Clinical Algorithm: Clinical Evaluation and Management of Drug Users with Possible Anthrax

ANTHRAX SUSPECTED IN AN INJECTING DRUG USER

Any drug user who presents with:

- Severe soft tissue infection, including possible necrotizing fasciitis or cellulitis/abscess particularly if associated with tissue oedema (often marked). This can present as compartment syndrome
- Signs of severe sepsis even without evidence of soft tissue infection
- Meningitis (particularly haemorrhagic meningitis). Also be suspicious if drug users present/have CT evidence suggestive of subarachnoid haemorrhage/intracranial bleed.
- Signs and symptoms of inhalational anthrax
  - Flu-like illness, progressing to severe respiratory difficulties and shock
  - Chext x-ray signs (pleaural effusions, mediastinal widening, paratracheal fullness, hilar fullness, parenchymal infiltrates)
  - Progressively enlarging haemorrhagic pleural effusions are a consistent feature
- Respiratory symptoms may also be accompanied by signs and symptoms suggesting meningitis or intracranial bleeding in the rapidly advancing stages of the disease process due to haematogenous spread
- Cases of disseminated anthrax whether 'injectional' or inhalational may present with a variety of symptoms such as abdominal pain, nausea, vomiting, diarrhoea, gastrointestinal haemorrhage, ascites etc., suggestive of either GI involvement or actual gastrointestinal anthrax

NB: - IVDU may also present with the signs/symptoms of classical cutaneous anthrax. In the recent UK outbreak, the presentation has been of mainly soft tissue sepsis rather than classical eschar formation.
- While diagnostic imaging provides important evidence of extent of involvement, it should not be allowed to delay potentially life (or limb) -saving surgical intervention

ANTHRAX STRONGLY SUSPECTED?

YES

NO

Anthrax unlikely:

- Observe closely
- Investigate as appropriate
- Reassure
- Treat other conditions
- Reassess if necessary

DIAGNOSIS

Discuss immediately with Microbiology Team/ID Consultant

Take initial diagnostic tests*[1]

- Blood cultures (before starting antibiotics if possible)
- EDTA blood for PCR (before starting antibiotics if possible)
- Tissue and/or material from lesion/abscess for Gram stain and culture
- Serum sample for toxin/antibody testing
- HPA Laboratory images of anthrax are available here

Laboratories must handle specimens in a CL3 facility if anthrax is suspected

1. Local laboratory to discuss urgently with Consultant Microbiologist/ID Consultant
2. Notify Dept Public Health/HPSC as a possible case
3. Inform hospital infection control team
4. Inform Rare and Imported Pathogens Department, HPA Porton

TREATMENT (Refer to Clinical Presentation Guidance [LINK] for full details):

- Immediate IV access (and urgent blood cultures) – correction of fluid/electrolyte imbalances
- Urgent surgical debridement (to remove dead or devitalized tissue and drainage of any abscess/collection) is the most important treatment – by removing the primary source of toxin production BUT:
- Immediately start empiric antibiotic treatment to cover *B. anthracis* as well as other more common causes of soft tissue infections with the following combination. **Ciprofloxacin** and **clindamycin** intravenously in combination with **penicillin**, **flucloxacillin** and **metronidazole** (i.e. a 5 drug combination)
- It is important to ensure that high dose PENICILLIN and FLUCLOXACILLIN is used to ensure adequate dosing in severe necrotising soft tissue infection.
- Treatment of disseminated anthrax without evidence of soft tissue infection e.g. inhalational anthrax including anthrax meningeal involvement.
  - **Ciprofloxacin and clindamycin intravenously** in combination with at least one other active drug e.g. **penicillin** or **vancomycin** (in pen allergic); other agents with activity include **rifampicin**, **imipenem**, **meropenem**, **chloramphenicol** and **gentamicin**
- Health Protection Scotland has fuller information on the clinical approach to anthrax in IVDUs

Review diagnosis when test results are available

Review antimicrobial therapy based on clinical progress

**Gloves should be worn when microbiological specimens are taken. Samples should be labelled as 'High Risk' and handled according to local protocols. The microbiology laboratory should be notified of the suspected diagnosis and told to expect the sample. For needlestick injuries, see the EMI Toolkit*

[1]Microbiological specimens to local laboratory who will liaise as necessary with Rare and Imported Pathogens Department, HPA Porton

Adapted from Clinical algorithm: clinical evaluation and management of drug users with possible anthrax (HPA, London)
Further information on the Management of IVDUs presenting with features suggestive of B. anthracis infection can be found on the HPSC website at [www.address]
HSE-Health Protection Surveillance Centre (HPSC) Tel: +353 1 8765 300 www.hpsc.ie
25-27 Middle Gardiner Street, Dublin 1, Ireland. Fax: +353 1 856 1299

HPSC V1.0 Sept 2013