Scherer and colleagues (2015) reported on a study that sought to investigate the potential ability of template-guided drilling to aid in compensating for the inevitable irregularities of manual working procedures on the part of the handler. The researchers described drilling tests carried out using guidance templates as well as free-hand drilling procedures and compared the results of experienced against inexperienced handlers.

**MATERIALS AND METHODS**

The drilling experiments were carried out in a total of 24 fresh cadaveric porcine mandibles taken from three-year-old animals, which were divided into four groups. Mandibles in group 1 (n = 6) underwent the free-handed drilling actions of persons without surgical knowledge and poor operating experience in mechanical drilling. Group 2 (n = 6) consisted of the same operators, but this time performing drilling actions with the help of template guidance. Group 3 (n = 6) saw free-handed drilling actions performed by highly experienced oral and maxillofacial surgeons. In group 4 (n = 6), these professionals were performing drilling actions with support of template guidance. Each of these four experimental groups comprised three operators. Every jawbone underwent a total of five drilling actions of a single operator. Results were thus obtained for 15 drilling actions per operator, and a total of 180 drilling actions could be analysed.

Prior to each experiment, porcine mandibles were cleaned of adherent soft tissue. Specimens were separated in half by sawing, one section was placed on a drilling platform and the assembly securely clamped in a phantom head. An electric drilling instrument with continuous saline cooling was used. Drilling actions for preparation of monocortical implant anchorage were carried out according to the surgical protocol suggested by the drill manufacturer (Bego, Bremen, Germany). Template-guided drilling was provided using Plexiglas gauges with embedded guiding sleeves. Into these guiding sleeves, spoons with a precise drilling channel could be clamped in a twisting motion, ensuring a stable positioning. The load-bearing structure of the Plexiglas gauge itself was anchored with screws to the jawbone for maximum resistance of distortion. Drills were
2. The relationship between resting arterial blood pressure and oral postsurgical pain


Postoperative pain is a common feature of most surgical procedures performed in the oral cavity, such as endodontic treatment, tooth extractions, or periodontal surgery. In order to identify individuals with a high risk of developing severe postoperative pain, preoperative screening methods have been investigated. These studies have assessed the association between perceived intensity of postoperative pain and patient features, tooth characteristics, and surgery variables but only a few studies have examined the relationship between the cardiovascular system and pain perception in human experimental pain models as well as in acute and chronic clinical pain conditions in the orofacial region.

Early experimental data demonstrated an inverse association between blood pressure (BP) levels, electrical dental pain thresholds and pain tolerance levels. More recently, the same significant inverse association between resting BP and acute postoperative pain was observed in patients undergoing nonsurgical root canal therapy. Interestingly, in patients with chronic orofacial pain, elevated resting BP levels were found to be associated, not with decreased sensitivity to acute pain as in healthy individuals but rather with increased sensitivity. Deshaumes and colleagues (2015) from France reported on a study that sought to examine the relationship between resting BP (primary outcome), demographic features of patients, anatomical characteristics of the extracted teeth, surgery variables (secondary outcomes), and acute postsurgical pain in patients undergoing tooth extraction.

In general, very high significances ($p \leq 0.001$) were observed between inexperienced free-handed drilling actions (group 1) and the performance of template-guided drilling (group 3 and 4).

CONCLUSIONS

The researchers concluded that template-guided drilling procedures lead to significantly enhanced accuracy compared to free-handed drilling actions were achieved, irrespective of the clinical experience level of the operator.

CLINICAL IMPLICATIONS FOR PRACTICE

These results provide evidence that Template-guided drilling procedures lead to a more predictable clinical diameter. These results need to be confirmed in clinical studies.

Reference

MATERIALS AND METHODS

In this prospective observational study, consenting adult patients undergoing ambulatory tooth extraction for pericoronitis, caries, periapical lesions, or orthodontic purposes were enrolled in this study.

All extractions were performed under local anaesthesia using a standardised technique. For impacted or submucosal teeth, the procedure included gingival incision, mucoperiosteal flap elevation, and ostectomy of the contiguous bone with a bur under irrigation, when necessary. About half of the extracted teeth were third molars. All patients received mouth rinses with an antiseptic (chlorhexidine 0.12 %) three times a day for 7 days after the surgery. All patients were prescribed postoperative analgesics (NSAIDS, tramadol or paracetamol, alone or in combination with opioids), but they were instructed to take the drugs only if required. An oral antibiotic was prescribed in case of infected teeth or after a large osteotomy.

To each surgical procedure, there corresponded one observation. Demographic features were weight, height, body mass index, age, and gender. Existence of chronic diseases, including arterial hypertension, and previous surgeries were noted. If patients reported any event of postsurgical or oral pain, they were asked to quote the maximal pain they remembered on a numerical verbal scale (out of 100); this value was set to 0 in case of no history. They were also asked to fill in a questionnaire of hospital anxiety and depression scale. The blood pressure (BP) and heart rate were measured at rest once after the operation. Demographic features were weight, height, body mass index, age, and gender. Existence of chronic diseases, including arterial hypertension, and previous surgeries were noted. If patients reported any event of postsurgical or oral pain, they were asked to quote the maximal pain they remembered on a numerical verbal scale (out of 100); this value was set to 0 in case of no history. They were also asked to fill in a questionnaire of hospital anxiety and depression scale. The blood pressure (BP) and heart rate were measured at rest once after the operation.

Univariate analysis reveals that the intensity of postoperative pain is related to age, history of hypertension and previous oral surgery, number of extracted teeth, duration of surgery, and extraction of the third molar. On the other hand, there is no relationship with gender, anxiety, and operation duration. Multivariate analysis reveals that the intensity of acute postoperative pain is only associated with the location (upper/lower jaw, \( P = 0.004 \)) and deepness of implantation of the extracted tooth (\( P < 0.0001 \)), and mean resting BP (\( P = 0.031 \)).

CONCLUSIONS

The authors concluded that patients with high resting BP had lower oral postsurgical pain than those with low resting BP. This suggests that high resting BP is a protective factor against oral postsurgical pain.

IMPLICATIONS FOR PRACTICE

These study findings suggest that the measurement of resting BP before surgery may be used in clinical practice to identify patients at risk of developing severe postoperative pain.

Reference

Cognitive status of edentate elders wearing complete denture: Does the quality of the denture matter?


Cognitive impairment is when a person has trouble remembering, learning new things, concentrating, or making decisions that affect their everyday life. Cognitive impairment ranges from mild to severe. With mild impairment, people may begin to notice changes in cognitive functions, but still be able to do their everyday activities. Severe levels of impairment can lead to losing the ability to understand the meaning or importance of something and the ability to talk or write, resulting in the inability to live independently. Cognitive impairment is among the major public health concerns as a result of global increased life expectancy, and population aging.1 The risk factors for cognitive impairment can be divided into two major categories: non-modifiable (e.g., age, sex, genetic factors, etc.) and modifiable (e.g., hypertension, diabetes, dietary habits, physical activity, cognitive activity).1

Poor oral health and non-optimal mastication have been introduced as potential modifiable risk factors for cognitive impairment.1 Longitudinal cohort studies have linked poor oral health and cognitive impairment such as dementia and Alzheimer's disease.1 An association between the number of teeth in the mouth and cognitive status has been reported in published studies.1 However, little or no data exists on the role of functional quality of dentures in the cognitive status of edentate elders. Cerutti-Kopplin and colleagues (2015)1 reported on a study that sought to test the hypothesis that quality of denture, via the mastication pathway, will influence the cognitive status in edentate elders.

MATERIALS AND METHODS
This was a cross-sectional study of Brazilian persons aged 60 years or over. Potential candidates were invited to participate in the cohort study by phone call or personal contact. Data was analyzed from edentate participants wearing maxillary and mandibular complete dentures, who had undergone both functional assessment of dentures (FAD) and mini-mental state examination (MMSE) (n = 117). Assessment of cognitive status, quality of denture, and masticatory ability was assessed with the Brazilian version of the mini-mental state examination (MMSE), with higher scores indicating better cognitive status. A trained and calibrated dentist assessed the functional quality of denture as well the history of complete tooth loss for completely edentate elders. The quality of dentures was clinically examined by use of the FAD (functional assessment of dentures) validated instrument. The FAD measure has nine items, which allow the evaluation of the freeway space, occlusion, retention, and stability of dentures. The total range of the scale is 0–9 points, with higher scores indicating better functional quality. Furthermore, masticatory ability was self-assessed by the use of a composite measure (changes in dietary intake, avoiding hard-to-chew foods, and chewing only soft foods because of difficult chewing.

Information on socio-demographic characteristics (age, sex, years of education, income), lifestyle factors (physical and mental activity, alcohol use, and smoking status), and medical history (diabetes, hypertension, heart disease) was obtained using self-administered questionnaires. The geriatric depression scale (GDS) and the short-form mini nutritional assessment (MNA) was used for screening depressive symptoms and nutritional status, respectively.

RESULTS
The sample was comprised of 92 (78.6%) women and 25 (21.4%) men. The mean age of the sample population was 73.7 (SD 5.6) years, with a median of 73 years. Among the individuals, 77.8% reported elementary school as the highest level of education, 60.7% lived in an urban area, most of them were married (70.1%), and 60.7% had a monthly income of less than two times the Brazilian minimum wage (540 USD).

The total FAD (functional assessment of dentures) mean score was 5.7 ±2, and according to this clinical measure the majority of elders (80%) had adequate maxillary denture, however 67.5% of participants had non-retentive and non-stable mandibular dentures. Unsatisfactory masticatory ability was more frequent in completely edentate individuals with lower FAD total score (p < 0.001) and led to a lower mini-mental state examination (MMSE) total score.

The mean of MMSE score in the total sample was 23.1 (SD=4.4) and was associated with age (p = 0.001), education (p < 0.0001), and depressive symptoms (p = 0.003), as well as perceived masticatory disability (p = 0.001) and functional quality of dentures (p < 0.0001). Perceived masticatory disability was associated with cognitive status (p = 0.002) after adjusting for significant risk factors including age, years of education, and depression. The final model predicted about 25% of the variation of the MMSE score (R2 = 0.246). Masticatory disability contributed to about six percent changes in MMSE score (DR2 = 0.063, p = 0.002).

CONCLUSIONS
These results suggest that cognitive status may be influenced by functional denture quality via the mastication pathway. There is a need for large-scale cohort studies with comprehensive assessments of oral health status, masticatory function, and cognitive activity with both objective and subjective measurement tools.

IMPLICATIONS FOR PRACTICE
The importance of an active masticatory function and its link to cognitive status is highlighted in this paper.

Reference