

26. Temporary Pacemakers

Indications for Temporary Pacing

Urgency of indications and prophylactic has changed with availability of external pacing

Seriousness of any bradycardia is the adequacy of the escape rhythm

1. Acute Myocardial Infarction
 - a. More likely with Anterior MI's.
 - b. Inferior MI only if excessively slow escape, resultant ventricular dysrhythmia, hypotension or hypoperfusion not responsive to Atropine
2. Therapeutic: Type II 2° or higher block
3. Prophylactic: Alternating right and left bundle branch block
4. New bifascicular block, New LBBB with first degree AV block
 - a. More controversial: RBBB without hemiblock or isolated LBBB, especially if old finding.
5. Nonischemic indications
 - a. Hyperkalemia, drug toxicity, brady-dependent VT, awaiting implantation of permanent pacer

External Pacer

1. External pacing is uncomfortable; most important thing is to explain this to the patient.
2. If chest hair is excessive, clip the hair with scissors but do not nick the skin. Do not scrub the skin.
3. Medicate with Morphine, Valium... if necessary.
4. If uncomfortable and pacemaker dependent, then ready for transvenous pacemaker
5. Most healthy hearts capture at about 70-120 mA however more energy may be needed
6. Intermittent capture often means the lead pads need to be changed and repositioned
7. This is all there is to it. The device is very easy to use and, as prophylaxis, has been a boon in that it saves the patient the discomfort and risks of insertion of a transvenous pacing catheter

Transvenous Pacers

1. Hints to proper placement
 - Use Right IJ or left subclavian site
 - If permanent pacer anticipated, leave one side untouched (preferable LSC in right handed pt)
 - Float pacer set at maximum output with a rate in the 80 and set asynchronous
 - Float it to RV apex; verified by capture and a LBBB morphology with LAD on 12 lead EKG
2. Basics Settings
 - Rate (beats/min)
 - Sensitivity (mV)
 - The ability of the pacer to "see" native R waves and be appropriately inhibited by their presence. In nearly all cases, sensitivity should be maximum. This is "demand" or the **opposite of asynchronous**.
 - Output (mA)
 - The amplitude of the electric stimulus set out from the pacer
 - Should be set several times greater than the "capture threshold"

Cognitive Skills and Knowledge Needed to Perform Temporary Pacemaker Insertion

1. Indications and knowledge of electrocardiographic data, including endocardial electrograms
2. Anatomy of the neck, central venous system, peripheral arterial tree, heart, and lungs
3. Ability to recognize the various forms of conduction disturbances and arrhythmias for which the procedure is indicated, especially in the setting of acute myocardial infarction
4. Recognize artifacts and circumstances under which data is misleading and/or difficult to obtain
5. Electrolyte balances, Pharmacological effects of the drugs that alter cardiac conduction and knowledge of the effects of certain drugs on pacing threshold
6. Know Complications of insertion, the approaches and techniques necessary to minimize them
7. How to determine capture and sensing "thresholds"
8. Pacemaker system dysfunction (including failure to capture and sense the R wave properly)

9. Communicate the procedure to the patient and physicians and to document the medical record
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