Treatment of the Medically Compromised Patient

Nashville Area Continuing Dental Education Series
November 3, 2010
Harry J. Brown, MD
Chief Medical Officer, Nashville Area
Outline

- General Principles
- Specific disease states:
  - Diabetes
  - Cardiovascular Disease, including Hypertension
  - End stage renal disease
  - Liver disease
  - Pregnancy
  - Anticoagulation
General Principles

- Pre-treatment evaluation – the goal is to determine the patient’s ability to tolerate the planned dental procedure.
- Evaluation should answer the following:
  - Does the patient have a medical condition (diagnosed or undiagnosed) that may complicate the planned dental care or procedure?
  - Can treatment be done relatively safely?
  - Is a medical consultation indicated?
General Principles

- Medical history may be obtained from the patient, but also much valuable information may be gained by examining the patient’s medical chart.
- If consultation with a physician is necessary, make sure to give the physician as much information as practical about the planned treatment/procedure.
Diabetes

- Diabetes mellitus (DM) has 2 types: 1 and 2
- Type 1 DM is a defect of insulin production
- Type 2 DM is a defect of insulin function (pts with type 2 are said to be insulin resistant)
- The vast majority of American Indians have type 2 diabetes
- Diagnosis is most commonly made with a fasting blood sugar (> 125 mg/dL)
Diabetes

Things to be aware of:
- Poor healing (usually not a problem in the mouth)
- Xerostomia
- Periodontal disease
- Oral candidiasis
- Hypoglycemia (signs: hunger, tremor, nausea, diaphoresis, tachycardia, slurred speech, altered mental status, unconsciousness, seizures)
Diabetes – management issues

Basic principles:

- Schedule early morning appointments
- Have the patient eat if possible
- Usually take medications on routine basis
- Watch for hypoglycemia (better to have elevated blood sugar than low blood sugar during a procedure)
Coronary Artery Disease

- Coronary artery disease (CAD) is caused by narrowing of the coronary arteries due to cholesterol plaques
- Affects males at a younger age than females (generally about 10 years younger)
- Symptoms: dyspnea and substernal chest pain on exertion
- Pts with diabetes don’t always have pain
Coronary Artery Disease - MI

- A myocardial infarction (MI) occurs when a cholesterol plaque ruptures and a clot forms, blocking the coronary artery and cutting off blood flow to the myocardium.
- Often fatal (about 30% of the time).
- MI survivors have a much higher surgical risk the first 6 months after an MI.
CAD - Management

• Anxiolytics should be used liberally with CAD patients
• If patients with known CAD or at high risk of CAD have substernal chest pain during a procedure, call for an urgent medical evaluation
• Procedures in post-MI patients should be avoided during the first 6 months post-MI
Hypertension

- Hypertension (HTN) is defined as a systolic blood pressure >140 or a diastolic blood pressure >90
- The most common chronic medical condition in America
- Raises risk for vascular disease (strokes, CAD)
- Many medications used to treat HTN (>60 on the market)
Hypertension – management issues

- Proper measurement of BP is very important
- Many, if not most, patients have higher than normal blood pressure in anxiety provoking situations
- How high is too high? Most dental references say do not do procedures if BP >200/120, but this has not been studied
- Medical consult for uncontrolled BP
Congestive Heart Failure

- Several underlying causes – most common is CAD
- Heart unable to pump enough blood for demand
- NY Heart Association Class I – IV
  - Class I: no dyspnea with normal exertion
  - Class II: dyspnea with exertion
  - Class III: dyspnea with normal activity
  - Class IV: dyspnea at rest
Congestive Heart Failure – management issues

- Class I and II generally good risk for procedure
- Liberal use of anxiolytics
- Class III and IV: medical consultation
  - Avoid completely supine position
  - Use of supplemental oxygen
  - Avoid tachycardia and increased BP
  - Class IV needs physician in attendance and O/R
  - Often have compromised liver and kidney function
End Stage Renal Disease

- Most common cause is diabetes
- HTN is a contributing factor
- Chronic kidney disease has 5 stages; stage 5 is ESRD with complete kidney failure, requiring dialysis or kidney transplant
  - Fluid retention
  - Electrolyte problems
  - Anemia
  - Prolonged half-life of renally excreted drugs
End Stage Renal Disease – management issues

- Do procedures the day after dialysis
- Avoid drugs that depend upon renal metabolism; look up dosages for renal failure (Sanford’s antibiotic guide has a good table for antimicrobial drugs)
- For transplant patients, be aware of:
  - Immunosuppression
  - Avoidance of drugs toxic to kidneys (NSAIDs, etc.)
Liver Disease

- Chronic hepatitis from viral hepatitis B and C
- Cirrhosis (most common cause is alcohol, but there are a number of other causes)
- Liver disease can cause:
  - Bleeding due to vitamin K deficiency
  - Bleeding due to thrombocytopenia
  - Edema secondary to hypoalbuminemia
  - Esophageal varices secondary to portal HTN
Liver Disease – management issues

- Be aware of easy bleeding
  - Check PT, PTT, INR, platelet count
  - Medical consult
- Poor healing (low albumin)
- Chronic hepatitis - contagious
- Many drugs are metabolized by the liver – these will be affected by severe liver disease
  - Consult pharmacist or medical
Pregnancy

- Pregnancy is divided into 3 trimesters:
  - 1\textsuperscript{st}: 0 to 12 weeks
  - 2\textsuperscript{nd}: 13 to 27 weeks
  - 3\textsuperscript{rd}: 28 to 40 weeks

- Generally safe to do procedures during all 3 trimesters, but 2\textsuperscript{nd} trimester is best

- Organogenesis occurs in the 1\textsuperscript{st} trimester

- During the 3\textsuperscript{rd} trimester the uterus may compress the inferior vena cava in the supine position
Pregnancy – management issues

- Avoid medications during the 1st trimester – if needed, look up or consult pharmacist
- Avoid supine position during 3rd trimester – have pt lie on left side if necessary
- May do x-rays with proper shielding
Anticoagulation

- Patients may be on anticoagulants for many reasons:
  - Hypercoagulable state
  - Atrial fibrillation
  - Stroke prophylaxis
  - CHF
- Oral anticoagulants (warfarin): block vitamin K action
- Aspirin and other platelet inhibitors
- Parenteral anticoagulants (heparin, LMW heparins): interfere with coagulation cascade
Anticoagulation – Lab Tests

- Lab tests to assess coagulation status:
  - Prothrombin Time (PT)
  - International Normalized Ratio (INR)
  - Activated Partial Thromboplastin Time (PTT)
  - Platelet count
- PT, PTT measured in seconds
- INR is a ratio, with 1.0 being “normal”
- Platelet count is an absolute number
Anticoagulation – Lab Tests

- Warfarin affects PT and INR; INR is the number to follow – anything over 1.3 or 1.4 is significantly elevated
- Heparin affects PTT – therapeutic is 1.5 to 2X upper limit of normal
- Platelet inhibitors do not affect platelet count; they affect platelet function
Anticoagulation – management issues

- For many patients, it is possible to stop oral anticoagulants for 3 to 4 days with low risk of problems
- Obtain medical consult for guidance, preferably from a medical provider who is familiar with the patient’s history
- For patients who absolutely must remain on anticoagulants, may switch to heparin temporarily
Anticoagulation – management issues

- Control bleeding by:
  - Local pressure
  - Packing
  - Gelfoam
  - Primary closure
  - Make certain to give good post-op instructions to patients
Coagulopathies

- Hemophilia (A, B, C)
- Von Willebrand’s Disease
- Thrombocytopenia (ITP, TTP, post-viral, etc.)
- Liver disease (often a mixed picture)

Screening questions:
  - History of easy bruising
  - History of severe nosebleeds or bleeding after cut
  - History of severe menorrhagia
Coagulopathies – management issues

- Lab tests can be helpful, but normal PT, PTT, and platelet counts do not rule out all coagulation problems.
- Management similar to therapeutic anticoagulation.
- Consider long period of post-op observation (at least 2 hours).
Summary

- Pay close attention to medical history
- Ask fundamental question: Is it likely that the patient has the ability to tolerate the planned procedure?
- Obtain consultation from medical and pharmacy colleagues liberally
- Remember that most adult chronic disease patients have multiple medical problems
THANK YOU!

- Harry J. Brown, MD
  CAPT, USPHS
  615-467-1531
  harry.brown@ihs.gov