Original Article

Restorative Material of Choice for A Moderately Sized Class I Cavity in a Lower Permanent Molar

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ABSTRACT

Objective: To study dentist related factors affecting choice of restorative material in a moderately sized, simple class I cavity on a permanent molar.

Study Design: Cross sectional / descriptive study

Place and Duration of the Study: This study was carried out at Jinnah Medical and Dental College between February 2015 to July 2015

Materials and Methods: Dentists from public and private sectors were requested to respond to a self administered questionnaire regarding their choice of restorative material for a moderately sized class I cavity in a permanent molar.

Results: 66%, 54% and 16% of the dentists graduating in the years 2011-2015, 2006-2010 and 2001-2005 respectively chose amalgam. Whereas, 31%, 35% and &73% graduating in the same years preferred composite. 38% of the dentists practicing privately and 69% of dentists working in institutional setup selected amalgam.66% of female dentists selected amalgam and 30% chose composite. In contrast, 43% of male dentist selected composite and 44% chose amalgam.

Conclusion: The dependable blend of enduring service of amalgam with its cost effectiveness makes amalgam a better choice for posterior teeth in our settings. (Pakistan)

Key Words: Class I cavity, amalgam, composite, restorative material, choice

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INTRODUCTION

One of the major reasons that patients present to the Dental OPD is the restoration of cavitated lesions. The size of the cavity may range from small to large with extensive loss of tooth structure. The location of the lesion may also vary. G.J. Mount defines a moderately sized lesion as having sufficient sound tooth structure that can maintain integrity of the remaining crown and accept occlusal loads. He calls this a size 2 cavity. According to his site and size classification, a moderate sized cavity on pits and fissures of a lower molar would be a site1 size 2 classification.[1]

The choice of restorative material depends on various factors including dentist related factors. These factors were identified from the literature[2,3].

Two most preferred direct restorative materials for posterior restorations include amalgam and resin composite. The durability of amalgam restorations is twofold higher than composite. This could be due to the certain de-merits of composite which include polymerization shrinkage, deficient marginal adaptation, low wear resistance, difficulty in achieving proper proximal contour leading to food impaction, inadequate condensation of composite at the base of the cavity.[4,5] However, there are certain limitations of amalgam as well loss of tooth structure in order to gain retention of the restoration and cutting through the marginal ridges weakens the remaining tooth structure, increasing the likelihood of fracture of remaining tooth substance (mostly buccal and lingual surfaces). Moreover, amalgam does not adhere to the tooth structure. Despite the disadvantages, replacing amalgam with resin-composites is not at all solution to the problem.[6]

The objective of the current study is to determine the dentists related factors that affect the choice of restorative material in a moderately sized class I cavity in permanent first molar.

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MATERIALS AND METHODS

This is a cross-sectional descriptive survey. 377 Dentists from public and private sectors were requested to respond to a self administered questionnaire regarding their choice of restorative material for a moderately sized class I in a permanent molar. First

section of the questionnaire inquired about the respondents demographic data and the second section included questions based on type of practice, year of graduation and the choice of restorative material.

RESULTS

When selection of material was compared with level of experience of the dentist, 66% dentists graduating in the years 2011-2015 selected amalgam and 31% of dentists graduating in the same year selected composite. 54% of dentists graduating in year 2006-2010, however chose amalgam while 35% chose composite. 16% of dentists graduating in year 2001-2005 chose amalgam whereas 73% chose composite.

38% of dentists practicing privately chose amalgam while 49% chose composite. On the other hand 69% of dentists working in institutional setup preferred amalgam and 27% selected composite. Among dentists who worked in both setups 45% selected amalgam and 43% selected composite.

66% of female dentist preferred amalgam over composite for moderately sized Class I occlusal carious lesions. A smaller proportion 30% however, chose composite. In contrast, 43% of male dentist chose composite over amalgam while 44% chose amalgam over composite.

DISCUSSION

Dental amalgam has served as an outstanding restorative material for several years, in spite of periods of debate. The discussion to fill amalgam or not in dentistry is very old. Though, with the availability of composite resins the dispute in literature appears to be shifting towards indications of replacement of amalgam.[7]

In a web-based survey Rosenstiel found out that amalgam restorations were among those restorations that could survive for more than 20 years[8]. Bharti etal have suggested that if economics becomes the reason for choice of restorative material, amalgam can be considered the material of choice.[9,10] Nascimento in assessing dentists' choice of restorative material for posterior teeth found that composite resin was considered the first choice.[11]

In the current study 38% of dentists practicing privately and 69% of dentists working in institutional setup preferred amalgam. In US and other countries, dental institutes are still educating about the contra-indications for using composite in posterior teeth[12], and contemplating amalgam use for posterior teeth[13]. Not only that, the practitioners also prefers amalgam for posterior restorations.[14] In a local study done in Lahore, Ahmad and colleagues found out that class I tooth preparations were mostly restored with amalgam (twice that of resin composite) followed by resin composite, Glassionomers/Cermet and Compomer[15]. Interestingly, despite the decline in the use of amalgam in some institutes it is still accepted as the best choice for restoring molars and premolars.[16]

A Brazilian study found out that the use for amalgam increased with years of experience. Beachle also found out that dentists who graduated after 1980 were slightly more inclined towards composite restorations. Kopperrd concluded in his study that young dentist prefer to conserve the tooth structure and hence their material of choice is composite.[17] This is in contrast with the current study in which 66% of the dentists graduating after 2010 preferred amalgam whereas only 16% of the dentists who graduated in year 2001-2005 chose amlagam. The reason appears to be related to economics, and longevity of restoration as still being focused by some institutions.

Parolo et al and Beachle concluded in their study that for both direct and indirect restorations, tooth colored restorations were selected more frequently than non tooth colored restorations. Beachle also found out that even though female dentists indicated aesthetic restorations slightly greater than male dentists, gender based selection of restorative material was not statistically significant.[18] Advancement in composites, improved training over time, curricular revisions and most of all, increasing demands for aesthetic from patients, may have led to a shift towards preferring composites for moderately sized class I restorations.[19,20] On the contrary, in our study 66% of the female dentist selected amalgam and 30% chose composite.

CONCLUSION

The dependable blend of enduring service of amalgam with its cost effectiveness makes amalgam a better choice for posterior teeth in our settings. (Pakistan)

Conflict of Interest: The study has no conflict of interest to declare by any author.

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