Why There is a Need for Hospital Dental Services?

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Introduction

It has been said that the dentist too often looks at the mouth as if there were no man (or woman); and in the Hospital, too often is the man (or woman) looked at as if there were no mouth.

In Hong Kong, hospital dental services are provided in many but not all general hospitals. For public hospitals, services are provided by the dental departments in Pamela Youde Nethersole Eastern Hospital, Queen Mary Hospital, Caritas Medical Centre, Kwong Wah Hospital, Our Lady of Maryknoll Hospital, Queen Elizabeth Hospital, United Christian Hospital, Alice Ho Miu Ling Nethersole Hospital, North District Hospital, Princess Margaret Hospital, Prince of Wales Hospital and Tuen Mun Hospital. For private hospitals, dental services are provided in Canossa Hospital, Evangel Hospital, Hong Kong Adventist Hospital, Hong Kong Baptist Hospital, Hong Kong Sanatorium & Hospital, Matilda International Hospital, Precious Blood Hospital, St. Paul’s Hospital, St. Teresa’s Hospital, Tsuen Wan Adventist Hospital and Union Hospital.

Apart from Oral & Maxillofacial Surgery, which is a dental specialty in its own right and carries other scope of services, hospital dental services are nowadays commonly available to cover for the demand from an increasing number of patients with medically compromised conditions.

Several areas whereby the mouth interacts with the body are discussed here in this article.

Anticoagulants and Antiplatelet drugs

Therapeutic anticoagulation is administered to patients with prosthetic heart valves, cardiomyopathy, thrombogenic cardiovascular problems such as arrhythmias, atrial fibrillation, supra-ventricular valve disease, and following coronary artery by-pass graft to prevent venous thrombosis, deep vein thrombosis and pulmonary embolism.

The British Committee of Standards in Haematology advises that minor surgery can be performed with an International Normalized Ratio (INR) of up to 2.5, in most instances, the INR is adjusted to fall below 1.5. The drop in INR, on the other hand, may present a significant problem of thromboembolism with the rebound phenomenon. So it is suggested that it may be safer not to stop the warfarin prior to simple dental procedures (e.g. uncomplicated forceps extraction of 1 or 2 teeth with INR less than 3.5) provided appropriate local measures are taken, as the risk of excessive post-operative bleeding outweighs the risk of thromboembolism. It further implies that patients can now undergo dental extractions on an ambulatory basis. Still the need for dentists trained and experienced in the prevention and handling of post-extraction bleeding in such cases will warrant dental treatments to be undertaken in a hospital setting. For minor dental surgery (e.g. extraction of an impacted wisdom tooth), patients should be treated in hospital and the INR needs to be adjusted and monitored.

Acetylsalicylic acid (ASA) is commonly used in the treatment and prevention of thromboembolic diseases. A daily dose of 100mg of ASA has little effect on intraoperative and postoperative bleeding from dental extractions. Thus patients need not stop taking ASA before dental surgery in general.

Ticlopidine and clopidogrel are anti-platelet drugs acting on the ADP receptors implicated in platelet aggregation. This effect is irreversible and lasts for the life of the platelet (7 to 10 days). It has been suggested that patients should stop taking them 7 to 10 days before elective surgery. Diprydamole is another antiplatelet drug that acts by inhibiting phosphodiesterase. Its antiplatelet activity is less than that of ASA and ADP receptor blockers and is wholly reversible in about 24 hours after the drug is discontinued. Dental procedures can thus be performed then.

Infective endocarditis

Infective endocarditis (IE) is a rare, potentially fatal disease where susceptible endocardium or a prosthetic heart valve is colonised by microorganisms such as streptococci, staphylococci and candida.

As oral microflora are found in many cases of IE, it is postulated that certain dental procedures lead to bacteraemia which subsequently leads to IE. It is now known that even normal oral functions such as chewing and tooth-brushing can cause transient bacteraemia lasting up to 30 minutes after the cessation of the procedure. Interestingly, a cohort study has found no definitive link between IE and dental procedures, even in patients with valvular abnormalities.

Of all the different guidelines in use around the world, no one regime has proven superior to another. The most
commonly adopted guideline for antibiotic prophylaxis against IE is the 1997 recommendations of the American Heart Association (AHA)\(^1\). An oral dose of amoxicillin 2g taken one hour before the procedure is the standard regime for non-penicillin-allergic adults.

The British Society for Antimicrobial Chemotherapy (BSAC) has recently published their latest guidelines\(^6\). Good oral hygiene is recognised as the most important factor in reducing the risk of IE in susceptible individuals. The BSAC suggests that only three groups of patients are at risk: those who have had IE, those with valve replacements and those with surgically-constructed systemic or pulmonary shunts or conduits. Prophylaxis is indicated in all dental procedures involving dento-gingival manipulation. The new antibiotic regimes are still essentially based on 3g amoxicillin regime for non-penicillin-allergic adults and 600mg clindamycin regime for penicillin-allergic adults. So it is prudent that all patients undergoing valvular surgery should have their dental conditions thoroughly checked. The aim is not merely to cover the period of transient bacteraemia induced by procedural intervention, but to maintain an optimal level of oral hygiene life-long. Interventions ideally should be performed 14 days prior to surgery to allow mucosal healing. All elective dental procedures should ideally be delayed for at least 3 months post-surgery.

**Ischaemic heart disease**

There are no contraindications to elective dental treatment of patients with stable angina\(^9\). Stress reduction and adequate local anaesthesia are important to minimize any elevation in endogenous catecholamines.

**Total joint replacement**

As in case of IE, the risk of bacteraemia is far more substantial in a mouth with ongoing inflammation than in one that is healthy and using proper oral hygiene measures. It is suggested that the most critical period is up to two years after joint replacement\(^9\).

In 1997, the American Dental Association (ADA) and the American Academy of Orthopaedic Surgeons (AAOS) published their first Advisory Statement on Antibiotic Prophylaxis for Dental Patients with Prosthetic Joints. The Advisory Statement is further updated in 2003\(^21\). Essentially, for the first two years after a joint replacement, all patients may need antibiotics for all high-risk dental procedure. The recommended regime is based on 2g amoxicillin or 600mg clindamycin taken one hour before the procedure.

**Radiation therapy for head and neck cancer**

Most oral problems associated with radiation therapy can be prevented or minimised through optimal management. Patients planned for radiation therapy are now usually referred for a dental consultation before the commencement of therapy. There is no absolute rule for dental extractions before radiotherapy. Factors to be considered include the overall dental conditions (e.g. caries, periapical status, periodontal conditions), previous dental care, current oral hygiene, the urgency of the cancer treatment, the radiation fields and dose, and the prognosis of the cancer\(^20\).

A period of healing after dental extraction before radiation therapy is considered essential. A consensus report in 1990 from the National Cancer Institute (NCI) recommended a minimum time of 2 weeks between extractions to the onset of radiation therapy\(^21\). Xerostomia is a symptom frequently encountered in radiation therapy. Functions of the salivary glands in the radiation field begin to be reduced by the second to third week of radiation treatment. The symptoms are progressive. The return of salivary function after radiation therapy is extremely variable and is related to the dosed received.

Osteoradionecrosis (ORN) is the irreversible, progressive devitalisation of irradiated bone. Clinical manifestations of ORN may include pain, orofacial fistulas, exposed necrotic bone, pathological fracture and suppuration. About one-third of ORN develop spontaneously. Hyperbaric oxygen (HBO) therapy is considered an adjunctive treatment for ORN together with surgery.

Post-radiation dental extraction used to result in as high as 22% incidence of ORN\(^21\). Dental extractions can nowadays be safely carried out with an atraumatic approach and follows a standard protocol to minimise ORN\(^25\).

**Obstructive sleep apnoea**

Obstructive sleep apnoea (OSA) is defined as an apnoea/hypopnoea index (AHI) of 5 or more\(^26\). This condition affects 2-4% of adults aged from 30 to 60 years\(^27\). Nasal continuous positive airway pressure (CPAP) was introduced in 1981\(^28\) and is the standard treatment modality. For patients who cannot tolerate CPAP, oral appliances provide the first-line non-invasive alternative to surgical treatment. By advancing the position of the mandible, the genioglossus muscle is pulled forward and the upper airway space posterior to the tongue base is increased. Oral appliances are found to be clinically effective in mild to moderate OSA\(^29\). Such therapy requires close collaboration among the respiratory physicians, ENT surgeons and dentists. A hospital-based dental unit will be most convenient for the clinicians and patients.

**Leukaemia**

Initial signs and symptoms of leukaemia can appear in the mouth. Oral presentation such as spontaneous gum bleeding or gum swellings may be the reason for patients to seek dental care. Indeed, there are about two to three such cases attending our unit and later confirmed to be suffering from leukaemia. Mucosal pallor, mucosal purpura, lymphadenopathy, gingival bleeding, and petechiae are common oral manifestations\(^30\).

Besides earlier detection, pretreatment dental care, in-patient care during period of chemotherapy, dental care during remission and long-term monitoring of the oral problems and dental development for child patients are essential. A protocol of oral care for children with acute
leukaemia has been developed and this has found to be most useful.

Lymphoma

Extralymphal lymphoma can arise in the jaw and presents with nonspecific signs and symptoms, such as painless swelling or pain in the mandible. Burkitt’s lymphoma can occur outside the African continent. There is at least one case in Hong Kong that is first presented as a jaw swelling and seen by a hospital dental unit.

Bone marrow transplantation

Bone marrow transplantation (BMT) is an accepted treatment for haematologic disorders such as leukaemia, lymphoma and multiple myeloma. A thorough dental examination is now normally undertaken for cases planned for BMT. Radiographic examination is required to detect occult dental disease. All potential or existing source of infection must be identified because patients are rendered agranulcytopenic before and after transplant.

Conclusion

Modern day dentists are trained and expected to handle the medically compromised. The examples of interactions quoted are by no means exhaustive. Mainly those common conditions that require in-patient hospital care are mentioned. The guidelines quoted are for reference only. The actual guidelines must be consulted in full context and clinical judgement applied for actual patient management.

In essence for all patients presented with oral or dental problems that may compromise their medical treatment, an optimal level of oral hygiene is the basis of whole dental conditions. Same optimal level of the dental status should be maintained so as not to jeopardise the outcome of medical treatment procedures.

Hospital dental services, now widely available in various public and private hospitals, can provide all the supportive services in the delivery of proper patient care in collaboration with various specialties.

References

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