

RESEARCH SUMMARY

A survey of amalgam restorations in Taiwan

Factors associated with amalgam restorations in Taiwan

Suh-Woan Hu, Li-Chiu Yang and Hsing-Yi Chang *Br Dent J* 2002; 193: 411–414

Objective

This study investigated the prevalence of and factors associated with amalgam restorations of posterior teeth in Taiwan.

Method

The authors analyzed the dental data regarding direct restorations of posterior teeth from the National Health Insurance Research Database of 1997, which was the first nationwide data available. The chi-square test and analysis of variance was used to compare the characteristics of the teeth, patients, dentists, and dental treatment settings between amalgam and composite restorations. The multivariate analysis was applied to obtain the Generalized Estimating Equation estimation for associations of multiple factors with amalgam restorations, taking into account the intra-individual correlation of teeth restored.

Results

Amalgam was used in 53.3% of the direct restorations of posterior teeth. When all the important factors were assessed simultaneously, characteristics significantly associated with more amalgam restorations were: dentists aged 43 years and above, patients aged 1–22 years, primary molars, two- or three-surface cavity, regions with higher number of population served per dentist, and dental clinic.

Conclusion

Doctors' age, patients' age, type of dental treatment settings, population served per dentist, type of tooth, and number of surfaces restored were significantly associated with amalgam restorations in Taiwan.

IN BRIEF

- The study examined the use of amalgam for restoring posterior teeth in an Asian country using the nationwide health insurance database.
- Amalgam was still chosen as the filling material in half of the direct restorations of posterior teeth.
- Amalgam was more likely to be used for primary molars, in younger patients, by older dentists, and in dental clinics compared to hospital settings.
- Since teeth from the same individual are correlated in some ways, it is important to use statistical analysis taking into account the intra-individual correlation.

COMMENT

In this paper, the authors report on the analysis of data from the National Health Insurance Database of 1997 which contains information of almost all direct tooth restorations done in Taiwan.

Until recent times dental amalgam has been regarded as the material of choice for the restoration of posterior teeth. However the authors have noted in other studies that amalgam was used in less than 50% of direct restorations over the past 10 years.

For the purpose of the study, only amalgam and composite resin restorations for posterior teeth were included in the analysis. For various reasons including missing or inconsistent values, some of the information available was not used and the results refer to 10,492 amalgam and 6,618 composite resin restorations placed by 4,035 dentists in 10,274 patients.

The prevalence for the placement of amalgam restorations in Taiwan was 53.3%, which is similar to values reported for the UK, but much higher than in the Scandinavian countries of Sweden (21%) and Norway (25–32%).

From the analysis it was shown that amalgam was more likely to be used in primary and permanent molars and composite was used more frequently in lower teeth or premolars. One-surface cavities were more likely to be filled with composite resin than two or more surface cavities.

Dentists over the age of 43 were found more likely to place amalgam than their younger colleagues. This finding is consistent with previous studies in which older dentists used more amalgam than younger colleagues.

The ratio of patients to dentists varies considerably throughout Taiwan and compares unfavourably with Iceland, Japan and the US. It ranges from 1,282 patients per dentist in the largest city to 10,869 in rural communities. The results showed that where the ratio of patients to dentists exceeded 4,350, there was a greater tendency to use amalgam.

The authors admitted certain limitations including lack of information regarding cavity classification, and whether treatments were directed towards primary or secondary caries. Furthermore the attitudes of both patients and dentists towards the use of amalgam could not be evaluated.

The results of this study are interesting, and are in keeping with my own unscientific observations that current dental students would prefer to have composite resin used in the restoration of their own teeth 'because it looks better'. Older practitioners may favour amalgam because they perceive that its longevity is superior to composite. On the other hand there may be a reluctance to change from a material they were taught to use during their student career to one that they would have had to learn how to handle by themselves.

E. R. Smart, Lecturer in Restorative Dentistry,
The School of Dental Sciences, University of Newcastle upon Tyne