INFLUENZA (SEASONAL AND EPIDEMIC [H1N1])

(Last updated 07/23/2019; Reviewed by: Kang An, MD)

PRESENTING COMPLAINT: Febrile illness with respiratory symptoms

FINDINGS

- A: Check airway
- B: ↑ RR, increased work of breathing
- C: ↓ /NBP, ↑ HR
- D: Variable altered (V,P,U,D)*
- E: Fever, Cough, Rhinitis, Headache
- Lpc: ↓ PaO₂, ↓ PCO₂, ↑ /N WBC, Influenza Swab +
- Upc: B lines bilateral, C pattern; hyperdynamic LV/RV
  *V (verbal), P (pain), U (unconsciousness), D (delirious)

Upc (point of care ultrasound)  Lpc (point of care labs)

DEFINITION: Acute respiratory illness caused by either influenza A or B virus. Occurs in outbreaks and epidemics worldwide, mainly during the winter season.

OTHER HISTORY

- Symptoms
  - Fever, symptoms of upper and lower respiratory tract infection, cough, rhinitis, sore throat, myalgia, headache, weakness
- Predisposing Conditions
  - Residents of nursing homes and other chronic care facilities, adults ≥ 65 years, pregnant and up to two weeks postpartum women, individuals with chronic medical conditions, morbidly obese, persons on long term aspirin therapy, children < 2 years, American Indians/Alaskan Natives (in United States and Canada)

DIFFERENTIAL DIAGNOSIS

- Other respiratory viruses and bacterial causes

OTHER INVESTIGATIONS

- Labs
  - The optimal specimens for influenza testing are nasopharyngeal aspirates, washings, and swabs
    - Video showing proper technique at the New England Journal of Medicine website
  - RT-PCR is most sensitive and specific, preferred
o Immunofluorescence antibody staining, direct or indirect
o Rapid influenza diagnostic test (screening)

• Clinical
  o During an influenza outbreak, acute febrile respiratory illnesses can be diagnosed as influenza with a high degree of certainty by clinical criteria

THERAPEUTIC INTERVENTIONS
• Antiviral therapy should be initiated as soon as possible, as it is most likely to provide benefit when initiated within the first 48 hours of illness; the benefits of antivirals in this context are not certain, but are recommended as current standards of care.
• Current recommended antiviral therapy
  o Adult
    ▪ Oseltamivir: 75mg capsule twice daily orally for five days
    ▪ Zanamivir: 10 mg inhaled twice daily for five days (adults and children over 7)
    ▪ Peramivir: 600 mg IV once (Only approved for adults)
  o Pediatric
    ▪ Oseltamivir (children 1 and under): 3 mg/kg twice daily
    ▪ Oseltamivir (dosing for children >1)
      • 15 kg or less: 30 mg twice daily
      • 15 kg-23 kg: 45 mg twice daily
      • 23 kg-50 kg: 60 mg twice daily
      • >40 kg: adult dose
• Acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDs) can be used to treat fever, headache, and myalgia associated with influenza
• Secondary bacterial pneumonia is an important complication of influenza and contributes substantially to morbidity and mortality, especially among individuals ≥ 65 years of age
  o For antibiotic regimens, see Pneumonia card
• Corticosteroid use controversial
• For management of other complications, like ARDS, sepsis, and shock, see the appropriate related cards
  o If ARDS, usually very severe hypoxemia sometimes treated with adjunct interventions, including prone positioning and ECMO
• Respiratory support, including high flow nasal cannula oxygen, noninvasive and invasive ventilation

ONGOING TREATMENT
• Infection control and prevention
o Vaccination, face masks, hand washing, standard and droplet precautions when caring for patients

o For select patients, chemoprophylaxis, considered as both oseltamivir and zanamivir, have been demonstrated effective at reducing the risk of developing influenza after exposure
  ▪ These populations include: high risk individuals (see above) who have been exposed but were not vaccinated and unvaccinated healthcare workers with exposures and inadequate use of isolation precautions

o Oseltamivir prophylaxis
  ▪ Children (< 3 months): not recommended
  ▪ Children (Age 3-11 months): 3 mg/kg dose once daily for 7 days
  ▪ Children 1 year or older
    ▪ 15 kg or less: 30 mg daily
    ▪ 15 kg-23 kg: 45 mg daily
    ▪ 23 kg-50 kg: 60 mg daily
    ▪ >40 kg: adult dose
  ▪ Adult dosing: 75 mg PO daily for 7 days

o Zanamivir prophylaxis
  ▪ Children 5 and over and adults: 10 mg inhaled once daily for 7 days

CAUTION
  • Role of steroids is uncertain: Probably best avoid usage of them unless refractory septic shock or severe pneumonia

REFERENCES & ACKNOWLEDGMENTS

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H1N1 Influenza A Disease — Information for Health Professionals — NEJM http://www.nejm.org/doi/full/10.1056/NEJMe0903992