

EFFECTIVENESS OF TWO GENERATIONS OF ROTARY FILES VERSUS MANUAL FILES IN PULPECTOMY OF PRIMARY MOLARS (RANDOMIZED CONTROLLED CLINICAL TRIAL)

Nayer A. Abdel Rahman ^{1*} MSc, Aly A. Sharaf² PhD, Laila M. El-Habashy² PhD

1. Master in Pediatric Dentistry, Department of Pediatric Dentistry and Dental Public Health, Faculty of Dentistry, Alexandria University, Alexandria Egypt

2. Professor of Pediatric Dentistry, Department of Pediatric Dentistry and Dental Public Health, Faculty of Dentistry, Alexandria University, Alexandria Egypt

*Corresponding author

INTRODUCTION

In pediatric dentistry, the treatment duration plays a significant role in determining the success of the procedure. The decreased treatment period decreases the anxiety levels in children thereby creating positive behavioral attitude.

With the goal of accomplishing a high quality treatment within a limited period, use of rotary instrumentation had been introduced in pediatric dentistry (1).

Kedo-S rotary files are exclusively developed pediatric rotary files with four generations available designed by Dr. Ganesh Jeevanandan (2).

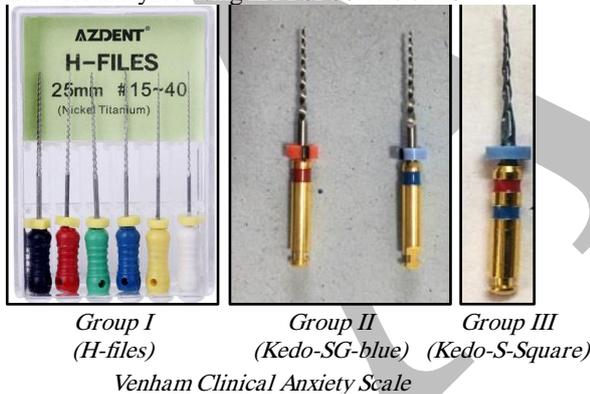
This study was conducted to comparatively record the instrumentation time between two generations of Kedo- S files (3rd and 4th generations) and manual H-files groups and to assess the anxiety levels in children using Venham’s Clinical Anxiety Scale (VCAS).

METHODOLOGY

This randomized controlled clinical trial comprised of 93 children aged 4 - 6 years having maxillary or mandibular second primary molars indicated for pulpectomy treatment. Children were randomly allocated to three groups, group I was shaped by Stainless steel H-files (n=31), Group II was shaped by D1 and E1 Kedo-SG-blue rotary files (n=31), and group III was shaped by P1 Kedo-S-Square rotary file (n=31).

Root canal instrumentation time was recorded in seconds using stopwatch by trained dental assistant. The instrumentation time included only the total active instrumentation period of the files (3). Children behavior during the procedures was assessed by using Venham’s Clinical Anxiety Scale (VCAS) (4) which is 6-point scale used to describe child’s anxiety in details and provide more information about pediatric patients with negative and disruptive behavior with the lowest score (0) denoting the lowest anxiety levels and the highest score (5) indicating the highest anxiety levels.

Data were analyzed using IBM SPSS version 23.



Rating	Definition
0	Total cooperation, best possible working conditions, no crying or physical protest.
1	Mild, soft verbal protest or (quiet) crying as a signal of discomfort, but does not obstruct progress. appropriate behaviour for procedure, i.e., slight start at injection, “ow” during drilling if hurting, etc.
2	Protest more prominent. both crying and hand signals. may move head around making it hard to administer treatment. protest more distracting and troublesome. however, child still complies with request to cooperate.
3	Protest presents real problem to dentist. complies with demands reluctantly, requiring extra effort by dentist.
4	Protest disrupts procedure, requires that all of the dentist’s attention be directed toward the child’s behaviour. compliance eventually achieved after considerable effort by dentist, but without much actual physical restraint. (may require holding child’s hands or the like to start). more prominent body movement.
5	General protest, no compliance or cooperation. physical restraint is required.

RESULTS AND DISCUSSION

Figure (I) highlights a significant difference between the three study groups regarding the instrumentation time (p <0.001). H files had the longest mean (SD) instrumentation time (155.48 (8.77)), followed by Kedo SG (137.32 (17.10)), and Kedo S2 (81.58 (4.47)).

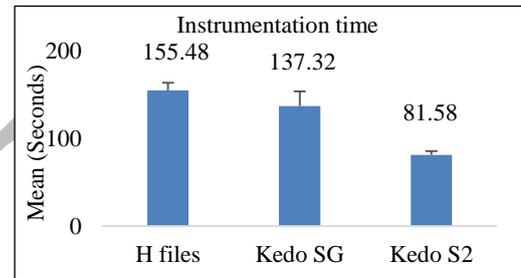
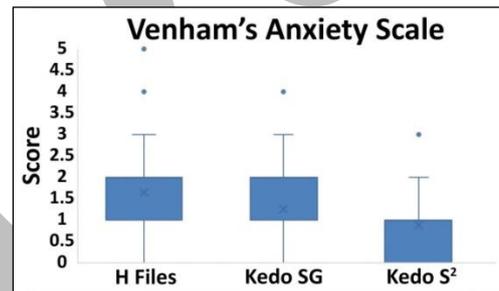


Figure (II) showed a significant difference between the three study groups regarding the Venham anxiety scale (p= 0.010). The H files group showed the highest median (Min-Max) anxiety score (1.00 (0.0 – 5.00)), followed by Kedo SG blue group (1.00 (0.0 – 4.00)), and Kedo S² (1.00 (0.0 – 3.00)). Post-hoc comparisons showed significant differences between the H files group and Kedo S² groups, but no significant differences between Kedo SG and Kedo S² groups.



CONCLUSION

Rotary files groups demonstrated significant reduction in the instrumentation time than manual files.

The lowest anxiety levels were observed in children treated with rotary files compared to children treated with the manual file systems.

ACKNOWLEDGMENT

Appreciation goes to Prof. Dr. Aly Sharaf and Prof. Dr. Laila El-Habashy. Also my deepest gratitude to Dr. Hams Hamed.

REFERENCES

- Barr ES, Kleier DJ, Barr NV. Use of nickel-titanium rotary files for root canal preparation in primary teeth. *Pediatr Dent* 2000; 22: 77–78.
- Lakshmanan L, Mani G, Jeevanandan G. Assessing the quality of root canal filling and instrumentation time using kedo-s files, reciprocating files and k-files. *Braz Dent J*, <https://bds.ict.unesp.br/index.php/cob/article/view/1822> (2020).
- Jamali Z, Najafpour E, Ebrahim Adhmi Z, et al. Does the length of dental procedure influence children’s behavior during and after treatment? A systematic review and critical appraisal. *J Dent Res Dent Clin Dent Prospects* 2018; 12: 68–76.
- Sahebalam R, Rafieinezhad R, Boskabad M. Comparison of the efficacy of jilo animation approach versus conventional Tell-Show-Do (TSD) technique on cooperation and anxiety levels of children during dental practice: A randomized controlled clinical trials. *J Dent (Shiraz)* 2020;21:284-291.