

precaution approach' is recommended while dealing with high risk patients and their tissue fluids to minimise the risk.

Active research is being carried out at many centres to find a cure or vaccine against this scourge of the 20th century. Till success is achieved, the only way of limiting its dissemination and spread is by following preventive methods rigidly.

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EMERGENCY TIPS

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The enlarged, tender and discolored scrotum in children may present a major diagnostic dilemma. The correct diagnosis is essential to avoid irreversible testicular injury. Hermann(1) discusses a systematic approach to the evaluation and management of the acute red scrotum:

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(i) *Testicular torsion*: This is the one diagnosis that cannot be missed if gonadal preservation is to be a reality. Extravaginal torsion is found exclusively in neonates and presents at or shortly after birth. Intravaginal torsion involves twisting of the testes within the tunica vaginalis. This is called "bell-clapper" deformity due to the lack of posterior attachment of the testis to the scrotum, thus allowing for potential twists and subsequent vascular compromise. This type is more common in the prepubertal and postpubertal males. The patient presents with a history of pain with either acute or insidious onset that radiates to the groin. There may be nausea with or without vomiting and abdominal pain, but rarely fever. Physical examination reveals clearly unilateral edema and erythema of varying degrees in most patients. Prehn's sign (relief of pain on elevation) is not reliable enough in children to differentiate epididymitis from torsion. Testicular radio-nuclide scan is the most commonly used adjunctive test. Its use depends on availability to the clinician on a 24-hour basis and expertise in interpretation. The scan reveals diminished or absent blood flow to the hemiscrotum as opposed to increased or lack of decrease with epididymitis. The accuracy depends on the technique, co-operation of the patient and the stage of the pathologic process. Doppler ultrasound has been used in older patients. However, it is not used in younger patients due to inadequate cooperation and lack of sufficient expertise in certainty of the diagnosis.

(ii) *Epididymitis*: Like torsion, epididymitis may present with pain but is usually insidious in onset over several days. Unlike torsion, it is not usually associated with gastrointestinal symptoms. Urinary symptoms are not uncommon and urinalysis may reveal pyuria. The causes of epidi-

dymitis can be bacterial, viral, traumatic, chemical, associated with systemic disease or idiopathic. Bacterial infection is the most common and is frequently due to coliforms. Postpubertal causes include *N. gonorrhea* or *C. trichomatis*.

(iii) *Orchitis*: These patients may have exquisite pain secondary to swelling of the testes. Mumps orchitis is the best known cause, but there is a wide variety of viruses and pyogenic organisms that cause this entity.

(iv) *Torsion of testicular appendages*: This is more common in younger pediatric patients. The presence of the so-called "bluedot" sign is pathognomic of this entity, representing the necrotic appendage beneath the skin. Unlike testicular torsion, if the diagnosis is certain, it can be observed along with analgesics only.

(v) *Idiopathic scrotal edema*: This is manifested by onset on unilateral or bilateral edematous scrotum with erythema. It has a self-limiting course if left alone over several days. There is no indication for antibiotic therapy.

The other causes include: strangulated inguinal hernia, testicular tumor, trauma, Henoch-Schonlein purpura.

The author concludes that acute scrotum can be a diagnostic dilemma. To avoid irreversible testicular injury, torsion of the testis must not go unrecognized; however, other conditions must also be considered. The history, physical examination and appropriate tests are important. In cases where testicular torsion cannot be ruled out, the patient will need scrotal exploration.

An Aid to Insertion of Venous Catheters

Does the application of nitroglycerin (NTG) facilitate insertion of peripheral

intravenous catheters in infants? Maynard and Oh(2) conducted a randomized double-blind placebo controlled trial to answer the above question.

The patients were randomly assigned to receive either NTG (0.12 mg/kg) or a placebo. The ointment was applied to the skin at the site of catheter placement, left in place for 10 minutes and then removed with alcohol before the attempt to insert the needle or catheter. Experienced nurses placed the catheters using standard techniques, ointment (NTG or placebo) was used for no more than three attempts in each patient. Duration of catheter use was noted. Vital signs were monitored.

There was no difference in the type of catheter used in each group or in the distribution of individual nurses placing catheters. Erythema or dilated veins at the site of application were noted in four patients, including three in the NTG group. No cardiovascular side effects were seen in any patient. Catheter placement was unsuccessful significantly more often in the NTG group. The difference in duration of catheter use was not statistically significant. Because of an adverse effect of the study drug, the authors decided to end the study early. They caution about the possible adverse effect and limited potential for improved performance in cannulation.

Large Bore Routes

Rapid fluid resuscitation via large-bore catheter introducers has become the foundation of trauma resuscitation. Does the utilization of large bore catheter, by itself, guarantee high flow rates? Dutky *et al.*(3) analyzed 4 different factors that affect rapid fluid administration: catheter introducer kinking, the type and temperature of infusate, and the diameter of the IV tubing.

Rates of flow through 8.5 French catheters from 0 degrees to 80 degrees of catheter angulation were determined for various fluid as well as varying sizes of IV tubing. The authors found the flow rate of crystalloid infusion through blood tubing was double that of regular IV tubing, and trauma tubing had 3 times the flow rate of blood tubing. Warmed diluted packed red blood cells (RBCs) could be infused twice as fast as cold whole blood. Kinking of the catheter introducer halved the flow rate of fluids through largebore trauma tubing but had no effect when standard IV tubing was utilized. The authors conclude that a large-

bore catheter, by itself, does not guarantee high flow rates.

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