AMONG ELDERLY PATIENTS, SURVIVAL OF RESTORATIONS PLACED USING ATRAUMATIC AND CONVENTIONAL METHODS SHOWN TO BE SIMILAR IN A RANDOMIZED CLINICAL TRIAL


Background. Dental caries among dentate elderly patients is relatively common, and management of caries in the elderly can be challenging because of concomitant medical conditions, cognitive impairment, institutionalization, and cost. Atraumatic restorative treatment (ART) is an alternative method of restoring dental caries that consists of using hand instruments to break through the enamel as needed, removal of soft caries with hand excavators, acid conditioning, and restoring the tooth by using a high-viscosity glass-ionomer cement. In contrast to conventional restorative treatment, local anesthetic and rotary instruments are not used, and complete excavation of all carious dentin is not an objective. The purpose of this study was to compare the 2-year survival of restorations placed using ART with conventional restorations in partially dentate elderly patients.

Methods. The authors recruited partially dentate patients (aged 65 to 90 years) from the Cork University Dental Hospital and a geriatric day hospital in Cork, Ireland, who required restorative treatment for at least one dentinal carious lesion. Patients in the geriatric day hospital were generally more systemically ill and older because they received medical care at the geriatric day hospital. Ninety-nine patients were assigned randomly to receive restorative treatment with either ART or conventional restorations in partially dentate elderly patients.

Results. Two years after placement, the authors reported that there was no statistically significant difference in the overall survival rate of ART restorations (85%) compared with that of conventional restorations (91%). da Mata and colleagues concluded that use of ART was as effective as conventional restoration techniques in terms of restoration survival in older adults. They also concluded that ART could be useful for providing restorative care for older adults, especially in nonclinical settings such as nursing homes.

Why is this study important? This is an important study because the number of older people is increasing, and many are retaining their natural teeth for a lifetime. Restoration of dental caries in the elderly can be challenging because of physical or mental impairment or other constraints. Conventional restorative methods may not be possible or practical for many elderly patients. This randomized clinical trial’s results showed that cost-effective and practical treatment methods such as ART may offer viable alternatives to conventional restorative care for the elderly.

NO ASSOCIATION FOUND BETWEEN STRUCTURAL CHANGES IN THE TEMPOROMANDIBULAR JOINT AND PAIN, FUNCTION, OR DISABILITY


Background. Surgery sometimes is performed in an attempt to correct structural changes in the temporomandibular joint (TMJ) of people who have painful temporomandibular disorders (TMDs). The purpose of this cross-sectional study was to determine whether advanced structural changes in the TMJ were associated with jaw pain, jaw function, and disability.

Methods. The investigators used magnetic resonance imaging and computed tomography to evaluate the intra-articular condition of the TMJs in 614 patients who had a diagnosis of TMD to determine whether there were statistically significant correlations between intra-articular joint changes and jaw pain, jaw function, or disability.

Results. The authors found no statistically or clinically significant correlations between clinical findings of pain, function, or disability and intra-articular TMJ changes that were observed by means of magnetic resonance imaging and computed tomography.

Why is this study important? This is an important study because the finding that pain, function, and disability were not associated with structural changes in the TMJ raises questions about the advisability of performing surgery to correct intra-articular TMJ changes in patients who have painful TMDs. However, this was a cross-sectional study, and such studies cannot be used to establish cause and effect. As the authors noted, other models of TMJ intra-articular changes and longitudinal studies are needed to confirm the findings of this study.
PARTICIPATION IN PRACTICE-BASED RESEARCH IS ASSOCIATED WITH CHANGE TO EVIDENCE-BASED TREATMENT OF EARLY DENTAL CARIES


**Background.** Evidence-based dental practice is based on translation of scientific knowledge into clinical practice. An often-cited statistic is that it takes an average of 17 years for new knowledge generated by randomized controlled trials to be incorporated into the clinical practice in medicine.1 As noted by the authors of this study, participation in practice-based research networks (PBRNs) may encourage translation of clinical evidence into dental practice. In this study, the authors examined the relationship between participation in the National Dental PBRN2 and adoption of current evidence for treatment of dental caries among dentists in a large group practice.

**Methods.** The investigators used dental restoration data obtained from the electronic dental records of 35 dentists in a large group practice in Minnesota. They retrospectively assessed the participation of dentists in the PBRN and their concordance with current evidence for the treatment of early caries from 2005 to 2011.

**Results.** Rindal and colleagues reported that 103,235 treatments for dental caries were identified from 2005 to 2011 in the electronic dental records. Caries were treated by placing restorations (n = 65,710) or by using non-restorative treatment (mineralization or fluoride), with the goal of arresting or remineralizing early caries (n = 37,525). Overall, the investigators found that use of restorations decreased from 79.5% in 2005 to 47.6% in 2011 and that dentists who were engaged in the PBRN used restorations less often. The authors concluded on the basis of clinical data that “PBRN engagement was associated with practice change that was consistent with current evidence on the treatment of dental decay.” Moreover, they reported that there was a “spillover effect” in decreased use of restorations for treating early decay to dentists who were not engaged in the PBRN but who practiced in the same clinics as dentists who participated in the PBRN.

**Why is this study important?** This study is important because the investigators used actual clinical data to show that a change in practice, concordant with current evidence for treatment of early dental caries, was associated with participation in a PBRN. A strength of the study is that it included a large number of observations for each dentist over a period of years. However, associations do not necessarily reflect cause and effect. As the authors pointed, this study had several limitations, including its retrospective design, use of the electronic dental record that may not have reflected clinical conditions accurately, missing data, a limited number of dentists (n = 35), and a lack of data regarding patient preferences.

**SEX DIFFERENCES IN DENTAL CARIES MAY BE INFLUENCED BY GENES**


**Background.** Genetic factors account for a substantial portion of the variance in dental caries among people. Moreover, as the authors of this study note, there are prominent differences in caries between the sexes, with female patients usually being at greater risk for caries than male patients. The purpose of this study was to explore the interactions of genes and sex on dental caries.

**Methods.** The authors conducted a large family study involving more than 2,600 people from 740 families in Pennsylvania and West Virginia. Participants were aged from 1 to 93 years. Dentists or research dental hygienists used calibrated methods to assess dental caries in each person. Statistical methods were used to test for evidence of an interaction between genes and sex.

**Results.** Shaffer and colleagues reported that they observed evidence for significant gene-by-sex interactions for caries in both the primary and permanent dentitions. The magnitude of effect of genes was greater in males than in females, and the authors reported that, in the permanent dentition, different genes may have important roles in both males and females.

**Why is this study important?** This study is important because it provides additional evidence for a genetic role in the etiology of dental caries. As the authors point out, it is clear that both genetic and environmental factors are important in the etiology of dental caries. However, this research provides the first direct evidence that differences in dental caries risk between males and females may be explained partially by gene-by-sex interactions. The authors also noted that the specific mechanism of this interaction is unknown and could be due to physiological, behavioral, environmental, or other differences between males and females.
VISUAL SCREENING FOR ORAL CANCER IS IMPORTANT


**Background.** Oral cancer is a devastating disease that can result in severe morbidity or death. The authors of this study point out that early detection of oral cancer has the potential to decrease the morbidity and mortality of oral cancer in people at high risk of developing cancer. They noted that visual and tactile clinical examination remains the most common procedure for detecting oral mucosal lesions. The authors also stated that, although this examination requires only 90 seconds, many healthcare providers do not conduct a thorough oral mucosal examination. The purpose of this study was to estimate the prevalence of oral potentially malignant disorders and identify the associated risk factors in a large dental population in the United States.

**Methods.** This study's investigators used data from 3,142 patients aged 18 to 97 years who received a comprehensive oral examination in the Oral Medicine and Oral Diagnosis clinics at the Henry M. Goldman School of Dental Medicine in Boston, MA. Patients suspected of having potentially malignant lesions, including submucous fibrosis, oral lichen planus, leukoplakia, and erythroplakia that did not resolve in 2 to 3 weeks, underwent biopsy to obtain a definitive diagnosis for the lesions. The authors used statistical methods to explore the association of potentially malignant oral disorders and various risk factors.

**Results.** The authors reported that 4.5% of the patients had an oral lesion and 0.9% had a potentially malignant lesion. Increased age, current smoking, and being male were associated with having a potentially malignant lesion. Villa and Gohel concluded that, although potentially malignant lesions in the oral cavity are relatively uncommon, the results help confirm the importance of dentists' conducting a thorough screening for oral lesions.

**Why is this study important?** This is an important study because it serves as a reminder that potentially malignant oral lesions can be identified with brief but thorough visual and tactile examination of the oral cavity that should be included as part of every dental examination.