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Department of Health Research
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INDIAN COUNCIL OF MEDICAL RESEARCH
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Standard Treatment Workflow (STW) for the Management of

BRADYARRTHYMIAS IN SYMPTOMATIC PATIENTS

ICD-10-R00.1

WHEN TO SUSPECT

Patient with any of the following symptoms, AND a pulse rate < 50bpm: (persistent)

- Syncope/ presyncope/ dizziness
- Lethargy/ fatigue
- Breathlessness/ chest pain on exertion

BASIC EVALUATION

HISTORY

- Syncope/ presyncope: frequency, associated fall/ injury/ incontinence
- Exertional angina or known coronary artery disease
- Known hypothyroidism or kidney disease
- On beta-blockers, Calcium Channel Blockers or digoxin
- Patient with an implanted pacemaker or other device
- Yellow oleander poisoning

EXAMINATION

- Drowsiness/ impaired consciousness
- BP, heart rate

TESTS TO BE DONE

Patient presenting to PHC/CHC:

- 12-lead ECG
- Blood urea, serum creatinine
- Electrolytes
- Blood sugar

EVALUATION AND TREATMENT OF UNSTABLE PATIENTS

1. TREATMENT OF ASSOCIATED CONDITIONS
   - **Hyperkalemia**
   - **Suspected drug (BB or CCB) overdose:**
     i. Withhold the drug
     ii. iv insulin (1 U/kg bolus followed by 0.5 U/kg/h) with glucose monitoring(or) iv glucagon if available
2. TEMPORARY PACEMAKER INSERTION
   (iv dopamine or adrenaline may be given till the time TPI can be placed)

EVALUATION AND MANAGEMENT OF STABLE PATIENTS

Findings on 12-lead ECG

- Atrioventricular block
- Sinus node dysfunction
- Other conduction disorders with 1:1 AV conduction
- Non-diagnostic ECG

INDICATIONS FOR URGENT TREATMENT/REFERRAL

- Hypotension (SBP <90 mmHg), impaired consciousness or ongoing chest pain
- Recurrent or ongoing syncope/presyncope
- Associated headache with or without neurologic deficit (suspect intracranial event)
- Patient with a pre-existing device
- If ECG available, evidence of any of the following
  - Complete heart block
  - Sinus node disease with pauses >3 s long
  - Bradycardia (HR < 50 bpm) (with or without hyperkalemia, serum K > 5 mEq/L)

GENERAL APPROACH TO PATIENTS WITH SYMPTOMATIC BRADYCARDIA

1. Rule out **associated conditions**
   - Renal dysfunction, hyperkalemia
   - Drug toxicity (BB, CCB, clonidine, Lithium)
   - Sleep apnea (clinical scoring systems such as Epworth Sleepiness Scale may be used for initial assessment)
2. Transthoracic echocardiography

INDICATIONS FOR PERMANENT PACING

AV NODAL DISEASE

- Complete heart block, advanced AV block, or Mobitz Type II block
- Symptomatic patients with AV block other than above
- Associated neuromuscular disease

SINUS NODE DYSFUNCTION

- Symptomatic patients with sinus pauses > 3 s long with symptom correlation
- Asymptomatic patients with sinus pauses > 6 s long

OTHER CONDUCTION DISORDERS WITH 1:1 AV CONDUCTION

- Symptomatic patients with HV ≥70 ms on EPS
- Others (alternating BBB, infiltrative/ neuromuscular disease)

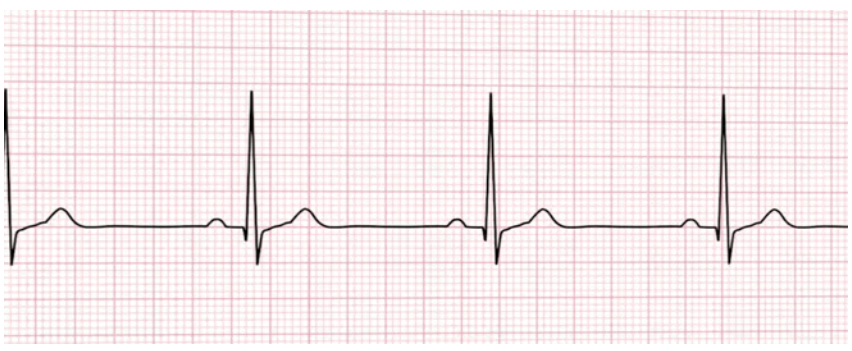
RECOMMENDED PACING MODES

1. **SND with intact AV conduction**
   - Atrial-based single or dual chamber pacing
   - VVI pacing is reasonable if symptoms are infrequent
2. **AV node disease**
   - VVI/Dual chamber pacing in patients with LVEF >50%
   - CRT (or HBP) in patients with LVEF 36-50% and requiring ventricular pacing >40% of the time

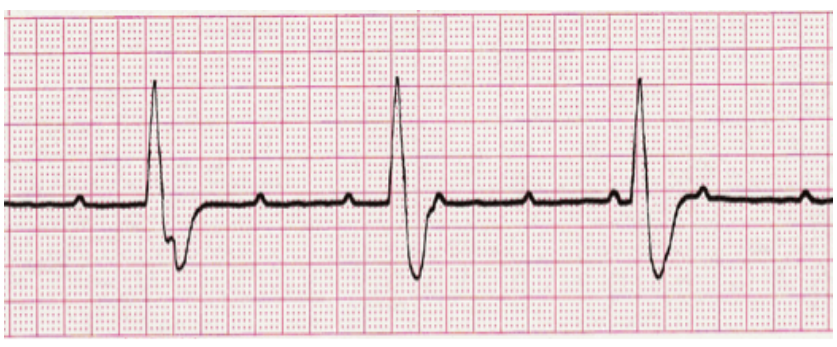
ADDITIONAL TESTING

1. **Advanced imaging** (cMRI) may be needed if infiltrative disease is suspected
2. **Ambulatory ECG** may be needed
   - In patients with first or second degree AV block for symptom correlation
   - In patients with suspected sinus node disease for detection of pauses and symptom correlation
   - In symptomatic patients with LBBB or bifascicular block
3. **ICM and EPS** (consult published society guidelines)

ECG: SINUS BRADYCARDIA



ECG: THIRD DEGREE HEART BLOCK



This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit our web portal (**stw.icmr.org.in**) for more information.