How Important Is Dental Clearance for Elective Open Heart Operations?

To the Editor:

The article by Smith and colleagues [1] is very valuable for providing information on the management of perioperative care for patients undergoing cardiac and major vascular operations. We would like to congratulate the authors and the Mayo Clinic (database) for following patients with an indication for preoperative dental surgical intervention.

The authors’ results, based on 10 years of data collection reviewing 205 patients with cardiac conditions who were treated preoperatively with dental surgical procedures, revealed 16 major adverse outcomes (8%). Twelve patients (6%) died within 30 days after dental operations, 6 of whom died before their planned cardiac operation.

In our preadmission clinic for patients undergoing cardiac and major vascular operations, more than 99% of our patients have dental clearance before they see us in our clinic. For the remaining patients, we are able to arrange clearance in the time before their scheduled operation. In general, this requirement applies only to patients who are undergoing elective operations; we clearly forgo such requirements for patients who present with an urgent issue [2–4].

The cardiac surgery and anesthesia community will benefit if the authors can provide (1) the total number of patients undergoing cardiac operations at their institution in the aforementioned 10-year period, (2) what percentage of patients did not have dental clearance, and (3) what percentage of those patients not having dental clearance experienced an infection-related complication. By evaluating these data, we can begin to assess the value of preoperative dental clearance and intervention.

In summary, it is clear that there are no good answers regarding which patients undergoing cardiac operations need dental clearance. Despite the American Heart Association guidelines recommending dental clearance for all patients undergoing valvular operations [5], the American Society of Anesthesiologists and the Society of Thoracic Surgeons do not have clear recommendations. It is our hope that with more discussion there can be a guideline created to determine if dental clearance is necessary for any given patient.

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References

Reply

To the Editor:

We appreciate the interest and insight provided by Gandhi and Silvay regarding preoperative dental evaluation of cardiac and major vascular surgical populations [1]. The purpose of our article “Morbidity and mortality associated with dental extraction before cardiac operation” [2] was to assess safety of dental extraction operations in this comorbid patient population. The cardiac surgical volume at our institution averages nearly 2,500 cases per year, representing approximately 25,000 patients for the 10-year study period [3]. The surgical practice at our institution is substantially based from referrals outside of the immediate geographic area, which presents challenges in accurately capturing relevant preoperative and late postoperative data. Many patients elect to have preoperative dental clearance with a dentist where they reside. Hence, the number of patients seen and treated by dental providers at our institution would represent a fraction of the total cardiac surgical patient population. Determining the total percentage of patients receiving dental clearance is difficult due to variability in documentation among providers within our medical record, resulting in difficulty performing an accurate electronic query of this.

Unfortunately, the retrospective design of our study as well as the referral-based practice at our institution limits the ability to accurately assess long-term outcomes such as late onset endocarditis in this study population. Patients undergoing cardiovascular surgery at our institution frequently have routine care transitioned back to providers where they reside upon dismissal. While patients with late endocarditis would most often return to Mayo Clinic for definitive care, others may seek treatment locally without documentation within our medical record system, particularly for minor infectious issues, again making accurate assessment of such complications difficult. As discussed in our referenced article, irrefutable studies examining appropriateness of dental extraction operations across the wide spectrum of cardiac surgical patients were not found. The results of our study do not allow a definitive recommendation for or against dental extraction prior to cardiac surgery. We agree with Gandhi and colleagues that future research including large randomized prospective studies or registries comprising sufficient follow-up to assess complications such as late onset endocarditis will be necessary to accurately answer this important question.

Again, we thank Gandhi and Silvay for their comments.

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References

Dental Workup Before Cardiac Surgery: Must or Risk
To the Editor:

I read with great interest the article by Smith and colleagues [1] and the invited commentary by Unsworth-White. As a cardiac surgeon and dentist, allow me some remarks.

The indication for any dental work before cardiac surgery should be clearly defined and this is especially true for dental extractions. It is not poor dental hygiene with some caries lesions, but it is the periodontal infection and the apical abscess which need special attention. This is also true for the mentioned guidelines. General dental work is indeed not associated with an increased risk of endocarditis, but an extraction of an affected dental root or the root treatment still is!

The indication for a preoperative dental treatment should depend on the individual situation of the patient. Is the patient in a stable or unstable condition, does he (or she) need coronary or valvular surgery, or does he (or she) have a critical central lesion of the left anterior descending artery or a critical aortic stenosis, only to mention some criteria. Out of the 16 patients with adverse events, 4 suffered from acute coronary syndrome and one might consider a critical coronary lesion in conjunction with hemodynamic instability around the dental treatment as a possible reason. Moreover, coronary surgery is less prone to infections compared with valvular replacements. Further, 4 patients developed cerebrovascular accident and one must weigh the risk of the dental status against that of a possible septic embolism in the 3 cases with endocarditis, or of a possibly insufficient anticoagulation in the patient with a biventricular assist device.

This brings me to my last comment. Any kind of such interventions and especially (multiple) extractions, should be performed by a team of oral surgeons and if necessary anesthesiologists in close proximity to cardiac surgeons with experience in hemodynamic monitoring, special surgical techniques in the presence of anticoagulation or antiplatelet therapy, and intensive care. In our unit, the indication is individually discussed among these specialists and dental surgery then performed with the patient in the same hospital and under our care.

In conclusion, I agree with the commentary to question the “Accepted Wisdom.”

This should not lead to a neglect of dental infections and their treatment prior to cardiac surgery but to a careful and individual indication within a specialized team, which is similarly true for the guidelines on endocarditis prophylaxis.

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References

Reply
To the Editor:

We read with great interest the insightful comments afforded by Dr Moosdorf regarding our article on perioperative dental care in cardiovascular surgical patients [1]. Dr Moosdorf provides a very unique perspective on this topic as both a dentist and cardiovascular surgeon. We strongly agree with Dr Moosdorf that an individualized and integrated approach to perioperative dental evaluation and treatment is critical in providing the right procedure for the right patient at the right time. Preoperatively, this requires recognition of relevant dental disease and potential interventions in the context of the planned cardiac operation. The purpose of our article “Morbidity and mortality associated with dental extraction before cardiac operation” [2] was to determine safety and risk of such procedures. The study reviewed only patients undergoing oral surgical treatments, not nonsurgical dental treatments. We agree with Dr Moosdorf that the findings presented in this study should alert physicians that surgical interventions are not benign, prompting cautious consideration of appropriateness and timing for such procedures in cardiac surgical patients. We concur with Dr Moosdorf that an integrated care team model should be exercised to optimize care for comorbid patients undergoing dental extractions, especially those felt to be at higher risk for perioperative complications. Care for these patients at our institution includes collaborative planning and discussion between the cardiac surgery, oral surgery, and anesthesiology teams.

Again, we thank Dr Moosdorf for his insight and expertise.

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