

Introduction

Multisystem inflammatory response to the presence of bacterial (staph & strep) exotoxins.

Pathogenesis

Superantigen exotoxin sets off an inflammatory cascade mediated mainly by TNF α & IL-1.

Epidemiology

Uncommon. Prevalence ~3/100,000. Tampon-related cases have declined. Adults>children.

Possible risk factors

- Skin inflammation:
 - Staph. aureus cellulitis
 - Allergic contact dermatitis
- Wounds:
 - Postoperative infections (classical signs of infection may be absent in wound)
 - Packed wounds e.g. nasal
 - Other wounds including burns
- O & G:
 - Tampon use (less relevant since changes in manufacture/patterns of use)
 - Gynaecological infection
 - Puerperal sepsis
- Bacterial URTI infections:
 - Sinusitis
 - Tracheitis
- Recreational intravenous drug use
- Certain viral infections: HIV, Varicella spp., Influenza A
- NSAID use (controversial)

Presentation

- High fever
- Rash (erythrodermic or scarlatiniform)
- Hypotension (toxin suppression of myocardial contractility)
- Multiorgan dysfunction
- Palms, soles of feet, mucous membranes and tongue may be bright red.
- Desquamation of palms and soles of feet 1-2 weeks after onset
- Also commonly may have: D & V, myalgia and muscle weakness
- Confusion and disorientation may indicate encephalopathy.
- Evidence of skin, gynaecological or respiratory infection

Differential diagnosis

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| <ul style="list-style-type: none"> • Cellulitis • Meningococcal disease • Gram-negative septic shock • Erythema multiforme/SJS/Toxic epidermal necrolysis • Heat-related illness • Infectious mononucleosis • Infective endocarditis | <ul style="list-style-type: none"> • Kawasaki's disease • Viral infection and exanthem • Leptospirosis • Typhus/other rickettsial infections • Cardiogenic shock • Listeria monocytogenes infection • Typhoid • Dengue Fever |
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Investigations

Urine: ?microscopic haematuria/myoglobinuria

Bloods: FBC (WCC, plt), UEC (?ARF, electrolyte disturbance and hypoCa), CK, LFT

Cultures: Blood, throat, any wound & ?vaginal

Imaging: CXR may be useful if suspected pneumonic focus

Management

Early diagnosis and rapid intervention are the key to preventing rapid deterioration.

- Any focus of infection such as abscess, wound pack, wound slough or tampon should be immediately removed, with surgical assistance if necessary.
- Then generally management as per Sepsis:
 - Initial resuscitation via EGDT (with CVP, ScvO₂, MAP & urine output monitoring)
 - Antibiotic therapy (**flucloxacillin** or **vancomycin**)
 - Vasopressors (if ongoing hypotension) ± Steroids
 - ?Activated Protein C in severe cases
 - Blood products (Hb<7, Hct<0.3, plts<5)
 - Mechanical ventilation (if ARDS)
 - Other:
 - Avoid oversedation and NM blockers
 - Tight glucose control
 - Dialysis(if ARF)
 - DVT Prophylaxis
 - Stress ulcer prophylaxis
 - Consider IV Ig

Complications

- Recurrence
- Acute respiratory distress syndrome
- Cardiomyopathy
- Rhabdomyolysis
- Acute renal failure
- Metabolic acidosis, electrolyte disturbance
- Encephalopathy and cerebral oedema
- Thrombocytopenia and marrow suppression
- DIC
- Hepatic necrosis

Prognosis

- Mortality rate for TSS is around 5-15%. May be higher with Strep-TSS.
- Recurrence of TSS is found in 30-40% of cases.