

QUESTION 2

A patient new to my practice has atrial fibrillation. How should I modify the patient's regular dental care in light of this condition?

Background to the Problem

Atrial fibrillation (AF) is the most common cardiac dysrhythmia, and as such many patients with medically managed AF will present to general dentists for routine care. AF is characterized by rapid uncoordinated contraction of the atria, usually between 350 and 600 beats per minute (normal range 60 to 100). This abnormality adversely affects cardiac output, and "atrial kick" accounts for 30% of ventricular filling. The reduction in stroke volume places an additional burden on the ventricles to maintain cardiac output. Electrocardiography shows no discrete P waves in patients with AF (Fig. 1); instead, there may be fine undulations between QRS complexes.

Cardiac conditions linked to the development of AF include rheumatic mitral valve disease, coronary artery disease, congestive heart failure and hypertension. Noncardiac conditions that can predispose patients to AF include hyperthyroidism, hypoxia, alcohol intoxication and surgery. The complications of AF include congestive heart failure, myocardial infarction and thromboembolism.¹

Medical management of AF aims to re-establish normal sinus rhythm. For this purpose, one of a variety of anti-arrhythmic agents may be prescribed (e.g., quinidine, procainamide, propafenone, flecainide, sotalol, ibutilide and amiodarone).² Patients with AF might also take acetylsalicylic acid (ASA) or warfarin to prevent formation of thrombi in the atria, which can release emboli, a major cause of stroke. The international normalized ratio (INR) is used to assess blood clotting in patients who take warfarin. The optimal therapeutic INR range is between 2.0 and 3.0 in patients with AF.³ Many

patients with AF wear a MedicAlert bracelet to inform health care providers of their medical status (Fig. 2).

Dental Management of Patients with Atrial Fibrillation

Before dental care is initiated, the dentist should consult the family physician to confirm the medical history, current drug therapy and the underlying cause of the patient's AF. These details will establish whether antibiotic prophylaxis is indicated for concurrent disease (e.g., mitral valve prolapse with regurgitation).⁴ Some patients with AF may have memory, language or attention deficits and may find it difficult to communicate. Therefore, it is prudent to include a family member in all treatment discussions.

A patient with AF is at greater risk for cardiac ischemia; a stress-reduction protocol will minimize this risk. Appointments should be kept short. Late morning or early afternoon appointments are better for AF patients, because the risk of an ischemic event is highest during the first few hours of daily activity. Oral sedation is appropriate, but if such sedation is used an escort should be available to take the patient home. Inhalation sedation with nitrous oxide (at a concentration below 30%) and oxygen has negligible effects on respiration, circulation and organ function and will provide sufficient psychosedation to reduce anxiety after 5 minutes of inhalation.

Patients with asymptomatic AF can undergo minor dental surgery in a general practice setting, but some general precautions are advised. Care should be taken to administer local anesthetic solution slowly, with frequent aspiration, to

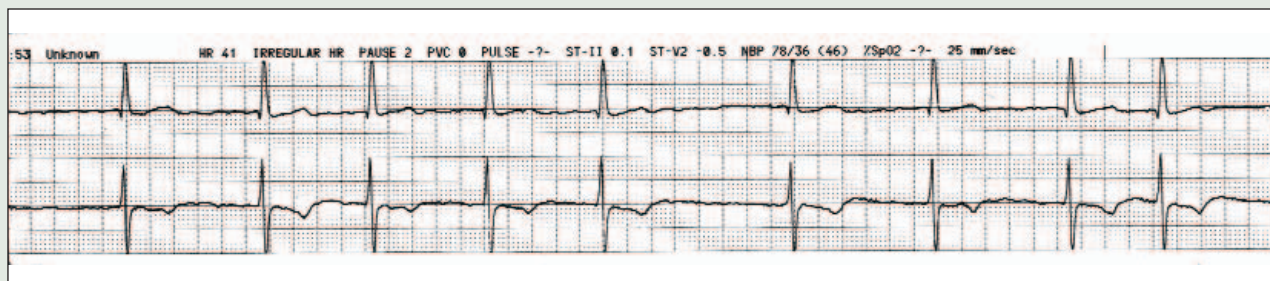


Figure 1: An electrocardiogram tracing (lead 2) for a patient with atrial fibrillation shows fine undulations instead of P waves, with an irregularly irregular ventricular rhythm.



Figure 2: MedicAlert bracelet worn by a patient with various medical problems, including atrial fibrillation.

minimize the risk of intravascular injection. Periodontal ligament injections and intraosseous injections are not recommended for any patient with a history of cardiovascular disease. Restricting the amount of vasoconstrictor injected (epinephrine to 0.04 mg, levonordefrin to 0.2 mg) is generally recommended for patients with cardiac arrhythmia.⁵

Patients with AF do not have to cease their daily ASA medication before a simple extraction or other minor dental surgery. The patient's family physician should be consulted about discontinuing other antiplatelet drugs (e.g., ticlopidine, clopidogrel, or dipyridamole) before the dental extraction.⁶ A patient with AF who takes warfarin does not have to alter the warfarin dosage before minor dental surgery if the up-to-date INR is within the optimal range of 2.0 to 4.0.^{7,8} Nevertheless, before any invasive treatment is undertaken for a patient with AF, the dental practitioner should be aware of all medications that might influence the formation and establishment of clots.

Local measures (e.g., suturing, application of a topical hemostatic agent) should be employed if there is troublesome bleeding after minor surgery. A tranexamic acid mouth rinse is a useful adjunct

to encourage clotting. A solution of 0.5 mg/5 mL (0.1 mg/mL) is applied directly to the surgical site, followed by 2-minute applications every 6 hours for 2 days.⁴

With sufficient background knowledge of the patient's medical history, minor dental and oral surgery procedures may be undertaken within the dental practice setting. If there is any doubt about the patient's fitness to undergo a dental procedure, the patient should be referred for specialist care. ♦

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