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ORIGINAL ARTICLE

Oral or nasal breathing; preferred breathing pattern for endodontics

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ABSTRACT

Objective: The objective of study was to explore the relationship of breathing and pain during endodontic therapy.

Materials and methods: 500 patients who presented in the department of operative dentistry were included in the study. Numeric pain scale was used to document the pain perceived during endodontic therapy. Results were analysed using SPSS version 23.

Results: Among the 500 cases, 250 cases presented with mild pain, 158 presented with moderate pain while 92 presented with severe pain. 55.4% cases were of nasal breathers while 44.6% cases were of oral breathers.

Conclusion: Patients presenting with nasal breathing pattern reported with mild pain perception during endodontic therapy when compared to patients who were oral breathers. Considering life style modifications like breathing patterns, body hydration and sleep impact the patient's life and pain management during endodontic therapy. Educating patients on proper breathing and its benefits will have positive outcome on endodontic therapy.

Keywords: Oral breathing, nasal breathing, pain perception, endodontics.

INTRODUCTION

Endodontic therapy although being a multifactorial process has proven to show success rate of 86-98%.[1] Advancement in endodontic materials and techniques have improved the treatment success rates. When we consider that factors that are associated with dental patients life style play a major role in the outcome of endodontic therapy. Administration and efficacy of local anaesthesia play a significant role in success of endodontic therapy. The anxiety and fear during endodontic therapy may be a reason for increased pain perception of pain during endodontic procedures. Breathing during the endodontic procedure effect the outcome of the endodontic procedure. The way one breaths impacts the body physiology and that impacts the perception of pain and the outcome of endodontic procedure.[2]

Therefore a strong association exists between simple physiological phenomenon like breathing and its impact on complex, multifactorial processes like endodontics.[3,4] Predominantly patients with oral breathing style are irritable, stressed out and fatigued as compared to nasal breathers who are much relax and calm during stressful situations like endodontics. Studies have also proven that less amount of endogenous adrenaline is released in nasal breathers that contributed to reduced anxiety during stressful situations.[5,6] While other studies have proven that oral breathers have more pain perception during dental procedures.[5-9] So, there is a need to explore the relationship of breathing and pain during endodontic therapy.

MATERIAL AND METHODS

A total of 500 endodontic patients were enrolled in our study. Their age range was between 15 to 70 years. Medically compromised and psychiatric patients were excluded. Approval was taken from the ethical committee of Islam Dental College, Sialkot. A written consent was signed from each patient. The operators followed a designed protocol for endodontic access, root canal orifices identification, cleaning and shaping of the root canals. Inferior alveolar nerve block technique was used by same operator for anaesthetising the teeth. Numeric pain scale was used. 0 with no pain, 1-3 mild pain, 4-7 moderate pain, 8-10 severe pain. Each patient was explained about documenting the pain intensity. Immediately after performing the access opening, orifice identification and cleaning and shaping of the root canal was performed, the perceived pain score was measures and documented.

RESULTS:

Out of 500 patients, 206 (41.20%) cases were male and 294 (58.80%) cases were female.

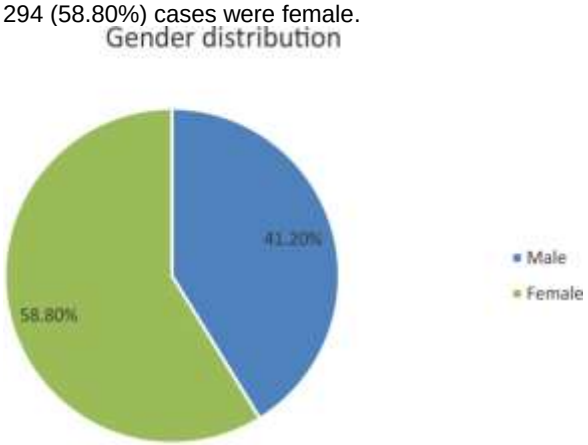
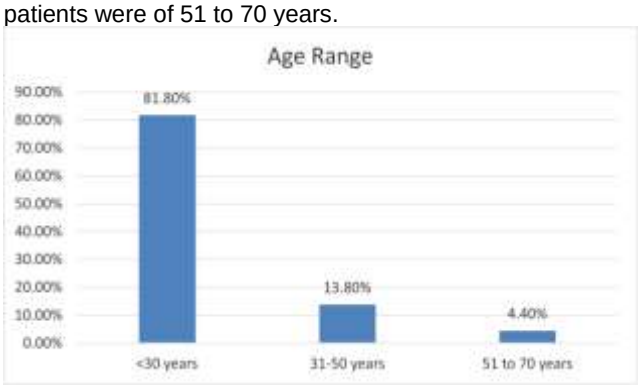


Figure 1| Gender wise Sample distribution

Among total of 500 cases, 223 cases were oral breather while 277 were nasal breathers. Age distribution of cases included in the study ware, 81.8 % patients below 30 years, 13.8% between the age range of 31 to 50 years while 4.4% patients were of 51 to 70 years.



Graph 1| Age wise data distribution

Overall, Patients presenting with mild pain (pain range 1-3) were 250, moderate pain was reported in 158 patients while severe pain was reported in 92 cases.

Comparing oral and nasal breathing patterns and their relation to pain revealed that 51 cases with nasal breathing style presented with mild pain while 199 oral breathing style presented with mild pain, 145 patients with nasal breathing style presented with moderate pain while only 13 patients with oral breathing style presented with moderate pain, 81 patients with nasal breathing style presented with severe pain while 11 patients with oral breathing style reported with severe pain.

Table 1| Breathing and its association with pain

	Numeric Pain Scale		
	Mild Pain (1-3)	**Moderate Pain (4-6)**	**Severe Pain (7-10)**
Nasal Breathing	51	145	81
Oral Breathing	199	13	11

A statistical significant correlation occurs between breathing pattern and pain perceived during endodontic therapy (r= -.619, P=.001) with a moderate effect size.

	Breathing	**Numeric Pain Scale**
Breathing	1	-.619**
Numeric Pain Scale		1

DISCUSSION

Endodontic therapy is a painful, multifactorial process, many factors come into play during endodontic therapy. Achieving effective local anaesthesia is often the only perceived painful part during endodontic therapy.[1,3,4] Multiple factors play a significant role in endodontic treatment outcome. Multiple studies have assessed variables that might influence the outcome of the process possibly involving speed of injection,[10] tissue handling by the operator and even the temperature of the anaesthetic agent used.[13] Simple life style modifications are much better an approach to reduce the stress and anxiety during endodontic treatment.[6-8] Nasal breathing is a natural phenomenon when compared with oral breathing. Breathing through nose stimulates parasympathetic system that reduces the heart rate and release less adrenaline[9] .Our body respond quite differently to whether air comes into body through nose or mouth. Predominant nasal breathing relaxes our body including increases of CO_2 saturation in blood, which creates a calming effect.[11] Cycle of hemisphere dominance controlled by closing nostrils and forcibly breathing through another nostril.[14-15] Studies have shown that coaching patients appropriate breathing techniques have profound positive impact on treatment outcomes.[9,12,16] Diaphragmatic breathing style helps improves tissue oxygenation.[9] This is simple, safest cheapest, most accessible handle to control pain and fear during stressful procedures in dentistry.[9,11]

In our study, nasal breathers reported with mild pain in 51 cases, moderate pain in 145 cases and severe pain in 81 cases, while oral breathers presented with mild pain in 199 cases, moderate pain in 13 cases and severe pain in 11 cases only. Contrary to what our hypothesis was that nasal breathing is a preferred method of improving body physiological responses and improved pain control during endodontic procedures our findings suggested that in this study oral breathers presented with much less pain and but there exists a statistical significant relationship between breathing patterns and pain perception during endodontic therapy. The correlation between the pain and breathing was found to be of -.619, which is of statistical significance.

Keeping in view the results of our study, we can devise measures to ensure patient oral breathing is maintained to facilitate preoperative and intra-operative pain management.

If there is any obstruction in breathing, measures should be taken to facilitate breathing. Simple measures to enhance breathing style and habits can also make positive effect on general body health and in decreasing factors that impact anxiety and stress management along with efficient pain control during endodontic therapy.

In our study the evidence shows that oral breathing pattern had significant impact on pain control during endodontic treatment. Improved breathing patterns will not only improve the outcome of endodontic treatment but it has positive impact on the overall health of our patients. Simple acts of recall and installing proper breathing habits will have positive impacts on our patient life style and endodontic treatment outcome.

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