INTRODUCTION

Decalcification is a process of complete removal of calcium salt from mineralized tissues like bone, teeth and other calcified tissues. Various age old methods are followed to achieve decalcification and our study is aimed to know the merits and demerits of automated method of decalcification in comparison to the manual method.

AIM

1) To compare between manual and automated methods of decalcification.

OBJECTIVES

1) To decalcify extracted teeth specimens by manual method of decalcification (Group A).
2) To decalcify extracted teeth specimens by automated method of decalcification (Group B).
3) To compare group A and group B.

MATERIALS AND METHODS

Eighty extracted teeth specimens were decalcified by manual (n=40) and automated (n=40) methods of decalcification, using 8% formal nitric acid. After determining the end point of decalcification by radiographic and chemical methods, the decalcified teeth were then processed, sectioned and stained with Haematoxylin and Eosin (H &E) stain and compared for the following parameters namely, duration of decalcification, ease of sectioning (easy, difficult, very difficult), appearance of dentinal structure (clear, not clear), H&E staining properties of dentin, pulp, cementum (adequate, understained, overstained) and dentin-pulp integrity (good, moderate, poor). Chi square test was employed for statistical analysis and p value < 0.05 was considered statistically significant.
RESULTS

Duration of days taken for decalcification is less in automated method (4.1 days) than in manual method (7.4 days). Ease of sectioning shows no difference between manual and automated methods of decalcification (p=0.559). There is no difference in the observation of dentinal structures between the two methods (p=0.073). H&E staining in dentin, pulp and cementum are more satisfactory in manual method of decalcification. Under staining is the most commonly seen demerit after automated method of decalcification. Dentin - pulp integrity is preserved better in manual method of decalcification than in automated method (p=0.004).

CONCLUSIONS

We recommend automated method of decalcification in the histopathological practice for time bound diagnosis and prolonged water wash after automated method of decalcification may improve the H&E staining. Manual method shows good dentin – pulp integrity and better H&E staining properties. Further studies in larger scale are recommended.