</td>
</tr>
</tbody>
</table>

Safety Profile:

The drug compliance and any adverse effects such as nausea, vomiting, diarrhea, constipation, pedal edema, palpitations, dizziness, somnolence and other systemic side effects were observed during study and for this purpose the following labs investigations were done at day 0 and repeated at the end of the study.
Complete blood count, liver function test, serum urea/creatinine, fasting blood sugar/random blood sugar, lipid profile, ECG.

RESULTS

60 enrolled patients of diabetic neuropathy were treated with Gabapentin and Carbamazepine. All 60 patients were placed in two groups. All groups contained 30 patients. All groups were enrolled for 3 months duration after taking written consent.

Gabapentin group

In Gabapentin group 16.66% male and 83.34% females were included, the mean age was 54±1.35 years, the duration of diabetes was 13.36 years mean, the mean duration of diabetic peripheral neuropathic pain was 2.01±0.95 years (table 3) The primary out-come of the study of reduction in pain of VAS in this group, the initial mean of VAS was 6.17±0.15 on day 0, falling to 5.4±0.13 on day 30, 4.6±0.15 on day 60 and 3.5±0.15 on day 90. The percentage of change was 43.3% which is highly significant (p value 0.001) (table 4).

The secondary outcome was reduction in sleep interference recorded on 11 point numerical VAS. In Gabapentin group sleep interference was 2.10±0.14 Mean ±SEM and fall to 0.35±0.06 Mean ±SEM on day 90 which is highly significant (p value 0.0001).

The adverse effects which were noticed were nausea, vomiting, diarrhea, constipation, pedal oedema, palpitations, dizziness and somnolence. The vitals remain within normal range during the study period i.e. pulse, blood pressure, adverse effects started after 2 weeks of treatment. The most common side effects were dizziness 4(13.3%), palpitation 2(6.6%), pedal edema 3.3% of mild to moderate in intensity no ECG changes were noticed (Table 8). The compliance and tolerance were good.

Carbamazepine group

In Carbamazepine group 23.34% were male and female were 76.66%, the mean age in years was 50.63±1.58, the duration of diabetes in 13.3 years (mean), the duration of diabetic peripheral neuropathy was 1.95 years (mean). In Carbamazepine group the changes in pain score on VAS from initial mean of 6.07±0.13 on day 0, falling to 5.6±0.14 on day 30, 4.90±0.13 on day 60 and 4.23±0.13 on day 90. The percentage of change was 30.4% which is highly significant (p value 0.001) (Table 3 and Table 4).

The secondary outcome was reduction in sleep interference, recorded on 11 point numerical VAS. In Carbamazepine group sleep interference was 1.93±0.14 (Mean±SEM) on day 0 falls to 0.95 ±0.10 (Mean ±SEM) on day 90 which is highly significant (p value 0.0005) (Table 6).

The adverse effects noticed were nausea, vomiting, diarrhea, constipation, pedal oedema, palpitations, dizziness and somnolence. The vitals remain in normal range during the study period i.e. pulse, blood pressure, adverse effects started after 4 weeks of treatment. The most common side effects were dizziness 4(13.3%), palpitation 2(6.6%), pedal edema 3.3% of mild to moderate in intensity no ECG changes were noticed (Table 8). The compliance and tolerance were good.

Gabapentin group VS Carbamazepine group:

In both groups the mean baseline characteristics of patients are similar and there is insignificant difference in mean age, BMI, duration of diabetes mellitus, duration of diabetic peripheral neuropathy and baseline mean VAS of pain that is 6.17±0.14 in Gabapentin and 1.83±0.11 in Carbamazepine group.

Table 3: Baseline Characteristics of All Three Treated Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gabapentin</th>
<th>Carbamazepine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (Years)</td>
<td>54.00±7.39</td>
<td>50.63±8.65</td>
</tr>
<tr>
<td>Median</td>
<td>51.00±1.35</td>
<td>48.00±1.58</td>
</tr>
<tr>
<td>Sex Male %</td>
<td>16.66%</td>
<td>23.4%</td>
</tr>
<tr>
<td>Female %</td>
<td>83.34%</td>
<td>76.66%</td>
</tr>
<tr>
<td>Mean height (m) (±S.D)</td>
<td>157.5±7.17</td>
<td>158.1±8.20</td>
</tr>
<tr>
<td>Mean weight (Kg) (±S.D)</td>
<td>67.00±6.64</td>
<td>66.36±7.45</td>
</tr>
<tr>
<td>Mean duration of diabetes (Years)</td>
<td>13.30±4.07</td>
<td>13.36±4.22</td>
</tr>
<tr>
<td>Median duration of diabetes (Years)</td>
<td>13.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Mean DPNP (Years) ±S.D</td>
<td>2.01 ± 0.95</td>
<td>1.95 ± 0.93</td>
</tr>
<tr>
<td>BMI (±S.D)</td>
<td>26.83±0.93</td>
<td>26.90±0.93</td>
</tr>
<tr>
<td>Baseline severity (24 hours pain score) (Mean)</td>
<td>6.17±0.76</td>
<td>6.07±1.17</td>
</tr>
<tr>
<td>(Median)</td>
<td>6.00±0.14</td>
<td>6.00±0.76</td>
</tr>
</tbody>
</table>

Table 4: Visual Analog Scale of Pain at Different Durations in Treated Groups

<table>
<thead>
<tr>
<th>Drug</th>
<th>VAS (Day 0)</th>
<th>VAS (Day 30)</th>
<th>VAS (Day 60)</th>
<th>VAS (Day 90)</th>
<th>Percentage of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabapentin</td>
<td>6.17±0.14</td>
<td>5.40±0.13</td>
<td>4.63±0.15</td>
<td>3.50±0.15</td>
<td>43.3%</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>6.07±0.14</td>
<td>5.60±0.14</td>
<td>4.96±0.13</td>
<td>4.23±0.13</td>
<td>30.4%</td>
</tr>
</tbody>
</table>
DISCUSSION

Diabetic peripheral neuropathy affects approximately half of patients with diabetes mellitus approximately 11% experience chronic painful symptoms that diminishes quality of life, disturbed sleep and may lead to depression. In the absence of curative therapy, the main aim of management is to provide symptomatic pain control using pharmacological and non-pharmacological agents and to preserve good glycemic control. Pharmacological therapy includes tricyclic anti-depressants, narcotic analgesics and anticonvulsants, but adverse effects have limited the effectiveness of these agents. Although a goal of 100% pain relief is ideal but the patient must understand that complete pain relief may not be achieved despite the best effort of the physician. In reality many patients with diabetic peripheral neuropathic pain achieve no more than 30% to 50% pain reduction.

Carbamazepine was one of the first anticonvulsants studied for treatment of painful diabetic neuropathy. Rull et al. (1989) in a cross over study, 28 out of 30 patients reported pain relief when treated with Carbamazepine 600 mg/day, adverse effects were mild. However, Beydoun et al. (2006) in larger trial of 347 patients of Oxcarbamazepine and placebo insignificant change in mean visual analog scale score was observed from baseline to the last week of the study. In a multicentral placebo controlled 16 week trial of 146 patients with diabetic peripheral neuropathy randomized to Oxcarbamazepine with placebo Dogra (2005) observed significant decrease in VAS symptoms and significant improvement in the global impression of change in pain and sleep disturbance.

In present study Carbamazepine has showed affectivity in reducing VAS of pain (30.4%) from day 0 and sleep interference statistically significant the adverse effects were mild to moderate in nature, the drug was well-tolerated.

In a clinical trial conducted by Serpell (2002) enrolled 305 patients of mixed neuropathic pain syndromes including painful diabetic neuropathy and post-herpetic neuralgia, given Gabapentin and placebo for 8 weeks and observed the mean daily pain score reduction was 7.1-5.6 (21.13%) after 8 weeks treatment.

In one randomized trial by Backonja et al. (1998) has proved affectivity of Gabapentin for treatment of diabetic peripheral neuropathy with history of 1-5 years painful diabetic neuropathy (n=84) and (n=81) for Gabapentin and placebo respectively. Gabapentin was given at a dosage of 900mg-3600mg/day the daily pain diary measured on VAS and secondary end-point was

| Table 5: Mean Reduction in Visual Analog Scale of Pain in Treated Groups |
|--------------------------|--------------------------|--------------------------|
| Day-0-day-30             | 0.77±0.08                | 0.47±0.09                |
| Day-30-day-60            | 0.77±0.10                | 0.70±0.11                |
| Day-60-day-90            | 1.13±0.09                | 0.67±0.10                |
| Day-0-day-90             | 2.67±0.12                | 1.83±0.11                |

| Table 6: Visual Analog Scale of Sleep Interference in Treated Groups |
|--------------------------|--------------------------|--------------------------|
| Drug                     | VAS (Day 0) Mean±SEM     | VAS (Day 30) Mean±SEM    | VAS (Day 60) Mean±SEM    | VAS (Day 90) Mean±SEM    |
| Gabapentin               | 2.10±0.14                | 2.10±0.14                | 1.08±0.14                | 0.35±0.06**              |
| Carbamazepine            | 1.93±0.13                | 1.93±0.13                | 1.10±0.10                | 0.95±0.10**              |

** Highly significant

| Table 7: Comparison of Visual Analog Score of Pain Among Drugs |
|--------------------------|--------------------------|--------------------------|
| Drugs                    | VAS 1st 30 Days          | VAS 2nd 30 Days          | VAS 3rd 30 Days          | VAS 90 Days              |
| Gabapentin               | 0.77±0.08                | 0.77±0.10                | 1.13±0.09                | 2.67±0.12                |
| Carbamazepine            | 0.47±0.09                | 0.70±0.11                | 0.67±0.10                | 1.83±0.11                |

| Table 8: Adverse Effects |
|--------------------------|--------------------------|--------------------------|
| Adverse effects          | Gabapentin (n=30)         | Carbamazepine (n=30)     |
| Nausea no (%)            | 0                        | 2(6.6%)                  |
| Vomiting no(%)           | 0                        | 0                        |
| Diarrhea no (%)          | 0                        | 0                        |
| Dizziness no(%)          | 2(6.6%)                  | 4(13.3%)                 |
| Somnolence no(%)         | 1(3.3%)                  | 0                        |
| Pedal oedema no. (%)     | 1(3.3%)                  | 2(6.6%)                  |
| Palpitation no (%)       | 2(6.6%)                  | 1(3.3%)                  |
| Total adverse effects (%)| 6 (20%)                  | 9 (30%)                  |
sleep interference, at the end of the study patients who were on Gabapentin showed significant improvement in all end-points compared with those who received placebo, mean pain score were reduced from 6.4 to 3.9 (39.1%) in Gabapentin and 6.5-5.1 in placebo. In the present study (the Gabapentin group) the mean baseline severity was 6.17 and it decreased to 3.5 on VAS of pain at day 90. The percentage change was 43.3% that is very much similar with Backonja’s study.

CONCLUSION

In the present study both two drugs were effective in reduction of diabetic peripheral neuropathic pain but Gabapentin was more effective as compared to Carbamazepine, whereas the adverse effect was more noted in Carbamazepine-treated group as compared to the Gabapentin group. Gabapentin was observed more effective and safety wise may be a good tool for the treatment of diabetic peripheral neuropathic pain.

REFERENCES

Recognizing the Sensory Abilities in Cerebral Palsy Children

Nabila Soomro, Brigitte Kamran, Rukhsana Bibi and Syed Imran Ahmed

ABSTRACT

Objective: To evaluate the sensory abilities in different type of cerebral palsy (CP) children.

Design: Retrospective, chart review

Subjects and methods: This study was conducted at the Institute of Physical Medicine and Rehabilitation, Dow University of Health Sciences from January 22, 2011 to March 23, 2011 in a period of 2 months. 60 CP children already diagnosed with required categories (hemiplegia, diplegia and quadriplegia) without mental retardation between the ages from 4-8 years were included in this study after seeking consent from their parents, while CP children (Athetoid, ataxic, dystonic) below 4 years and above 8 years of age and other developmental disorders were excluded. Convenient sampling was used. A standardized questionnaire was developed to assess parent’s perception of their children's sensory profile. It was a self-reporting questionnaire with five point scoring system. Trained Occupational Therapist assisted parents in filling out the form for the collection of data.

Results: Data was analyzed by analysis of variance (ANOVA). The mean age was 5.47 years. Results show that 8 out of 38 items have significant value (p < 0.05) on item analysis. Mean value was calculated for each subtype of CP, therefore classified them according to Dunn criterion on components of short sensory profile. On gender difference significant difference was found on tactile sensitivity, taste/smell sensitivity, under responsive /seek sensation and visual /auditory sensitivity.

Conclusion: The differences of classification in each subtype on seven components along with significant differences on 8 items on short sensory profile indicates that CP children suffer from sensory processing disorder that interferes with their performance. Thus it draws an attention towards a neglected side of palsy so that more accurate assessment and intervention planning could be implemented for effective rehabilitation program of cerebral palsy children.

Key words: Sensory problems, cerebral palsy, sensory motor rehabilitation, sensory integrative approach.

INTRODUCTION

Cerebral palsy (CP) comprises of a group of disorders related to movement and posture, the most common childhood physical disability. In CP, motor deficit is accompanied by sensory impairments along with difficulty in communication and behavioral problems that adversely affect the prognosis of disease.1 The incidence of CP varies across various regions and World report on prevalence estimates for CP ranges from 1.5 to more than 4 per 1,000 live births,2 more common in under-privileged socio-economic populations.

Sensory processing deficits impede the CP child over all development, they are considered to be the primary or secondary to their motor problems interfering with perceptual, intellectual and emotional development of CP children6,9 resulting in poor body awareness, abnormal body image and poor spatial relationship thus decreasing the ability to explore the environment.4

Sensory deficits are often neglected as parents are less aware of their child behavior towards sensory events. For the last twenty years researchers are now paying more attention towards the sensory needs of CP.6 Jerome in his study identified and compared sensory abilities between cerebral palsy and typical children6.

It is noted that Dysfunction in sensory processing along with motor deficits results in various abnormal functional behaviors of CP children.13 When CP child suffers sensory disorder it could lead to difficulties in the perceptual skills, speech development and emotional expressions.12 Studies focusing on somatosensory deficits noted tactile processing disorders in CP17-18 although, it is difficult to identify proprioceptive abilities and vestibular processing disorders due to neuro motor deficits.16
Motor limitations along with sensory deficits limits the child exploration of environment and decreases the ability to experience different sensory stimuli. Blanche in her study described that traditionally more work was done on motor dysfunction of CP as compared to sensory dysfunction. However current theories are now emphasizing on sensory motor therapy approach as it plays an active role to enhance motor function and control.

Shamsoddin R. in his experimental study showed the effectiveness of sensory integration and vestibular stimulation to improve gross motor function in children with diplegic spastic CP. As per author’s knowledge studies so far have focused only on somatosensory abilities of cerebral palsy as only Jerome (2007) identified the sensory processing abilities in CP, but these sensory abilities were not compared among subtypes of CP because of small sample size (30 patients). He recommended that future studies should be done to compare sensory processing abilities among subtypes of CP as it would give better explanation on sensory processing problems within CP. On the basis of his recommendation this present study aims to recognize various sensory issues in different types of Cerebral Palsies. This is done by comparing the components and items on sensory profile among different types of cerebral palsy children.

METHODOLOGY

The study was conducted at Institute of Physical Medicine and Rehabilitation, Dow University of Health Sciences from January 22, 2011 to March 23, 2011 for period of two months. Convenience sampling was used. 60 CP children already diagnosed with required categories (hemiplegia, diplegia and quadriplegia) without mental retardation (4-8 years) were included in this study after seeking verbal consent from their parents. The ethical review board of investigator has given the permission to this study. Permission to administer short sensory profile was also received from the author; its utilization was purchased by the institute. The study was a retrospective, chart review and occupational therapist was trained to assist the parents in filling out for collection of the data. After seeking the informed consent from the parents of the CP children short sensory profile was administered to collect data. The short Sensory Profile (Dunn, 1999) is a validated tool which is used for the standardized assessment and is designed to measure the sensory processes of children between the ages 3 to 10 years. This tool helps analyze information regarding the CP child’s responsitivity to various sensory stimuli and identifies processing deficits in the sensory systems that may inhibit the child from participating in daily activities. It contains 38 items. Care giver rates items on a five point-likert scale. The parents make subjective yet standardized ratings of their child’s responses. Responses to each behavioral statement are as follows. It is graded under the heading of 1=always, 2=frequently, 3=occasionally, 4=seldom and 5=never. This screening form is used to evaluate functional behavior related to sensory processing disorder (McIntosh et al 1999). Scores that fall within one standard deviation of the mean for each category represent “Typical Performance.” Scores that fall between one to two standard deviations below the mean fall into the “Probable Difference” category. Finally, scores that fall more than two SDs below the mean illustrate a “Definite Difference” on short sensory profile.

Data was collected by a trained occupational therapist. After data collection, scoring was done by using SPSS version 16. ANOVA was used for item analysis and T-test was used to compare gender difference on component score of short sensory profile.

RESULTS

Parents of 60 cerebral palsy children with hemiplegia, diplegia and quadriplegia participated in this study out of which 13 were hemiplegics (5 boys and 8 girls), 23 diplegics (13 boys and 10 girls) 24 were quadriplegics (20 boys and 4 girls), the mean age was 5.47±1.26 (R:4-8) years. (Table 1).

On various components of short sensory profile subtypes of cerebral palsy were classified according to Dunn’s criterion. Results of children with hemiplegia indicate probable difference on tactile sensitivity (MEAN= 27.65), Taste /smell sensitivity (12.25) under responsive/seek sensation (MEAN= 25.13) auditory filtering (MEAN=21.54) and visual auditory (MEAN=15.69). However the Mean Value on movement sensitivity (MEAN=12.15) for hemiplegic children lies on typical performance. On contrary, definite difference was found on low energy/weak component (MEAN=14.53) of short sensory profile. On the other hand, the Mean Value of diplegic children on tactile sensitivity (MEAN=27.4) Taste /smell sensitivity (MEAN=13.08) movement sensitivity (MEAN=9.27) auditory (MEAN=21.04) scores these children on probable difference. Furthermore, definite difference was found on under responsive/seek sensation (MEAN=17.57), low energy (MEAN=14.91) and visual/auditory sensitivity (MEAN=13.31) component of short sensory profile. Further, the quadriplegic scores on probable difference where the mean value for Taste /smell sensitivity (MEAN=13.2), movement sensitivity
On gender difference the mean value was taken out on components of short sensory profile. (Table 4). Statistically significant difference for male in quadriplegic on Taste/smell sensitivity (P<0.005) while for diplegic mean difference for female are significant (P<0.05) on movement sensitivity. On the other hand, female children with hemiplegia has significant variation on under responsive/seek sensation (P<0.05). Moreover on visual auditory in quadriplegic male have significant difference. (P-value 0.04).

**DISCUSSION**

This study helped to identify sensory problems and analyzed items of short sensory profile among subtypes of cerebral palsy. Mean values verified sensory problems in cerebral palsy children that interfere with the child performance. These differences are also significant on different components of short sensory profile; however it does not indicate significant difference among subtypes of cerebral palsy. Furthermore on item analysis results indicate significant difference for 8 out of 38 items within the group.

Children with cerebral palsy frequently have difficulty in processing tactile information. Researchers identified that Poor tactile perception results in poor hand functioning.12,20-22 The present study verified the presence of tactile processing deficits among sub-types of CP, although no significant difference was found with in the group.

On the other hand, due to movement constraint it was difficult to assess vestibular processing disorder however; the results of present study showed that

---

**Table 1:** Shows Total Number of Male and Female among Subtypes of CP

<table>
<thead>
<tr>
<th>Types</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemiplegia</td>
<td>13</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Diplegia</td>
<td>23</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Quadriplegia</td>
<td>24</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>38</td>
<td>22</td>
</tr>
</tbody>
</table>

**Table 2:** Comparison of Response Score to Various Components on the Sensory Profile Among Subtypes of Cerebral Palsy

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hemiplegia</th>
<th>Diplegia</th>
<th>Quadriplegia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactile sensitivity</td>
<td>27.65 PD</td>
<td>27.4 PD</td>
<td>25.34 PD</td>
</tr>
<tr>
<td>Taste/smell sensitivity</td>
<td>12.25 PD</td>
<td>13.08 PD</td>
<td>13.2 PD</td>
</tr>
<tr>
<td>Movement sensitivity</td>
<td>12.15 TP</td>
<td>9.27 PD</td>
<td>11.49 PD</td>
</tr>
<tr>
<td>Under responsiveness/Seek sensation</td>
<td>25.13 PD</td>
<td>17.57 DD</td>
<td>22.09 DD</td>
</tr>
<tr>
<td>Auditory filter</td>
<td>21.54 PD</td>
<td>21.04 PD</td>
<td>19.79 DD</td>
</tr>
<tr>
<td>Low energy</td>
<td>14.53 DD</td>
<td>14.91 DD</td>
<td>13.23 DD</td>
</tr>
<tr>
<td>Visual/auditory sensitivity</td>
<td>15.69 PD</td>
<td>13.31 DD</td>
<td>14.67 DD</td>
</tr>
</tbody>
</table>

**Table 4:** Gender Difference on Component Score on Short Sensory Profile

<table>
<thead>
<tr>
<th>Components</th>
<th>Gender</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactile sensitivity</td>
<td>Male</td>
<td>27.8</td>
<td>8.2</td>
<td>29.1</td>
<td>4.5</td>
<td>23.5</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>27.6</td>
<td>6.8</td>
<td>24.8</td>
<td>8.3</td>
<td>29.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Taste/smell sensitivity</td>
<td>Male</td>
<td>14.8</td>
<td>6.6</td>
<td>13.9</td>
<td>6.4</td>
<td>12.3</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>11.1</td>
<td>5.5</td>
<td>12.0</td>
<td>5.6</td>
<td>17.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Movement sensitivity</td>
<td>Male</td>
<td>12.8</td>
<td>2.0</td>
<td>10.9</td>
<td>2.7</td>
<td>10.7</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>11.8</td>
<td>3.4</td>
<td>8.2</td>
<td>3.8</td>
<td>12.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Auditory filtering</td>
<td>Male</td>
<td>19.4</td>
<td>6.3</td>
<td>19.8</td>
<td>6.8</td>
<td>19.7</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>22.0</td>
<td>3.3</td>
<td>19.8</td>
<td>6.8</td>
<td>20.9</td>
<td>7.4</td>
</tr>
<tr>
<td>Low energy/weak</td>
<td>Male</td>
<td>14.1</td>
<td>5.7</td>
<td>14.1</td>
<td>6.0</td>
<td>13.4</td>
<td>5.1</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>13.9</td>
<td>4.8</td>
<td>16.0</td>
<td>5.7</td>
<td>13.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Visual/auditory sensitivity</td>
<td>Male</td>
<td>15.4</td>
<td>1.5</td>
<td>13.2</td>
<td>5.7</td>
<td>13.3</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>15.9</td>
<td>5.1</td>
<td>13.5</td>
<td>4.1</td>
<td>13.3</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Key
TP=Typical Performance, PD= Probable difference, DD= definite difference

(MEAN=19.79). Conversely, on under responsive/seek sensation (MEAN=22.09) low energy/weak (MEAN=13.23) visual/auditory sensitivity (MEAN=14.67), these children scores on definite difference. (Table 2).

On item analysis, the result showed significant variation on 8 out of 38 items on short sensory profile (P<0.05). Items analysis indicates significant lower mean on item,13,15-16,18,21,38 in diplegic CP children. On the other hand, the quadriplegic children had significant lower mean on 26 and 33 on short sensory profiles. (Table 3).

On gender difference the mean value was taken out on components of short sensory profile. (Table 4).
Recognizing the sensory abilities in cerebral palsy children

Table 3: Comparison of Response Score to Each Item between Diagnoses

<table>
<thead>
<tr>
<th>Item#</th>
<th>Description</th>
<th>CP hemiplegia</th>
<th>SD</th>
<th>CP diaplegia</th>
<th>SD</th>
<th>CP quadriplegia</th>
<th>SD</th>
<th>P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Express distress during grooming (e.g. light or cries during haircutting, face washing, finger nail cutting)</td>
<td>4.0</td>
<td>1.5</td>
<td>3.9</td>
<td>1.2</td>
<td>3.5</td>
<td>1.6</td>
<td>0.59</td>
</tr>
<tr>
<td>2</td>
<td>Prefer long sleeved clothing when it is warm or short sleeves then it is cold.</td>
<td>4.2</td>
<td>1.5</td>
<td>4.5</td>
<td>0.9</td>
<td>3.9</td>
<td>1.7</td>
<td>0.29</td>
</tr>
<tr>
<td>3</td>
<td>Avoid going bare foot, especially in sound or grass</td>
<td>3.7</td>
<td>1.8</td>
<td>3.7</td>
<td>1.6</td>
<td>3.6</td>
<td>1.8</td>
<td>0.99</td>
</tr>
<tr>
<td>4</td>
<td>React emotionally or aggressively to touch</td>
<td>3.7</td>
<td>1.9</td>
<td>3.6</td>
<td>1.6</td>
<td>3.4</td>
<td>1.8</td>
<td>0.86</td>
</tr>
<tr>
<td>5</td>
<td>Withdraws from splashing water</td>
<td>4.1</td>
<td>1.4</td>
<td>4.0</td>
<td>1.6</td>
<td>3.9</td>
<td>1.7</td>
<td>0.91</td>
</tr>
<tr>
<td>6</td>
<td>Has difficulty in standing in line or close to line</td>
<td>4.2</td>
<td>1.3</td>
<td>3.4</td>
<td>1.7</td>
<td>3.5</td>
<td>1.8</td>
<td>0.41</td>
</tr>
<tr>
<td>7</td>
<td>Rub or scratch out a spot that has been touched</td>
<td>3.9</td>
<td>1.6</td>
<td>4.4</td>
<td>1.2</td>
<td>3.8</td>
<td>1.7</td>
<td>0.48</td>
</tr>
<tr>
<td>8</td>
<td>Avoid certain taste or food smells that are typically part of children’s diet</td>
<td>2.9</td>
<td>1.7</td>
<td>3.6</td>
<td>1.9</td>
<td>3.7</td>
<td>1.8</td>
<td>0.36</td>
</tr>
<tr>
<td>9</td>
<td>Will only eat certain foods</td>
<td>2.9</td>
<td>1.8</td>
<td>2.9</td>
<td>1.7</td>
<td>2.7</td>
<td>1.9</td>
<td>0.95</td>
</tr>
<tr>
<td>10</td>
<td>Limit self to particular food textures</td>
<td>3.3</td>
<td>1.8</td>
<td>3.6</td>
<td>1.8</td>
<td>3.6</td>
<td>1.8</td>
<td>0.29</td>
</tr>
<tr>
<td>11</td>
<td>Picky eater, especially regarding food textures</td>
<td>3.5</td>
<td>1.9</td>
<td>3.1</td>
<td>1.7</td>
<td>3.2</td>
<td>1.7</td>
<td>0.76</td>
</tr>
<tr>
<td>12</td>
<td>Become anxious or distressed when leave feet grounds</td>
<td>4.6</td>
<td>0.8</td>
<td>3.8</td>
<td>1.6</td>
<td>4.3</td>
<td>1.3</td>
<td>0.22</td>
</tr>
<tr>
<td>13</td>
<td>Fear falling heights</td>
<td>3.5</td>
<td>1.5</td>
<td>2.3</td>
<td>1.6</td>
<td>3.5</td>
<td>1.9</td>
<td>0.04</td>
</tr>
<tr>
<td>14</td>
<td>Dislikes activities where head is upside down</td>
<td>4.0</td>
<td>1.4</td>
<td>3.6</td>
<td>1.6</td>
<td>3.7</td>
<td>1.5</td>
<td>0.75</td>
</tr>
<tr>
<td>15</td>
<td>Enjoy strange noises/seeks to make noise’s sake</td>
<td>3.5</td>
<td>1.7</td>
<td>2.0</td>
<td>1.4</td>
<td>3.0</td>
<td>1.9</td>
<td>0.02</td>
</tr>
<tr>
<td>16</td>
<td>Seek all kind of movements and this interferes with daily routines</td>
<td>4.2</td>
<td>1.1</td>
<td>2.4</td>
<td>1.6</td>
<td>2.4</td>
<td>1.8</td>
<td>0.00</td>
</tr>
<tr>
<td>17</td>
<td>Become overly excitable during movement activity</td>
<td>3.5</td>
<td>1.6</td>
<td>2.7</td>
<td>1.7</td>
<td>3.1</td>
<td>1.5</td>
<td>0.41</td>
</tr>
<tr>
<td>18</td>
<td>Touches people and objects</td>
<td>2.9</td>
<td>1.7</td>
<td>1.7</td>
<td>1.3</td>
<td>2.7</td>
<td>1.5</td>
<td>0.02</td>
</tr>
<tr>
<td>19</td>
<td>Dose not seems to notice when face and hands are messy</td>
<td>3.4</td>
<td>2.0</td>
<td>3.5</td>
<td>1.7</td>
<td>3.6</td>
<td>1.7</td>
<td>0.95</td>
</tr>
<tr>
<td>20</td>
<td>Jumps from one activity to another so that it interferes with play</td>
<td>3.6</td>
<td>1.5</td>
<td>3.0</td>
<td>1.7</td>
<td>3.7</td>
<td>1.6</td>
<td>0.35</td>
</tr>
<tr>
<td>21</td>
<td>Leave clothing twisted on body</td>
<td>4.1</td>
<td>1.5</td>
<td>2.4</td>
<td>1.7</td>
<td>3.5</td>
<td>1.6</td>
<td>0.01</td>
</tr>
<tr>
<td>22</td>
<td>Is distracted or has trouble functioning if there is a lot of noises around</td>
<td>3.0</td>
<td>1.6</td>
<td>3.2</td>
<td>1.9</td>
<td>3.1</td>
<td>1.8</td>
<td>0.96</td>
</tr>
<tr>
<td>23</td>
<td>Appears to not hear what you say (for example, does not “tune in to hat you say, appears to ignore you)</td>
<td>4.0</td>
<td>1.3</td>
<td>4.2</td>
<td>1.6</td>
<td>3.7</td>
<td>1.5</td>
<td>0.45</td>
</tr>
<tr>
<td>24</td>
<td>Can’t work with background noises</td>
<td>4.0</td>
<td>1.3</td>
<td>3.4</td>
<td>1.9</td>
<td>3.9</td>
<td>1.4</td>
<td>0.47</td>
</tr>
<tr>
<td>25</td>
<td>Has trouble completing task when the radio is on</td>
<td>3.0</td>
<td>1.8</td>
<td>2.6</td>
<td>1.7</td>
<td>3.0</td>
<td>1.9</td>
<td>0.67</td>
</tr>
<tr>
<td>26</td>
<td>Doesn’t respond when name is called but you the child’s hearing is o.k</td>
<td>3.9</td>
<td>1.7</td>
<td>4.4</td>
<td>1.1</td>
<td>2.9</td>
<td>1.8</td>
<td>0.01</td>
</tr>
<tr>
<td>27</td>
<td>Has difficulty paying attention</td>
<td>3.7</td>
<td>1.3</td>
<td>3.2</td>
<td>1.7</td>
<td>3.2</td>
<td>1.7</td>
<td>0.61</td>
</tr>
<tr>
<td>28</td>
<td>Seems to have weak muscles</td>
<td>2.0</td>
<td>1.3</td>
<td>1.8</td>
<td>1.2</td>
<td>1.6</td>
<td>1.2</td>
<td>0.67</td>
</tr>
<tr>
<td>29</td>
<td>Tires easily especially when standing or holding particular body position</td>
<td>2.4</td>
<td>1.3</td>
<td>2.2</td>
<td>1.5</td>
<td>2.6</td>
<td>1.7</td>
<td>0.66</td>
</tr>
<tr>
<td>30</td>
<td>Has a weak grasp</td>
<td>2.5</td>
<td>1.6</td>
<td>3.1</td>
<td>1.6</td>
<td>2.0</td>
<td>1.5</td>
<td>0.08</td>
</tr>
<tr>
<td>31</td>
<td>Cant lift heavy objects</td>
<td>2.5</td>
<td>1.5</td>
<td>2.8</td>
<td>1.6</td>
<td>2.1</td>
<td>1.6</td>
<td>0.32</td>
</tr>
<tr>
<td>32</td>
<td>Prop to support self</td>
<td>2.5</td>
<td>1.3</td>
<td>2.3</td>
<td>1.4</td>
<td>3.3</td>
<td>1.7</td>
<td>0.06</td>
</tr>
<tr>
<td>33</td>
<td>Poor endurance/tries easily</td>
<td>2.7</td>
<td>1.4</td>
<td>2.8</td>
<td>1.5</td>
<td>1.6</td>
<td>0.9</td>
<td>0.01</td>
</tr>
<tr>
<td>34</td>
<td>Respond negatively to unexpected or loud noises</td>
<td>2.9</td>
<td>1.8</td>
<td>2.6</td>
<td>1.6</td>
<td>3.1</td>
<td>1.9</td>
<td>0.60</td>
</tr>
<tr>
<td>35</td>
<td>Hold hands over ears to protect ears from sound</td>
<td>3.5</td>
<td>1.8</td>
<td>3.4</td>
<td>1.8</td>
<td>3.7</td>
<td>1.6</td>
<td>0.82</td>
</tr>
<tr>
<td>36</td>
<td>Is bothered by bright lights after others have adapted to the light</td>
<td>3.3</td>
<td>1.8</td>
<td>3.1</td>
<td>1.5</td>
<td>2.5</td>
<td>1.9</td>
<td>0.28</td>
</tr>
<tr>
<td>37</td>
<td>Watches every one when they move around the room</td>
<td>1.8</td>
<td>1.4</td>
<td>1.7</td>
<td>1.1</td>
<td>2.4</td>
<td>1.6</td>
<td>0.19</td>
</tr>
<tr>
<td>38</td>
<td>Cover eyes or squints to protect eyes from light</td>
<td>4.2</td>
<td>1.5</td>
<td>2.6</td>
<td>1.7</td>
<td>3.0</td>
<td>1.9</td>
<td>0.03</td>
</tr>
</tbody>
</table>
movement sensitivity was more pronounced in diplegic and quadriplegic indicating discomfort level when being moved. These finding correlates with results of Jerome study (2007).6

Additionally, on under responsiveness / seek sensation diaplegic and quadriplegic lie within definite difference indicative of poor modulation that interfere their daily life functioning. However, Quadriplegic children suffered from more auditory problems as compare to hemiplegic and diaplegic that is reason these children are unable to concentrate on task.

Moreover CP children exhibit poor endurance that causes inability to sustain on daily life rituals and play.

However it was difficult to differentiate that this problem was either because of neuro-motor deficit or their sensory processing problems.

In addition to it, on visual/auditory sensitivity component diaplegic and quadriplegic were more prone to face difficulty while perceiving auditory and visual stimuli that is needed to make an appropriate contact with each other. Blanche (1995), in his study also identified visual deficits among cerebral palsy,18 while Ayres (1965) signifies the importance of visual perception as bases for tactile discrimination.13

Though the results analysis indicate only significant difference on 8 items however on component of sensory profile children are classified according to Dunn criterion perhaps not significant variation was observed on these components. Hence this can be attributed to the inclusion criteria where CP children were selected without mental retardation. Researches indicate that CP with Mental retardation suffered various sensory disorders.23-24

As per author knowledge so far studies were done on the somatosensory aspect of cerebral palsy. However current work is more focused on sensory integration intervention. Previous studies only emphasized on application of sensory integrative therapy without identifying the sensory problems. This present study describes the nature of sensory processing problem among CP children that is a significant aspect in a research program and would be helpful for efficacy of intervention for sensory disorders. It also contributes to the continuous efforts toward parents awareness and health professionals so that they could adopt a new perspective in therapy for more accurate assessment and rehab intervention planning.

LIMITATION

The following are the limitation of the study:

More comprehensive results can be obtained with large sample size.

RECOMMENDATION

Further research with larger population is recommended to set up a more precise data and should include other remaining types of cerebral palsy children.

CONCLUSION

The sensory profile tool provides valuable information regarding the child’s sensory experience by understanding a child sensory processing deficits in relation to his/her performance. This enables the therapist and parents to understand child’s behaviors that contribute in planning an effective rehab treatment plan.

REFERENCES


2 Data & Statistics for Cerebral Palsy 2011, Content source: Division, National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention. Available at: [www.cdc.gov]


7 Bhojne U, Rege PV. A preliminary study of somatosensory abilities of normal school going Children and cerebral palsy children in the age group 6 to 8 years. IJOT 2001; 33:3-10.


ORIGINAL ARTICLE

Stapled Hemorrhoidectomy in Third Degree Hemorrhoids: A Prospective Study

Bashir Ahmed Shaikh, Asma Niaz Khan, Foad Moosa and Naheed Sultan

ABSTRACT

Objective: To study the outcome of Stapled haemorrhoidectomy in 3rd degree hemorrhoids.

Materials & Methods: 50 patients, who underwent stapled hemorrhoidectomy, were included in this study. The study took place at Surgical Unit-I, Civil Hospital, Karachi, from January 2009 to December 2010.

Design: Prospective interventional study.

Results: Stapled hemorrhoidectomy (SH) was performed in 3rd degree haemorrhoids in 50 patients. 3 patients had minimum pain and only 1 patient had persistent pain and one patient had post-operative minor bleeding which was managed conservatively.

Conclusion: SH is an effective surgical procedure for the treatment of 3rd degree haemorrhoids. There is strong evidence that SH results in less postoperative pain than other procedures as well as earlier mobility. In our experience, SH is the treatment of choice for third degree hemorrhoids in hospitalized patients.

Key words: Stapled hemorrhoidectomy (SH), third degree hemorrhoids.

INTRODUCTION

Stapled hemorrhoidectomy (SH), is an advanced alternative surgical procedure for the treatment of hemorrhoids worldwide. Randomized control trials have demonstrated that SH results in considerably less pain, allows an earlier mobility towards work and minimal morbidity at short-term follow-up.1-5

Hemorrhoids are non-pathological vascular and connective tissue cushions found in anal canal, which is considered to contribute continence to anal canal. Conservative approach is recommended when the symptoms of hemorrhoids are of 1st degree or other conditions like pregnancy. Other procedures such as infrared photocoagulation, sclerotherapy, laser therapy, cryotherapy and rubber band ligation have also been used in early hemorrhoids.6

Conventional hemorrhoidectomy is indicated in 3rd or 4th degree hemorrhoids and the same has been proposed for procedure of Prolapsed Hemorrhoids (PPH).

MATERIALS & METHODS

Inclusion Criteria: Diagnosed cases of 3rd degree & Prolapsed Hemorrhoids between 21 and 60 years of age.

Exclusion Criteria: (1) Strangulated, thrombosed and gangrenous hemorrhoids, (2) Hemorrhoids associated with fissure, fistula and skin tags, (3) Recurrent hemorrhoids and (4) Other associated anorectal problems.

The above study was conducted at Surgical Unit-I, Civil Hospital Karachi. The study period was from January 2009 to December 2010. It is a prospective interventional study. A total of 50 (n=50) patients were included in the study, a predesigned profoma was filled. All selected patients had routine investigations done with viral markers, for hepatitis B & C. Patients with confirmed diagnosis of third degree hemorrhoids as according to the inclusion criteria were admitted on the evening before surgery. Plain enema was given at night. After surgery, majority of the patients were discharged next morning, provided there were no complaints. Postoperatively, patients were followed up weekly for one month, then every month for six months. On follow-up, patients were asked about postoperative pain, bleeding per rectum, incontinence and on long term follow up for anal stenosis and recurrence of hemorrhoids. A specialized anorectal circular stapler (PPH set, Ethicon Endo-surgery, Cincinnati, OH, USA) was used to perform...
hemorrhoidectomy. The data was initially entered in MS-Excel and was analyzed through SPSS Version 10.0 for descriptive frequencies.

**Operative procedure:** All patients were operated under spinal anesthesia in lithotomy position. The circular anal dilator was inserted and secured with sutures. Anoscope was introduced through the dilator. The circumferential sutures of 2/0 prolene were applied 3cm above the dentate line by taking mucosa and submucosa and were placed close together to allow better traction of the mucosa. Stapler was inserted through the dilator. The anvil was positioned beyond the suture line, which was tied on the rod. The ends of the sutures were taken out through the lateral channels of the stapler with suture threader. The stapler was closed and fired after 30 seconds. Doughnut was inspected for full circumference of mucosa. Anoscope was reinserted to observe bleeding. Packing of anal canal was not done.

**RESULTS**

During the period of 02 years, 50 patients were selected with 3rd degree hemorrhoids for SH, out of which 11(22%) were females and 39(78%) were males. Majority of patients were in the age group between 21-30 years while few were in the age group of 41-50 years (Table I).

The symptoms at presentation in the outpatient department were documented. The most common symptoms were prolapse on straining (98%) out of which 11(100%) were females and 38 (97.4%) were males. Constipation and pain were present in 15(30%) out of 50, among 11 females 6(54.5%) had constipation and 4(36.3%) had pain, out of 39 males 9(23.1%) had constipation and 11(28.2%) had pain. Bleeding per rectum was present in 13(26%) patients out of which 3(31.8%) females and 10(25.6%) males. Pruritis and discharge was present in 6% (Table II).

SH of all the patients went smooth and there were no complications or adverse events whatsoever during surgery. Post operatively none of the patients complained of incontinence or urinary retention. The most common complaint after SH was early pain in 3(6%) patients which settled down by analgesics. One female patient (2%) developed persistent postoperative pain probably due to staple line over dentate line, which was finally settled down by medications over a period of one month and that patient was followed up till six months and remained pain-free thereafter. One patient had minor bleed post operatively which was managed conservatively (Graph I).

### Table – I. Distribution of Age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male Patients (n=39)</th>
<th>Both (n=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30 years</td>
<td>19 (47.73%)</td>
<td>22 (44%)</td>
</tr>
<tr>
<td>31-40 years</td>
<td>8 (21.59%)</td>
<td>13 (26%)</td>
</tr>
<tr>
<td>41-50 years</td>
<td>4 (10.23%)</td>
<td>6 (12%)</td>
</tr>
<tr>
<td>51-60 years</td>
<td>8 (20.45%)</td>
<td>9 (18%)</td>
</tr>
</tbody>
</table>

### Table – II. Symptoms at Presentation

<table>
<thead>
<tr>
<th>S#</th>
<th>Symptoms</th>
<th>Females (n=11)</th>
<th>Males (n=39)</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prolapse on Straining</td>
<td>11 (100%)</td>
<td>38 (97.43%)</td>
<td>49 (98%)</td>
</tr>
<tr>
<td>2</td>
<td>Constipation</td>
<td>6 (54.54%)</td>
<td>9 (23.07%)</td>
<td>15 (30%)</td>
</tr>
<tr>
<td>3</td>
<td>Bleeding per Rectum</td>
<td>3 (31.8%)</td>
<td>10 (25.6%)</td>
<td>13 (26%)</td>
</tr>
<tr>
<td>4</td>
<td>Pain on Defecation</td>
<td>4 (36.3%)</td>
<td>11 (28.2%)</td>
<td>15 (30%)</td>
</tr>
<tr>
<td>5</td>
<td>Pruritis</td>
<td>1 (9.09%)</td>
<td>2 (5.1%)</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>6</td>
<td>Discharge</td>
<td>2 (31.8%)</td>
<td>1 (25.5%)</td>
<td>3 (6%)</td>
</tr>
</tbody>
</table>

### Table – IV. Long-Term follow-up upto 6 months

<table>
<thead>
<tr>
<th>S#</th>
<th>Complications</th>
<th>Females (n=11)</th>
<th>Males (n=39)</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pain</td>
<td>1(9.09%)</td>
<td>Not seen</td>
<td>Up to 02 months</td>
</tr>
<tr>
<td>2</td>
<td>Wound</td>
<td>Not seen</td>
<td>Not seen</td>
<td>00</td>
</tr>
<tr>
<td>3</td>
<td>Anal Stenosis</td>
<td>Not seen</td>
<td>Not seen</td>
<td>00</td>
</tr>
<tr>
<td>4</td>
<td>Recurrent Hemorrhoids</td>
<td>Not seen</td>
<td>Not seen</td>
<td>00</td>
</tr>
</tbody>
</table>

Graph I. Earlier post operative Complaints after Stapled Hemorrhoidectomy:
Different forms of analgesia & anesthesia have also been used. Furthermore postoperative antibiotics to reduce infection have been shown to be effective in reducing postoperative pain. In our study to avoid postoperative pain and infection analgesics & antibiotics were used for its reduction and were successful. The absence of open wound & subsequent potential infection at the perianal area helps reduce postoperative pain following SH. Moreover, wound care is not necessary, as the staple line lies in the rectum.

Several randomized control trials have previously shown that pain scores are significantly lower in patients with SH as compared to those undergoing conventional hemorrhoidectomy. Shorter hospital stays as well as a more rapid return to normal activities have also been reported. This is similar to our study where pain was very low and got settled within hours except one patient who took three days to settle down. In our study only one female patient developed persistent post operative pain which was probably due to application of stapler at dentate line.

A study by Law WL et al, confirms that SH is a safe procedure, without the presence of serious complications, there was no early hemorrhage. This patient was conservatively treated. In our study, there were no serious complications of hemorrhage or readmission after procedure.

Ho YH proposed that interrupting the superior hemorrhoidal vascular supply in the SH resulted in external prolapsed skin tags shriveling during the postoperative period, which was seldom perceived as a problem by their patients. In our study there was only one female patient whose redundant skin did not disappear throughout the follow-up i.e. until six months. Giano et al in a mean follow-up of 16 months observed that self-reported skin prolapse was more common in SH group.

More recently Racalbuto showed, in the long-term follow-up at 48 months that SH was found to control prolapse, discharge & bleeding, with no stenosis or significant incontinence, in 94% of cases. In our study, the outcome of symptoms of prolapse, bleeding mucus discharge got controlled 100% after SH. There are only very few published reports on the long-term outcomes of the SH procedure.

CONCLUSION

SH is an effective surgical procedure for the treatment of 3rd degree hemorrhoids. There are strong evidences that SH provides less postoperative pain than other procedures as well as earlier mobility. In our experience, SH is the treatment of choice for third degree hemorrhoids in hospitalized patients in properly selected patients.
REFERENCES


SHORT COMMUNICATION

Frequency of Head and Neck Lesions According to Histopathologic Diagnosis

Arsala Urooj,1 Talat Mirza,2 Anwar Ali,3 Mohammad Akbar Agha4 and Salik Rasool1

ABSTRACT

Retrospective study is conducted to determine the frequency of head and neck lesions histopathological diagnosis and to contribute in base line data of head and neck lesions at DDRRL/OJHA campus, Karachi. The study includes data from 2nd February 2008 to 31st December 2010. The most common head and neck lesions affecting male 53.9% (n=758) and female 46.04% (n=647). Patients of all age group are included. Both incisional and excisional biopsies are included and previously diagnosed lesions on the basis of histopathology are excluded. Among 1,405 head (n=860) and neck (n=545) biopsies, Squamous cell carcinoma was 399. The most frequently affected site of oral cavity was right buccal mucosa with OSCC. Thyroid goiter was most commonly reported neck lesions. This study showed that premalignant lesion was less commonly submitted biopsies as compare to malignant lesions.

Key words: Histopathologic diagnosis, head and neck pathologies, oral squamous cell carcinoma.

INTRODUCTION

Majority of head and neck lesions are squamous cell carcinomas (SCC). It is the 6th most common cancer worldwide.1-2 The peak rate of occurrence of oral cancer had been reported in South and South-east Asia.3 Oral Squamous cell carcinoma (OSCC) is the most common oral cancer in Pakistan.4 The incident of OSCC in Karachi is the highest reported worldwide,5 whereas non neoplastic lesions also affect the patient’s daily life and well being. Obtaining histopathologic diagnosis via biopsy is the gold standard to diagnose any suspicious pathologic lesion. These lesions may hinder the normal functions of patient, may progress to cancerous lesions and may result in mortality after a period of time.

Head and neck lesions include pathologies from anatomic sites such as oral cavity, nasal sinuses, upper airway (including nose, pharynx and larynx), eye, ear, scalp, salivary glands and neck. Among many pathologies of head and neck only most frequent are discussed. Oral mucosal lesions include ulceration, dysplasia, OSCC, pleomorphic adenoma of salivary gland and pyogenic granuloma. Whereas neck lesions include the most commonly affected thyroid gland and lymph nodes.

MATERIAL AND METHODS

Total 1405 biopsies were submitted at Dow Diagnostic research and Reference Laboratory (DDRRL), OJHA campus, Karachi. This retrospective study included data from 2nd February 2008 to 31st December 2010. Both incisional and excisional biopsies were submitted from all large government tertiary hospitals such as Civil Hospital Karachi, Jinnah Post Graduate Medical centre Karachi, Dr. Ishrat-ul-Ebad khan institute of oral health sciences and Bantwa hospital Karachi. The data is analyzed on the basis of age, gender and site involved. Age is further subdivided into groups. For head lesions the sub-sites included both upper and lower jaws, tongue and cheek, both upper and lower lips, right and left buccal mucosa, eye, nose, ear, forehead and scalp. For neck lesions sub-sites included sub-mental area, sub-mandibular area and thyroid, lateral sides of neck and back of neck.

No recurrent and in-situ lesions were included. Histopathological diagnosis was done according to the WHO criteria for the respective diseases. SPSS version 16.0 statistical software was used for data entry and analysis. Frequency and percentages for head and neck lesions, gender, sites and biopsy were calculated.

1/3 Department of Oral Pathology/Department of Oral and Maxillofacial Surgery, Dr. Ishrat-ul-Ebad Khan Institute of Oral Health, Dow University of Health Sciences, Karachi, Pakistan.
2/4 Department of Histopathology/Department of Pathology, Dow International Medical College, Dow University of Health Sciences, Karachi, Pakistan.

Correspondence: Dr. Arsala Urooj, MDS Trainee, Department of Oral Pathology, Dr. Ishrat-ul-Ebad Khan Institute of Oral Health, Dow University of Health Sciences, Karachi, Pakistan.
Email: arsala_u@hotmail.com

70
RESULTS

Eight hundred and sixty patients were reported with head lesions whereas 545 biopsies were reported from neck. Age range was 1.5 years to 80 years of age. The most affected age group with head and neck lesions is less than 30 year with 41.4% (n= 582). Age group of 31 to 40 years are 19.3% (n=271) affected whereas 41 to 50 years are 18.1% (n=255). Age group 51-60 years is 13.6% (n=191) and age group of 61 and above is 7.5% (n=106) affected. Fifty four percent (n=758) of patients were male and 46% (n=647) of patients were female.

Head lesions: Among 860 head lesions the most commonly reported was oral squamous cell carcinoma (OSCC) 38.8% (n=334). Histopathology grading of OSCC was well differentiated OSCC 63.4% (n=212), moderately differentiated 30.5% (n=102) and poorly differentiated OSCC was 5.9% (n=20). Age group of 41 to 50 years was 29.9% (n=99) affected with OSCC (table 3). The most frequently affected site was right buccal mucosa 8.6% (n=74). The second most common affected site was tongue 8.4% (n=73). Whereas the third and fourth common affected sites were left buccal mucosa (7.6%) and lower lip (2.4%) respectively. Male were more affected 65.2% (n=218) than females 34.7% (n=116). Other reported variants of OSCC were verrucous hyperplasia 1.1% (n=4), keratinizing type was 0.8% (n=3) and spindle cell carcinoma was 0.5% (n=2).

The second most common head lesion was polyp 11.5% (n=99), which was most commonly affecting nose 74.4% (n=74) whereas palate (3%) and maxilla (3%) were second most affected sites. Thirty years and less age group was 59.6% (n=59) and the second most affected group was 31 to 40 years 19% (n=19). Male 60.6% (n=60) and females were 39.4% affected. Precancerous lesions included dysplasia of mucosal epithelium was 2.1% (n=18). Other head lesions included hyperplastic epithelium reported up to 5.1% (n=44). About 2% (n=17) of chronic ulceration was noted at different sites of oral cavity. Tuberculosis was also affecting 0.2% (n=2) of patients. Pyogenic granuloma (5%) was affecting 1.9% (n=27) male and 1.13% (n=16) of females. Other vascular lesions include hemangiomas which were 2.7% (n=23).

Biopsies submitted from salivary glands were reported as mucocele 1.2% (n=10), sialadenitis 0.7%. Parotid gland and sub-mandibular gland were affected with pleomorphic adenoma about 2.7% (n=23), warthin’s tumor (0.1%). Malignant lesions affecting salivary glands included adenocarcinoma 0.3% (n=3), mucoepidermoid carcinoma 0.6% (n=5) and myoepithelial carcinoma was 0.2% (n=2).

Neck lesions: Thyroid gland is 34.5% (n=188) affected among the all neck lesions and male to female ratio is 1:6.2. Thyroid goiter is 53.1% (n=100), thyroid hyperplasia is 22.3% (n=42), thyroid adenoma is 12.2% (n=23). Whereas carcinoma of thyroid is 10.6% (n=20) and females (n=15) are most commonly affected. Tumors metastasize thyroid from other sites are 1.1% (n=2). Thyroid was also affected with 1.1% (n=2) of SCC.

The second most frequently affected neck gland was lymph-nodes 33.5% (n=183), which are affected with tuberculosis 26.2% (n=143). Lymph nodes of right side of neck was 13.02% (n=71) affected whereas left side of neck 11.7% (n=64), submandibular region 1.2% (n=7) and submental region was 0.18% (n=1) affected with tuberculosis. Chronic non-specific inflammation of lymphnodes were reported 2.2% (n=12). Squamous cell carcinoma was 11.9% (n=65) and reactive changes in lymphnodes in association with SCC was 5.9% (n=32). In submandibular region pleomorphic adenoma was 0.6% (n=3), sialadenitis was 2.6% (n=14). Other uncommon head and neck lesions were also reported (Table 3).

Table 1: Male and female patients affected with head and neck lesions

<table>
<thead>
<tr>
<th>Gender</th>
<th>Head lesions</th>
<th>Neck lesions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>546</td>
<td>212</td>
<td>758</td>
</tr>
<tr>
<td>Female</td>
<td>314</td>
<td>332</td>
<td>647</td>
</tr>
<tr>
<td>Total</td>
<td>860 (61.2%)</td>
<td>545 (38.8%)</td>
<td>1405 (100%)</td>
</tr>
</tbody>
</table>

Table 2: Oral Squamous cell carcinoma affecting age groups

<table>
<thead>
<tr>
<th>Age group</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 years and less</td>
<td>50</td>
<td>15.0</td>
</tr>
<tr>
<td>31-40 years</td>
<td>65</td>
<td>19.5</td>
</tr>
<tr>
<td>41-50 years</td>
<td>99</td>
<td>29.6</td>
</tr>
<tr>
<td>51-60 years</td>
<td>77</td>
<td>23.1</td>
</tr>
<tr>
<td>61 years and above</td>
<td>43</td>
<td>12.9</td>
</tr>
<tr>
<td>Total</td>
<td>334</td>
<td>100.0</td>
</tr>
</tbody>
</table>
DISCUSSION

Oral and pharyngeal cancers accounts for the third most common cancers in developing countries. In this study OSCC was found most common in 41 to 50 year age group 29.6% (n=99). The second age group was 51 to 60 year 23.1% (n=77). Male to female ratio is 1.8:1. This is same as compared to most of the other studies, as reported by Hindle, Sugarman et al.

According to Llewellyn CD et al SCC is not so frequent in young patients. Only 1% to 6% of SCC cases occur in patients under the age of forty, being the occurrence in children and adolescent extremely rare. However in this study, patients under 30 years of age were reported as 15% (n=50). This shows that the incidence of oral cancer among younger patients has markedly increased in our country. Another study of OSCC by Haq et al, patients under 40 years were reported as 15% (n=21).

In a study by Munoz AT, 63% of male with mean age of 45.5 years were affected with nasal polyps.

Whereas in this study nasal polyps affect 33.3% of less than 30 years male about 60.6% (n=60). In a study from Allahabad, India, dysplastic lesions were reported as 3.5% (n=41) where as in this study dysplastic epithelium was 2.1% (n=18). According to Al-Mobeerik in 2009, oral ulcers were 1.9% (n=48).

In this study oral ulcers were 2% (n=17) at different sites of oral cavity. In a retrospective study pyogenic granuloma is 19% (n=148) which was affecting 18% (n=56) of male and 20% (n= 92) of female. In this study pyogenic granuloma 5% (n=43) was affecting 1.9% (n=27) male and 1.13% (n=16) of females. Vascular lesions include hemangiomas which were 2.7% (n=23) whereas in other study hemangiomas were 0.9%.

In 10 year retrospective study pleomorphic adenoma reported as the commonest benign salivary gland lesion. In this study pleomorphic adenoma affecting collectively was 1.8% (n=26). In a retrospective study at Jinnah postgraduate it was reported that carcinoma of thyroid are most common in females as compare to male. In this study it was reported that female to male ratio of thyroid carcinoma is 3:1. Squamous cell carcinoma is 11.9% (n=65) and reactive changes in lymph nodes in association with SCC is 5.9% (n=32).

In submandibular region pleomorphic adenoma is 0.6% (n=3), sialadenitis is 2.6% (n=14). Other sub-sites of neck are reported with hyperplasia of about 0.9% (n=5), 2.3% (n=13) brachial cyst are reported. Benign lesions of neck include lipoma 1.8% (n=10), 0.6% (n=3) fibroma. Tumor metastasizing to other neck sub-sites are 0.73% (n=4).

Tuberculosis accounted for maximum incidence in the age group 10-30 years with male to female ratio of 1:1.7. In this study female were more affected than males in almost all age groups. Cervical lymph node metastases from primary unknown site constitute about 2-5 %. In this study cervical lymphnode metastasis from unknown origin is 0.74%.

<table>
<thead>
<tr>
<th>Table 3: Other uncommon Head and Neck pathologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head lesions</td>
</tr>
<tr>
<td>Fibrous epulis</td>
</tr>
<tr>
<td>Squamous papilloma</td>
</tr>
<tr>
<td>Lipoma</td>
</tr>
<tr>
<td>Basal cell carcinoma</td>
</tr>
<tr>
<td>Metastasis</td>
</tr>
<tr>
<td>Ameloblastoma</td>
</tr>
<tr>
<td>Schwannoma</td>
</tr>
</tbody>
</table>

Figure 1: Frequency of Head and Neck Lesions
CONCLUSION

The most common head and neck lesions are OSCC. However due to delay in clinical diagnosis of precancerous lesion, there is only small number of dysplastic epithelium cases are reported.

The important observation which need to be considered here and also in other studies is the development of OSCC in young age group which require health policy makers to check for the development of factors like paan, gutka, chalia. Thyroid nodular goiter is the common histopathological lesion of neck. Tuberculosis is still the most prevalent disease of neck lymph nodes. SCC is had become the third most common lesion of neck. Further studies need to be designed to develop a complete clinic-pathologic correlation of these histopathological head and neck lesions. Some of the results of this study are according to the published literature, whereas the remaining results are different from published literature. Further nationwide studies based on clinico-pathologic correlation are needed for further define baseline data for head and neck lesions.

Acknowledgement: We are thankful to Dr. Rafique Khanani, Professor Pathology, Director Dow Diagnostic Complex, OJHA Campus Karachi, Sindh.

REFERENCES


INTRODUCTION

Oral diseases like periodontal disease, dental disease and related oral mucosal lesions are major public health concerns worldwide although there has been an improvement in oral health but the problem still persists on a global scale.\(^1\)

Numbers of diseases are linked with food habits, environmental and life-style factors. One of those is tobacco consumption which is considered as a primary cause of many oral diseases and adverse oral conditions. Tobacco is chewed, smoked, sucked and sniffed killer. Globally, tobacco product production is decrease in high income countries but constantly increasing in low income countries. Hence, “Tobacco is the single greatest cause of non-communicable disease and is likely to produce a world pandemic”.\(^2\)

Around 2500 chemical constituents are present in raw or processed tobacco. Causing carcinogenesis, depression, irritation, impaired oxygen transport, tumour and toxicity the research on polycyclic hydrocarbons in tobacco chew, adds to the evidence that it contains 28 carcinogens that cause oral cancer and pancreatic cancer.\(^3,4\) Besides oral cancer, tobacco chewing also leads to oral soft tissue lesions like oral sub-mucous fibrosis, leukoplaia, lichenoid lesions mainly on buccal mucosa or tongue.\(^3,4\)

This study was design to evaluate the oral health status among the tobacco chewers, its harmful effects in oral cavity, primarily on periodontal structures in an urban population of Karachi.

METHODS

This cross-sectional study was done among the apparently healthy subjects reporting to the Out Patient Department (OPD) of Oral Medicine Diagnosis and Radiology (OMDR) in the Karachi Dock Labour Board Building (KDLB), Kemari Karachi.

A purposive sampling of 120 individuals coming to this Dental College cum tertiary care hospital was selected for this Study. The subjects were divided into 2 groups: tobacco chewers (n=60) and non-tobacco chewers (n=60) in age groups from 25 to 55 years. This age limit was selected as the root formation is expected to get completed by 25 years and below 55 years.

Excluded patients were smokers in control and chewer groups, subjects of age less than 25 years and older than 55 years, diabetics, subjects using antibiotics, Non-steroidal anti-inflammatory drugs and steroids for any systemic disease, edentulous patients, patients with HIV/AIDS.

The materials used were mouth mirror; community periodontal index treatment needs (CPITN) probe, William’s periodontal probe, gauze piece, tweezers, cotton holder, kidney tray, autoclave, dental chair, OPG-X-ray machine (Helsinki Finland), X-ray viewer, Digital Calliper.

A structured questionnaire based case history format of data collection was used. A detailed clinical oral examination was performed for the assessment of periodontal status that is to measure the pocket or probing depth. [PD] [\(<4\text{mm}, 4-5 \text{mm or } =6 \text{mm or } >6 \text{mm}\)], the bleeding on probing [BOP], no. of teeth present in the mouth, tooth mobility (grade I, II, III), clinically visible caries, calculus in all the 120 subjects along with a radiographic examination for studying the total marginal bone-loss in a special study sample of 60 subjects (30 tobacco chewers and 30 non-tobacco chewers).

Informed Consent was taken after imparting sufficient information; if the patient desired to be a part of the study then his consent (signature or thumb impression) was recorded in the informed consent form. Statistical analysis was done by applying SYSTAT version 10 by Cranes Software. Chi-square test at 5% and 1% level of significance were applied to see the association and correlation between two or more than two variables. \(Z\)' test of difference between two sample means at 5% and 1% level of significance is applied to compare quantitative variables in the study.
RESULTS

A total of 120 subjects participated in the study. This study was carried out in Out Patient Department (OPD) in the Department of Oral Medicine Diagnosis and Radiology (OMDR) in the KDLB. The samples were selected by Purposive random sampling method as the duration of the study was 3 months that is from mid February 2010 to mid April 2010.

All the 120 subjects responded to the questionnaire out of which 61 were males and 59 were females. In tobacco chewer group, 31 were males while 29 were females. In non-tobacco chewer group, 29 were males while 31 were females. In tobacco chewer group, in age limit from 25-40 years, there were 13 males and 16 were females, in age limit from 41-55 years, 18 were males and 13 were females while in non-tobacco group, in age limit from 25-40 years, 17 were males and 18 were females, in age limit from 41-55 years, 12 were males and 13 were females (table1).

Table 1: Age and sex wise distribution of the patients under study

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Group A: Tobacco chewers (n=60)</th>
<th>Group B: Non-Tobacco chewers (n=60)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>25-40</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>41-55</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>29</td>
</tr>
</tbody>
</table>

Table 2: Shows the comparison of mean values of parameters DMF and DMFT in tobacco chewers and non tobacco chewers group

<table>
<thead>
<tr>
<th>Tobacco chewer group (n = 60) Mean ± SD</th>
<th>Non-tobacco chewers group (n=60) Mean ± SD</th>
<th>Z test value</th>
<th>“p” values</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.34 ± 1.27</td>
<td>1.44 ± 1.40</td>
<td>0.24</td>
<td>p&gt;0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>4.09 ± 3.39</td>
<td>2.27 ± 0.75</td>
<td>3.37</td>
<td>p&lt;0.01</td>
<td>Highly Significant</td>
</tr>
<tr>
<td>1.14 ± 1.08</td>
<td>1.19 ± 0.97</td>
<td>0.54</td>
<td>p&lt;0.05</td>
<td>Not Significant</td>
</tr>
<tr>
<td>5.80 ± 4.53</td>
<td>3.12 ± 3.01</td>
<td>3.82</td>
<td>p&lt;0.01</td>
<td>Highly Significant</td>
</tr>
</tbody>
</table>

(Table 3) By applying Chi-square test for Oral Mucosal Lesion (OML) we compared status of Tobacco and Non-tobacco chewers and it was found p<0.05.

Table 3: Distribution of oral mucosal lesions in tobacco chewer and non tobacco chewer group

<table>
<thead>
<tr>
<th>Oral mucosal lesion status</th>
<th>Tobacco chewer (n=60)</th>
<th>Non-tobacco chewer (n=60)</th>
<th>Total (n=120)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral sub mucous fibrosis</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Leukoplakia</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Lichen planus</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Tobacco pouch</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>3</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 4: Comparison of mean values of parameters Bleeding on probing, Calculus, Shallow pocket and Deep pocket in Tobacco and Non-tobacco chewer group

<table>
<thead>
<tr>
<th></th>
<th>Tobacco chewer (n=60)</th>
<th>Non-tobacco chewer (n=60)</th>
<th>“Z” value</th>
<th>“p” value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus</td>
<td>57 mm</td>
<td>32 mm</td>
<td>5.42</td>
<td>p&lt;0.01</td>
<td>Highly significant</td>
</tr>
<tr>
<td>Shallow pocket</td>
<td>31 mm</td>
<td>11 mm</td>
<td>11.23</td>
<td>p&lt;0.01</td>
<td>Highly significant</td>
</tr>
<tr>
<td>Deep pocket</td>
<td>10 mm</td>
<td>2 mm</td>
<td>8.98</td>
<td>p&lt;0.01</td>
<td>Highly significant</td>
</tr>
<tr>
<td>Bleeding on probing</td>
<td>60 mm</td>
<td>50 mm</td>
<td>0.41</td>
<td>p&gt;0.05</td>
<td>Not significant</td>
</tr>
</tbody>
</table>
DISCUSSION

This study was done to investigate the periodontal conditions and oral symptoms in tobacco chewers and non-tobacco chewers. The present study revealed that there is a significant difference between TC (tobacco chewers) and NTC (non-tobacco chewers) with respect to oral hygiene status but there were no significant differences between TC and NTC with respect to oral hygiene measures adopted. This means that TC has poor oral hygiene status than NTC. TC plays an important role in oral hygiene deterioration. Similar observations were found by other studies, in which effect of chewing tobacco was observed on periodontal tissues and oral hygiene status.

The prevalence of OMLs (oral mucosal lesions) in TC in this study was 30 percent compared to 5 percent in NTC which is similar to 36 percent from an earlier study done in UK resident Bangladeshi community by Ray Croucher et al., who studied oral health of Bangladeshi women who use tobacco with paan. In the present study the incidence of periodontal pocket was significantly higher in TC group compared with NTC. Similar results were found by Shivaswamy who compared periodontal health status in pan chewers with or without use of tobacco. According to Fischer et al., it is reported that smokeless tobacco user has twice more severe active periodontal disease compared to non-tobacco user. Synders et al., reported that use of tobacco products exacerbates periodontal disease. While Girish Parmar et al., stated that there is deterioration of periodontal conditions with periodontal pocket formation in TC compared to NTC.

In the present study it is seen that TC has more tooth loss status compared to NTC which is similar to a previous study done by Neely et al., who studied the effects of betel nut and tobacco in periodontal disease. The limitations in study need to be recognized. The sample was small (n=60+60) which reflected a short time period to conduct this study. Due to the exploratory nature of the study, the duplication of oral examination was not possible. Due to lack of time and funding the radiographic cross-checking examination was limited to a sample of 30+30.

Differences in disease risks due to smokeless tobacco used in different parts globally reflect differences in toxicity of products that are available in market. Smokeless tobacco is being consumed worldwide. It is sold either by large manufacturers or in locally produced in cottage industries. All nicotine delivery products need to be regulated, smokeless tobacco products to be regulated by controlling its constituents.

Upper limit must be set for NNN and NNK nitrosamines. The combined concentration of NNN and NNK in smokeless tobacco must be 2ug/gm of dry tobacco wt. Regulators must fully inform the consumers that like cigarettes, smokeless tobacco products meeting safety standards are still hazardous for health and they should publicize test results that influence user behaviors. Expiry dates and refrigeration norms must be strictly followed.

CONCLUSION

This study concludes that tobacco chewing causes deleterious effects on oral tissues, teeth and enhances the risk of periodontal disease.

REFERENCES

Awareness and Adherence to Occupational Therapy among Doctors in a Tertiary Care Hospitals

Farida Kamran,1 Abdul Malik,2 Sarwat Malik,1 Shahidda Z. Khan1 and Birgitte Kamran1

INTRODUCTION

Patients with disability in Asia are estimated between 5-10% of the population1 and in Pakistan estimated ratio of disability is 9.5% of population (JICA “Country Profile on Disability: Pakistan” March 2002).2 Disability has become a stigma in Pakistan and the needs of disabled include lack of reliable epidemiologic data, inadequate funding, poor health infrastructure and work force shortage.3 Thus comprehensive rehabilitation is integral to the attainment of a better quality of life for disabled persons and Physical Medicine and Rehabilitation is the branch of medicine that presents today’s best Physiatrist knowledge and techniques that is ideal for whole rehabilitation team.4

Occupational therapy has been recognized as an important ingredient of rehabilitation. The prime focus of Occupational therapy in patients is to develop independence in Basic Activities of Daily Living (BADL) and Instrumental Activities of Daily Living (IADL).5 The core practice of occupational therapy is the integration of multi-level variables into workable, effective and sustainable solution for the individual, groups or community within a bio-psycho-social and spiritual context. Occupational therapy as a discipline has grown and matured with the time.6 Occupational Therapy was introduced in Pakistan with the help of WHO in 1971 and so far there are only two institutes which are offering training program in occupational therapy. Both are located in Karachi. First school was established in 1971 at Jinnah Post-graduate Medical Center in affiliation with the University of Karachi. The second school of occupational therapy was established in 2007 as a sub-department of Institute of Physical Medicine and Rehabilitation and is affiliated with Dow University of Health Sciences.

With the aim of promoting occupational therapy in Pakistan where the number of persons with disability occupies a significant portion, the rationale of this study is to assess the awareness of occupational therapy services among doctors (pediatricians, neurologists, physicians, orthopedic surgeons) who as specialists in the clinical field play an important role in identifying and referring patients for rehabilitation. In Pakistan, there is a wide gap and majority of doctors are not familiar with the importance of occupational therapy. However, no study has been conducted so far to the best of our knowledge which highlights the significance of this awareness among doctors in Pakistan. It is hoped that this study will help in bridging the gap.

METHODS

A descriptive study was carried out at the Civil Hospital, Karachi in the month of November 2010. 77 doctors (32 males and 45 females) were reported. Their age ranged from 25 to 55 years (mean age 40 years) and their qualification from MBBS to FCPS. The participants were chosen on the basis of non-probability purposive sampling with their consent. The criterion was that the doctors must be practicing clinicians from the departments of neurology, pediatrics, orthopedic surgery and medicine. They were asked to rate themselves about the knowledge of Physical medicine and Rehabilitation and its services. In addition they were required to respond regarding the usage and referral to occupational therapy. Percentages were calculated to assess the awareness of occupational therapy service among doctors; to estimate the frequency of referrals to occupational therapy and to identify the rationale for minimum referral to occupational therapy. Respondent’s response to questions was taken as scores by using SPSS version 16.0.

RESULTS

Out of 77 respondents 38% were fully acquainted with the service of occupational therapy, 39% of them were not quite aware of the service and 23% were not at all familiar with occupational therapy. Most of the respondents i.e. (70.7%) said that they referred patients for physiotherapy, 10.7% referred for occupational
therapy and only 9.3% referred cases for psychotherapy and speech therapy, respectively. Reasons for the least referral to occupational therapy reflect that 41% of participants were unaware about occupational therapy services, 16.9% were of opinion that occupational therapy is not useful. 8.9% of doctors commented that service is not easily available, 12.5% viewed that patients do not comply with the treatment and 5.4% did not refer patients because of its cost and lack of time respectively. 6.3% were of the opinion that expertise in the field is unavailable. Whereas 3.6% stated the reason is poor literacy rate of patients.

DISCUSSION

Lack of knowledge of Physical medicine and rehabilitation (PM&R) as a matter of fact, has left the patient not to avail this health care service. This descriptive study shows the ratio of usage of Physical medicine and rehabilitation services by doctors of Civil Hospital Karachi. A.R Dawson has also shown the equal importance of rehabilitation along with medical treatment and describes the Physical medicine and rehabilitation as a part of therapeutic regime.7

The result indicates that out of 77 respondents 23% were not familiar with Occupational Therapy at all, 38% were fully acquainted with the service of occupational therapy and 39% had limited knowledge regarding occupational therapy service. This study coincides with the study that concludes that doctors were unclear about occupational therapy as a tool and found it difficult to give clear-cut reasons for referral.5 Evidently in developed countries the awareness is comparatively much more than in Pakistan.

The origin of Physical medicine and rehabilitation in Pakistan dates back to 1960 but the formal training program began only in 1997. Farooq A. Rathore (2011), argued that there are only a few rehabilitation institutes/departments and none have all the standard components of rehabilitation team in Pakistan although Armed Forces Institute of Rehabilitation Medicine is offering these services. As explained earlier the rate of disability has markedly increased recently and the role of PM&R has become significant to enhance the functioning and quality of life of persons with disability. However, very few studies have been conducted among the medical practitioners to study their knowledge, attitude and practise towards PM&R and its services. OT, as a crucial part of PM&R covers a huge gap of ideal situation and to highlight its importance and value in the field of rehabilitation. This study also reveals that doctors have greater knowledge and understanding of Physical Therapy and 70.7% doctors referred patients for Physical Therapy whereas only 10.7% doctors referred patients to occupational therapy. One of the many reasons for least referrals among doctors is that they do not know where the occupational therapy services are available.

RECOMMENDATION

This study has covered the gap between doctors and Occupational Therapists and assessed the awareness and frequency of referral to Occupational Therapy.
The need is to enhance the awareness at public and hospital level, through different programs, in addition to pro-active collaboration between rehabilitation personnel and doctors in clinical field. Further studies are yet to be made on awareness of PM&R particularly Occupational Therapy, in other tertiary care hospitals of Karachi as well. There is also the need to work on reasons for least referrals to OT, highlighted by this research, in order to increase the rate of referral to Occupational Therapy.

Acknowledgement: Authors are grateful to the students of occupational therapy, IPMR, DUHS for their cooperation in the collection of data for this research study.

REFERENCE


7. Dawson AR, Knudson AB. The importance of physical medicine rehabilitation as demonstrated by the experience of the Veterans Administration. South Med J 1948; 41:455-60.
INSTRUCTIONS TO AUTHORS

All materials submitted for publication should be sent exclusively to the Journal of the Dow University of Health Sciences. Work that has already been reported in a published paper or described in a paper sent or accepted elsewhere for publication should not be submitted. However, a complete report following publication of a preliminary report, usually in the form of an abstract, or a paper that has been presented at a scientific meeting, if not published in full in a proceeding or similar publication, may be submitted. Press reports of meetings will not be considered as breach of this rule, but such reports should not be amplified by additional data or copies of tables and illustrations. In case of doubt, a copy of the published material should be included with a manuscript to help the editors decide how to deal with the matter. Dissertation or thesis-based articles should be reformatted according to the instructions to authors.

ETHICAL CONSIDERATIONS

If tables, illustrations or photographs, which have already been published, are included, a letter of permission for re-publication should be obtained from author(s) as well as the editor of the journal where it was previously published.

Written permission to reproduce photographs of patients, whose identity is not disguised, should be sent with the manuscript; otherwise the eyes will be blackened out.

MATERIAL FOR PUBLICATION

The material submitted for publication may be in the form of an Original research, a Review Article, evidence-based reports, Special article, Commentary, Short communication, a Case Report, Recent Advances, New techniques, view points on Clinical/Medical Education, Adverse Drug Reports or a Letter to the Editor. Original articles should normally report original research of relevance to clinical medicine and may appear either as papers or as short communications. The paper should be of about 2000 words, with no more than six tables or illustrations; short communications should be of about 600 words, with one table or illustration and no more than five references. Clinical case reports and brief or negative research findings may appear in this section.

Review article should consist of structured overview of some relatively narrow topics providing background and recent development with reference to the original literature. An author can write a review article only if he/she has written a minimum of three original research articles and some case reports on the same topic.

Letters should normally not exceed 400 words, have no more than 05 references and be signed by all the authors; preference is given to those that take up points made in contributions published in the journal. Editorial are by invitation.

Authors should keep one copy of their manuscript for reference and send three copies (laser copies or inkjet, photocopies are not accepted) to the Managing Editor, Journal of the Dow University of Health Sciences. The author should also submit an electronic copy of the manuscript typed in MS Word. Any illustrations or photographs should also be sent in duplicate. People from outside Pakistan can also e-mail their manuscript.

Each manuscript should include a title page (containing e-mail address, fax and phone numbers of the corresponding author), abstract, text, acknowledgements (if any), references, tables and legends. Each component should begin on a new page, in the following sequence: title page; abstract and at least three key words; text; acknowledgements; references; tables (each table, complete with title and footnotes, should be merged in the manuscript); and legends for illustrations.

The manuscript should be typed in double spacing as a single column on 8 1/2"X 11" (21.5cm X 28.0 cm) white bond paper with one inch (2.5cms) margin on both sides. It should not exceed 3000 words, excluding tables and references. There should be no less than 20 or more than 40 references in an Original Article and no less than 40 or more than 60 in a Review Article. If prepared on a word processor / computer, the diskette, properly protected, or CDs should be sent with the manuscript.
TABLES AND ILLUSTRATIONS

Tables and illustrations should be merged within the text of the paper and legends to illustrations should be typed on the same sheet. Tables should be simple and should supplement rather than duplicate information in the text; tables repeating the information will be omitted. Each table should have a title and be typed in double space without horizontal and vertical lines on an 8 1/2” X 11” (21.5 X 28.0 cms) paper. Tables should be numbered consecutively with Roman numerals in the order they are mentioned in the text. Page number should be in the upper right corner. If abbreviations are used, they should be explained in footnotes and when they first appear in text. When graphs, scatter grams, or histograms are submitted, the numerical data on which they are based should be supplied. All graphs should be merged in the manuscript. For scanned photographs highest resolution should be used.

S.I. UNITS

System International (S.I.) Unit measurement should be used. All drugs must be mentioned in their generic form. The commercial name may, however, be mentioned within brackets, if necessary.

FIGURES AND PHOTOGRAPHS

Figures and photographs should only be sent when data cannot be expressed in any other form. They must be unmounted, glossy prints in sharp focus, 5” X 7” (12.7X17.3 cms) in size. They may be in black and white or color.

Negatives, transparencies and X-ray films should not be submitted. The number of the figures, the name of the author(s) should be printed on the back of each figure/photograph.

The top of the figure must be identified by the author. These figures and photographs must be cited in the text in consecutive order. Legends must be typed on the same paper. Legends for photomicrographs should indicate the magnification, internal scale and the method of staining. Photographs in published articles will not be returned.

REFERENCE NUMBERING AND FORMAT

References should be numbered in the order in which they are cited in the text. At the end of the article, the full list of references should give the names and initials of all the authors. (If the authors are more than 6, then et al. should be followed after the 6th name). The author(s) names are followed by the title of the article; title of the journal abbreviated according to the style of the Index Medicus (see "List of Journals Indexed," printed yearly in the January issue of Index Medicus); year volume and page number; e. g.: Hall RR. The healing of tissues by CO2 laser. Br J Surg: 1971;58:222-5. (Vancouver Style). Reference to books should give the names of editors, place of publication, publisher and year. The author must verify the references against the original documents before submitting the article.

PEER REVIEW

Every paper will be read by the staff editors of the editorial board. The papers selected will then be sent to one or more external reviewers. If statistical analysis is included, further examination by a statistician will be carried out.

ABSTRACT

Abstracts of original article should be in structured format with following sub-headings:

i. Objective, ii. Design, iii. Patients & Methods, iv. Result, v. Conclusion. Four elements should be addressed: why did you start? what did you do? what did you find? and what does it mean? Why did you start is the objective. What did you do constitutes the methodology and should include design, setting, patients or other participants, interventions and outcome measures. What did you find is the results and what does it mean would constitute your conclusions. Please label each section clearly with the appropriate sub-headings. Structured abstract for an original article should not be more than 250 words.

Review article, case report and other requires a short, unstructured abstract. Commentaries and short communications do not require abstract.

INTRODUCTION

This should include the purpose of the article. The rationale for the study or observation should be summarized; only strictly pertinent references should be cited; the subject should not be extensively reviewed. Data or conclusions from the work being reported should not be presented.
METHODS

Study design and sampling methods should be mentioned. Obsolete terms such as retrospective studies should not be used. The selection of the observational or experimental subjects (patients or experimental animals, including controls) should be described clearly. The methods and the apparatus used should be identified (with the manufacturer's name and address in parentheses) and procedures described in sufficient detail to allow other workers to reproduce the results. References to established methods should be given, including statistical methods; references and brief descriptions for methods that have been published but are not well-known should be provided; new or substantially modified methods should be described, giving reasons for using them and evaluating their limitations. All drugs and chemicals used should be identified precisely, including generic name (s), dose (s) and route (s) of administration.

RESULTS

These should be presented in a logical sequence in the text, tables and illustrations. All the data in the tables or illustrations should not be repeated in the text; only important observations should be emphasized or summarized.

DISCUSSION

The author's comment on the results, supported with contemporary references, including arguments and analysis of identical work done by other workers. A summary is not required. Brief acknowledgement may be made at the end.

CONCLUSION

Conclusion should be provided under separate heading and highlight new aspects arising from the study. It should be in accordance with the objectives.

REPRINTS

Ten copies of each published article shall be provided to the corresponding author free of cost.

COPYRIGHT

Material printed in this journal is the copyright of the JDUHS and cannot be reproduced without the permission of the editors or publishers. Instructions to authors appear on the last page of each issue. Prospective authors should consult them before sending their articles and other material for publication. The JDUHS accepts only original material for publication with the understanding that except for abstract, no part of the data has been published or will be submitted for publication elsewhere before appearing in this journal.

The Editorial Board makes every effort to ensure the accuracy and authenticity of material printed in the journal. However, conclusions and statements expressed are views of the authors and do not necessarily reflect the opinions of the Editorial Board or the DUHS. Publishing of advertising material does not imply an endorsement by the DUHS.

Address for correspondence:

The Editor, Journal of the Dow University of Health Sciences, Department of Research, Baba-e-Urdu Road, Karachi-74200, Pakistan.
Tel No. 021-99215754-57 Ext: 162
Fax No. 9215763
E-mail: jduhs@duhs.edu.pk
Website: www.duhs.edu.pk
DOW UNIVERSITY OF HEALTH SCIENCES
KARACHI-PAKISTAN

www.duhs.edu.pk