Pertussis
Whooping cough

Session objectives

1. Signs and symptoms
2. Complications
3. Agents
4. Diagnosis
5. Epidemiology (Occurrence, Reservoir, Transmission, incubation period, Communicability, Susceptibility and resistance)
6. Methods of control(Preventive measures &Control of pt and contacts)

- Pertussis, also known as whooping cough ,is an acute infection of the tracheobronchial tree a highly contagious disease caused by the bacterium Bordetella pertussis. It is known to last for a duration of approximately 6 weeks before subsiding. The disease derives its name from the "whoop" sound made from the inspiration of air after a cough.

Acute bacterial infection of respiratory system, characterized by:

- **catarrhal Stage; insidious onset with fever, irritating cough of 1-2 wks, then**
- **Paroxysmal stage; attacks of repeated many violent coughs without intervening inhalation, followed by characteristic whoop (loud crowing inspiration), paroxysms may end with expulsion of clear tenacious mucus, or may end with vomiting (2-8 weeks, or sometimes longer).**
- **convalescent stage (stage of decline) (2-3 wks).**

Complications:

- **Pneumonia, Hemorrhage, Encephalopathy, earache, or seizures**

CFR: in developing countries=3.7% <1 yr.

And 1% for 1-4 yrs.

Sever type &deaths occur more in:

- **<6 ms.**
- **Malnourished with multiple enteric & resp. infection.**
- **Non-immunized population.**
- **Female more than male.**

Agents

- **Bordetella Pertussis**
- **B. Parapertussis which cause similar but milder disease.**

Diagnosis : depend on clinical features

& culture of MO from nasopharyngeal specimens during catarrhal and early paroxysmal stage of the diseases on appropriate culture media., polymerase chain reaction (PCR), direct immunofluorescence (DFA), and serological methods.

Occurrence:

- Disease occur endemically&epidemically.
- Commonly among children <5 yrs.
- Worldwide dramatically dropping in dis incidence & deaths with;
- Active immunization program.
- Improved nutrition.
- Improved medical care.

Reservoir: human

Mode of transmission:

- **Direct contact with respiratory discharge or droplets by airborne route.**
- **Indirect by contaminated objects or through the air.**

I.P: 6-20 Days.

Period of communicability:

- Highly communicable during catarrhal stage and 1st 2 wks of paroxysmal stage without Rx.
- In treated Pt; 5 days after starting erythromycin.

Susceptibility and resistance:

- **Universal for all non-immunized persons.**
- **No trans placental immunity (no passive maternal immunity).**
- **One attack confers prolonged immunity.**
- **Subsequent attack can occur.**
- **Vaccine efficacy varies from70-90% (3 doses) then increase with the 2 booster doses.**

Methods of control

A) **Preventive measures:**

1. **Health education.**
2. **Active immunization with 3 doses of DTP vaccine IM, (each dose 0.5ml), at 1-2 ms interval, starting when the infant is about 8 wks old, with other 2 booster doses at 18 ms & school entry.**

The pertussis vaccine consisting of either a killed whole cell (wP in DTP) or acellular preparation (Ap in DTP) in same doses & boosters (have less side effects & can be given to>7yrs).

3. Protection of health workers during outbreaks using 7 days course of erythromycin.

DTP vaccine can be given simultaneously with:

OPV, IPV

HB vaccine

Hib vaccine

- **Side effects of DTP vaccines:**

1) local reactions, or sever reaction.

2) mild fever and irritability.

3) febrile seizures

4) Persistent sever screaming

5) collapse or anaphylactic reaction.

Contraindications of DTP vaccination:

- The only true contraindication to immunization with ap or wp is an sever reaction, collapse or anaphylactic reaction to previous dose of vaccination.

B) Control of pt, contacts:

1. **early reporting.**
2. **respiratory isolation for pt. while suspected cases should be removed from non-immunized young infants until 5 days after starting antibiotic, or for3 wks for those not receive antibiotic**

3. concurrent disinfection of articles.

4. modified quarantine: inadequately immunized household contacts<7 yrs may be excluded, from schools, for 21 days after exposure or until 5 days of a minimum 7 days course of antibiotic.

5. Protection of contacts;

***by a dose DTP vaccine as soon as possible after exposure for those <7 who have not received 4 DTP doses or not received a DTP dose within 3 yrs.**

***by prophylactic antibiotic therapy in the early IP may prevent the disease, & to prevent antibiotic resistance cases so this measure is limited to children <1 yr, and pregnant women in the last 3 wks of pregnancy (risk of transmission to the newborn).**

6. Investigation of contacts.
7. Specific Rx. By erythromycin, azithromycin, clarithromycin. For 14 days (↓communicability, but not the course of disease except in early IP and early paroxysmal stage).

***Epidemic measures**

1. protect preschool children by looking for unrecognized cases, and ensure adequate preventive measures for exposed children<7 yrs.
2. acceleration of immunization program staring 1st dose at age of 4-6 wks of age and at 4 wks intervals, & doses should be completed.