

ATRAUMATIC RESTORATIVE TECHNIQUE

Dental care for older adults



BACKGROUND

Older adults contribute to the high prevalence of caries in the world because of the increased number of teeth they retain, gingival recession that exposes root surfaces, decreased salivary flow, and limited manual dexterity that adversely affects efforts to achieve oral hygiene. As people age, they often become less able to come for dental care, with the result that they suffer untreated disease that causes pain and tooth loss, compromises oral function, and diminishes their quality of life. Often older adults express a desire for simpler treatment plans that don't require traveling to see the dentist, which may be beyond their abilities. Atraumatic Restorative Treatment (ART) has been suggested as an alternative method for caries management appropriate for older adults. It is simpler and less costly than conventional dentistry and can be delivered in a variety of settings. Good survival rates have been achieved with ART in the permanent teeth of young adults, levels of dental anxiety are diminished, the techniques are well received, and the treatment has proved to be cost-effective, especially when performed by ancillary dental team members. Although these outstanding results have been documented, many dentists are reluctant to use ART routinely in adult patients. The current literature on ART's results in older adults is limited by a short follow-up period. A randomized controlled clinical trial was undertaken to investigate the survival rates of ART compared to conventional restorations in older adults over a follow-up period of 5 years.

METHODS

The 99 patients who participated were randomly assigned to receive ART or conventional treatment (CT), which included anesthesia, rotary instrument use, and resin-modified glass ionomer restorations. Treatment was delivered in the Cork University Dental School and Hospital (CUDSH) and in St. Finbarr's Geriatric Day Hospital, Ireland. Restorations were evaluated after 6 months and 1, 2, and 5 years. Cumulative survival was estimated for each interval between the assessments.

RESULTS

Sample Characteristics

Three hundred restorations (142 ART and 158 CT) were placed in the 99 patients, whose mean age was 73.2 years (range 65 to 90 years). Mean decayed, missing, filled tooth (DMFT) score at baseline was 27, with a mean of 15.8 teeth present per patient.

For 91.8% of the patients, general health was good. Seventy-five percent of the patients had no problems with mobility, and 95.8% were able to perform daily activities of self-care. Most were not regular dental patients and only consulted the dentist when they were in pain.

The majority of restorations placed involved a single surface. However, both treatment groups placed a large percentage on root surfaces (45.2% and 41.4% for the ART and CT groups, respectively), but mesial/distal, buccal/lingual, and occlusal/incisal restorations were also placed. Patients indicated that they would prefer to receive dental treatment without anesthesia (64.5%) and would like to have no drilling (71.1%).

At the 5-year follow-up visit, 28 patients were available, with 13 in the CT and 15 in the ART group. Mean age was 69.9 years; the mean age of those lost to follow-up was 74.3 years). The surviving group had an average of 18 teeth present and 2.8 decayed dental units compared to 14.9 teeth present and 3.1 units in the group lost to follow-up. The differences did not reach statistical significance.

Restoration Survival

After 6 months, 6 patients (20 restorations) were lost to follow-up, so survival was calculated for 280 restorations in 93 patients. Among the ART group, 29% of the failures occurred in the first 6 months, 18% in the 6- to 12-month period, 43% in the 12- to 24-month interval, and 2% in the 24- to 60-month interval. Of the

Clinical Significance

ART to manage older adults' dental needs appears to achieve rates of success comparable to those with CT. In addition, ART characteristics meet many of the requests of older adults, specifically not requiring anesthesia or drilling. When good patient acceptance is considered along with the outcomes comparable to conventional management techniques, it appears to make sense to consider using ART when restoring the carious lesions of older adults, particularly those who require care delivered outside of the traditional clinical setting.

CT group, 18% failures occurred in 0 to 6 months, 18% in 6 to 12 months, 64% in 12 to 24 months, and 11% in 24 to 60 months. The cumulative probability of survival was 85% for the ART group and 79% for the CT group. Statistical analysis showed treatment had no effect on survival.

DISCUSSION

The cumulative probability of survival for the two approaches was comparable. ART restorations had a slightly higher survival

rate, indicating that it is no worse than CT and may be slightly better.

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CARIES AND SYSTEMIC HEALTH

Veterans with dental caries



BACKGROUND

Dental caries has been ranked as the most prevalent condition of the 50 most common diseases worldwide. This reflects a huge unmet need, which might be somewhat attributable to a lack of access to care and the aging of the population. Dental caries in adults increases with increasing age, which may be related to systemic comorbidities or the use of more medications, among other factors. The Department of Veterans Affairs (VA) keeps comprehensive electronic health records that allow the combined evaluation of those containing dental treatment details and those dealing with medical treatment (inpatient or outpatient), pharmacy records, and laboratory test results. Using these data, various clinical questions may be answered regarding issues that can inform clinical practice and yield better patient care. Veterans who receive dental care through the VA tend to be more dentally impaired and have more medical complexities than the general population. However, the databases allow one to estimate the prevalence of dental caries in a cohort of new continuous and comprehensive care outpatients over the course of 5 years and can help determine if there are relationships among dental caries prevalence, prescription medication use, and medical comorbid conditions.

METHODS

A retrospective analysis was performed using the existing VA data, noting number of teeth treated that had a caries-related diagnosis, outcomes in number of teeth per person, and proportion of patients receiving caries-related treatment. Teeth per person with caries-related treatment were also considered in the light of covariates, such as age, gender, race, ethnicity, physical and mental comorbidities, use of prescription medications, and use of prescription drugs with strong anticholinergic properties.

RESULTS

The study population of 95,850 patients included 14,527 (13.2%) who were edentulous; 92.1% were male. The mean age was 58.7 years. White/Caucasian persons accounted for 73.2%, whereas Black/African American accounted for 21.3% of the sample. The mean numbers of physical comorbidities and mental comorbidities were 3.6 and 1.4, respectively. A mean of 10.6 prescription VA drug classes and 0.6 prescription drugs with strong anticholinergic properties were being taken per person.

The main outcome was number of teeth per person receiving caries-related treatment. Of the 95,850 dentate persons, 58% received caries-related treatment over the 12-month prevalence period. The average was 2.17 teeth per person that received caries-related treatment. The most common was direct restoration (1.55 teeth per person in 48% of the population), followed by indirect restorations (0.16 teeth per person in 10% of the population). Posterior teeth were treated more often than anterior teeth regardless of the treatment delivered. The most common caries-related code for restorations was caries extending into dentin; for extractions, the most common code was caries extending into pulp.

The number of teeth per person that required caries-related treatment increased with age. Those age 55 to 64 years and those age 65 to 74 years had the highest demand for treatment. When mean number of teeth treated per region of the United States was considered, no clear geographic patterns were seen.

The mean number of physical comorbidities for the entire veteran population was 3.6, with the mean number of mental