Annotations

Management of paroxysmal tachycardia

Paroxysmal tachycardia may present at any age from late fetal life to adolescence. Fetal tachycardia, though uncommon, has been increasingly recognised in recent years. The fetal electrocardiogram is of limited value but ultrasound examination may establish the presence or absence of associated cardiac defects, cardiac failure and—using M mode tracings—the nature of the tachycardia. If episodes of tachycardia are recurrent or prolonged, or evidence of fetal cardiac failure is found, giving the mother digitalis should be considered, and will frequently control the arrhythmia and allow the pregnancy to proceed without early delivery being necessary.

Postnatal tachycardia, whether presenting in the neonatal period, later infancy, or subsequently in childhood needs careful assessment and urgent treatment. The electrocardiogram usually shows narrow QRS complexes, which suggest a supraventricular origin. P waves may or may not be visible and the rate is usually between 200 and 350 per minute. With slower rates (200–220 per minute) differentiation from sinus tachycardia may be difficult and depends largely on observations about onset, variations in rate, and response to vagotonic manoeuvres or treatment, or both. Urgency of treatment depends on the extent to which cardiovascular function is compromised. When the patient is severely symptomatic intravenous verapamil is the drug of first choice (0.1–0.2 mg/kg given over 10 minutes). There should be continuous electrocardiographic monitoring during and after drug treatment, and the injection may be stopped when normal rhythm is restored. In some cases the arrhythmia may not revert for several minutes after the injection. The dose may be repeated after 10 minutes if the arrhythmia persists or recurs. In addition, digitalis (10 μg/kg digoxin IM 6 hourly × 3–4 doses) should be given. (Note, digoxin should be avoided if the QRS complexes are wide, suggesting a ventricular origin). If verapamil is not available, or fails to stop the tachycardia, DC cardioversion will usually do so. A shock of 0.25–1 joule/kg is usually sufficient. ‘Synchronisation’ is desirable, but if unavailable an unsynchronised shock may be employed. The risk of ventricular fibrillation after an unsynchronised shock is small and, should it occur, a further DC shock may be given to restore normal rhythm.

When cardiovascular function is well maintained during the tachycardia, the urgency with which effective treatment needs to be applied may be less. Vagotonic manoeuvres may be attempted such as unilateral carotid sinus massage or an ice pack (cloth soaked in iced water) placed over the upper face suddenly (do not obstruct the airway!). Older children frequently learn tricks such as breath holding or adoption of head down posture with abdominal compression which may stop the attack.

When sinus rhythm is restored the resting electrocardiogram needs to be reviewed for evidence of pre-excitation (Wolff-Parkinson-White syndrome etc) or of other abnormalities such as QT prolongation. In neonates, abnormalities of P waves (right atrial or biatrial hypertrophy) or T waves, or both, may be seen for several hours or days after reversion of the tachycardia. These often indicate that prolonged or recurrent episodes of arrhythmia have occurred, and may imply that fetal tachycardia has been present, even if this was not observed clinically.

In patients with a normal QT interval, with or without pre-excitation, maintenance treatment should consist initially of digitalis alone unless a ventricular origin for the tachycardia is suspected. If the arrhythmia recurs after adequate digitalis (evidence by therapeutic serum values) a beta adrenergic blocking drug (eg propranolol) should be added (0.5–1.0 mg/kg 8 hourly, orally). The addition of other drugs should only be considered after consultation with a cardiologist, though for specific indications drugs such as disopyramide, verapamil or amiodarone, or both, may be very helpful.

Failure to stop an attack rapidly with simple measures or failure to control recurrences with digitalis with or without beta blockade, or both, demand urgent referral to a cardiac centre. Poor arrhythmia control with empirical treatment will necessitate full electrophysiological investigation, requiring highly specialised techniques, and should only be performed in those few centres which have the equipment and the expertise to perform and interpret these complex investigations.
In patients with a normal resting electrocardiogram and in whom no recurrence of tachycardia occurs, a maintenance dose of digoxin should be continued for 6 months and may then be withdrawn. When the electrocardiogram shows pre-excitation or where recurrences have occurred (except in the first few days after initial tachycardia) it is advisable to continue maintenance treatment for at least a year after the last episode. Withdrawal of drugs may then be attempted cautiously, but if further recurrences occur prolonged maintenance treatment is indicated.

References


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What use are nose drops?

Vasoconstriction of the nasal mucosa may be attempted for the relief of nasal congestion associated with upper respiratory tract infections. Frequently these episodes may be complicated by sinusitis and otitis media and it is sometimes claimed that the use of nose drops assists the drainage of the sinuses and the middle ear.

Most nose drops arrive in the bowel and have no effect on the nasal mucosa. This is because the drops are not correctly applied to the mucosa because of lack of instruction or failure to perform it.

The correct installation of drops into the nose of an infant or child is difficult and might be considered impossible. The child lies on his back across a bed with his head hanging over the edge of the bed. He ought to be able to see that point where the wall behind him meets the floor. The precise number of drops, at blood heat, should be instilled into each nostril, after which he should remain in that position for at least two minutes to allow absorption. Because there is a tendency for agents to produce a rebound effect of worse nasal congestion after a few hours and because frequent use of nasal drops is known to produce chemical rhinitis, nose drops should only be used in the acute phase. If the desired result has not been achieved after three or four days and vasoconstriction of the nasal mucosa is still required a drug selected should be given by mouth. However, a recent controlled trial from Pittsburgh shows that even if taken orally decongestants such as antihistamine are no more effective than placebo in the management of otitis media with effusion.

Reference


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