



Is Dental Evaluation before Cardiac and Aortic Surgery Needed: A Review Communication



George Silvay^{1*}, Maryna Khromava¹, Menachem Weiner¹ and Andrew Goldberg²

¹Department of Anesthesiology, Icahn School of Medicine at Mount Sinai, New York, USA

²Department of Anesthesiology, Professor of Anesthesiology, Icahn School of Medicine New York, USA

*Corresponding author: George Silvay, Professor of Anesthesiology, Department of Anesthesiology, Icahn School of Medicine at Mount Sinai, New York, USA

Submission: 📅 July 25, 2018; Published: 📅 August 08, 2018

Abstract

Many studies and publications have been devoted to identifying the etiologies and sources of postoperative infections. While the etiologies of these infections may be unknown, the consequences are enormous and include: increased morbidity and mortality; increased hospital costs funding the development of new drugs; and patients and family dissatisfaction. Surgical site infection is responsible for about 20% of all infections. The preoperative evaluation clinic, where patients are examined several days before scheduled surgical procedure offers an opportunity to prevent oral sourced of infections by recommending a dental evaluation. The integration of dental clearance into the preoperative evaluation, may contribute to a decrease in and/or prevent surgical infection.

Keywords: Preoperative evaluation; Etiology of postoperative infection; Endocarditis; Dental clearance

Introduction

Two million hospitalized patients annually develop health-care associated infections (HCAI), contributing to around 90,000 death each year in the United States [1]. Many studies and publications have been devoted to identifying the etiologies and sources of these infections. While the etiologies of these infections may be unknown, consequences are enormous. They includes: increased: morbidity and mortality; hospital cost; increased hospital lengths of stay; funding for development of new drugs; and patient and family dissatisfaction. From HCAI, surgical site infections are responsible for about 20 - 25% of all infections. Many infections are of unknown etiology and anesthesiologists, surgeons, intensivists, bacteriologists and pathologists are working to identify the other causes of infections [2-7].

Our institution opened a specialized preoperative evaluation clinic (PEC) designated for cardiothoracic patients scheduled for elective day admission surgery [8,9]. The clinic is staffed by an attending anesthesiologist from the division of cardiac anesthesia, one nurse practitioner from cardiac surgery, an additional nurse with several years of experiences in cardiac surgical intensive care unit and one nursing assistant. The PEC is financed by the Departments of Anesthesiology and Cardiac Surgery.

The PEC has been developed to streamline the preoperative assessment by coordinating all aspects of anesthetic, surgical, dental, medical, nursing and postoperative recovery care. The PEC

has enhanced our possibility to apply the available guidelines, and implement effective preoperative protocols, leading to improvement of patient care and cost reduction. One of the most important aspects of the PEC is the increasing patient/family satisfaction during and after hospital stay, Patient burdens in the time of stress and anxiety during illness can be decreased by a well-functioning PEC.

The preoperative evaluation clinic (PEC) may also contribute to the prevention of surgical infections. Dental disease is one of the common sources of infections. Theories concerning a possible connection between oral and systemic health can be trace back a long time and have been revisited in numerous publications [10-19]. An undiagnosed oral infection can adversely affect the surgical outcome, leading to morbidity, mortality, costs and even potential; liability.

The PEC, where patients are examined days ahead of the scheduled surgical procedure offers an opportunity to prevent oral sources of infection by recommending a dental examination and clearance. Presently, a preoperative dental evaluation is not a routine practice in many institutions. The American Heart Association guidelines on prevention of infectious endocarditis (IE) and other bacteremia's, emphasize the value of eliminating dental disease, which supports the importance of a preoperative dental evaluation [15]. There are no clear recommendations regarding the indication for preoperative dental evaluation for patients scheduled

for elective surgery (cardiac, aortic, organ transplantation, orthopedic, oncological and other).

In our opinion, which is supported by others, a preoperative evaluation of oral health may prevent a dental etiology of bacteremia, IE and other infections. The integration of dental examination into the PEC may contribute to a decrease or prevent the surgical infections. Cardiac and major vascular surgery is associated with significant morbidity, mortality, and socioeconomic expenses. Presently, a dental screening is not a practice in many hospitals. There are several reasons for this omission. First, patient education regarding this association may be lacking. Second, the surgeon may overlook the importance of eliminating the potential source of infections before surgery. Third, patients may not have adequate insurance coverage [16].

In our institution, patients get recommendation for dental evaluation at the initial encounter. Majority of the patients had dental evaluation before admission to PEC. If the patients are missing dental clearance, we are able to arrange the basic dental evaluation in our oral surgical department. The situation is different in the case of an urgent or emergency surgery, where we use common sense and forgo dental evaluation [18]. The association between poor dental health and the risk of infective endocarditis, as well as other systemic infection, has been well demonstrated [7-19]. Cotti et al review the controversial issue in the relationship between oral care and cardiovascular diseases is how and whether to manage and prevent oral infections prior to cardiovascular surgical procedures [20].

In conclusion, the dental clearance is important portion of function of PEC. The oral cavity is readily accessible and visible part of the body and provides the window to assess the overall health. Not long ago, former U.S. Surgeon General C. E. Koop asserted, "You are not healthy without good oral health" [21].

References

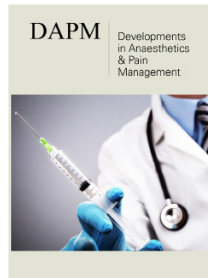
- Prilipp RC, Birnbach DJ (2018) HCA-Infections: Can the anesthesia provider be at fault? APSF Newsletter 32: 64-65.
- Loftus RW, Muffly MK, Brown JR, Beach ML, Koff MD, et al. (2011) Hand contamination of anesthesiologists is an important risk factor for intra operative bacterial transmission. *Anesth Analg* 112(1): 1298-1105.
- Oguz R, Diab Elschahawi M, Berger J, Auer N, et al. (2017) Airborne bacterial contamination during orthopedic surgery: A randomized controlled pilot trial. *J Clin Anesth* 38: 160-164.
- DeSouza AF, Rocha AL, Castro WH (2016) Dental care before cardiac valve surgery: Is it important to prevent infective endocarditis? *IJC Heart & Vasculature* 12: 57-62.
- Gronkjaer M, Eliassen M, Skov Ettrup LS, Tolstrup JS, Christiansen AH, et al. (2014) Preoperative smoking status and postoperative complications: a systemic review and meta-analysis. *Amer Surg* 259(1): 52-71.
- Wu GH, Manson B, Dadovinic R (2008) Oral health dental treatment, and clinical valve surgery outcome. *Spec Care Dentist* 28(2): 65-72.
- Lyrge H, Kjome RLS, Choi H (2017) Dental provides and pharmacists: a call for inter-professional collaboration. *Intern Dental J* 67(6): 329-331.
- Flynn BC, Silvay G (2012) Value of specialized preanesthetic clinic for cardiac and major vascular surgery patients. *Mt Sinai J Med* 79(1): 13-24.
- Silvay G, Zafirova Z (2016) Ten years experiences with preoperative evaluation clinic for day admission cardiac and major vascular surgical patients: Model for: Perioperative anesthesia and Surgical home". *Semin Cardiothor Vasc Anesth* 20(2): 120-132.
- Fleisher LA, Fleischman KE, Auerbach AD, Barnason SA, Beckman JA, et al. (2014) American College of Cardiology, American Heart Association. 2014 ACC/AHA guideline on Perioperative cardiovascular evaluation and management of patients undergoing non-cardiac surgery: a report of the American College of Cardiology/American Heart Association Task Force on practice guidelines. *J Am Coll Cardiol* 130(24): 2215-2245.
- Silvay G, Augoustides JG (2016) Anesthetic management of patients undergoing operation for type an aortic dissection. In: Melissano G, Chiesa R (Eds.), *Aortic dissection*. Edi-ermes Milan, Italy, 379-398.
- Faggiano P, Bonardelli S, DeFeo S, Valota M, Frattini S, et al. (2012) Preoperative cardiac evaluation and Perioperative cardiac therapy in patients undergoing open surgery for abdominal aortic aneurysm: Effects on cardiovascular outcome. *Ann Vasc Surg* 26(2): 156-165.
- Watters WI, Rethman MP, Hanson NB (2013) Prevention of orthopedic implant infection in patients undergoing dental procedures. Executive summary on the AAOS/ADA Clinical Practice Guideline *J Am Acad Orthop Surg* 21: 180-189.
- Thilen SR, Wijesundera DN, Treggiari MM (2016) Preoperative consultation. *Anesthesiology Clin* 34(1): 17-33.
- Wilson W, Aubert KA, Gawith M, Lockhart PB, Baddour LM, et al. (2007) Prevention of infective endocarditis: guideline from American Heart Association: Rheumatic Fever, Endocarditis and Kawasaki Disease Committee, Council on Cardiovascular Disease in the Young, and the Council on Clinical Cardiology, Council on Cardiovascular Surgery and Anesthesia and the Quality of Care and Outcomes Research Interdisciplinary Working Group. *Circulation* 116(15): 1736-1754.
- Gandhi N, Silvay G (2015) How important is dental clearance for elective open heart operations? *Ann Thora Surge* 99(1): 377.
- Wu GH, Manson B, Dadovinic R (2008) Oral health dental treatment, and clinical valve surgery outcome. *Spec Care Dentist* 28(2): 65-72.
- Yasny JS, Herlich A (2012) Perioperative dental evaluation. *Mt Sinai J Med* 79(1): 34-45.
- Liu JB, Liu Y, Cohen ME, Ko CY, Sweitzer BJ, et al. (2018) Defining the intrinsic cardiac risk of operations to improve preoperative cardiac risk assessment. *Anesthesiology* 128(2): 283-292.
- Cotti E, Arrica M, DiLenarda A, Serri SB, Bassareo P, et al. (2017) The perioperative dental screening and management of patients undergoing cardiothoracic, vascular surgery and other cardiovascular invasive procedures: A systemic review. *Preventive Cardiology* 24(4): 409-425.
- Allukian M (2008) The neglected epidemic and the surgeon general's report: a call to action for better oral health. *Am J Public Health* 98(1): 82-85.



Creative Commons Attribution 4.0 International License

For possible submissions Click Here

[Submit Article](#)



Developments in Anaesthetics & Pain Management

Benefits of Publishing with us

- High-level peer review and editorial services
- Freely accessible online immediately upon publication
- Authors retain the copyright to their work
- Licensing it under a Creative Commons license
- Visibility through different online platforms