Exanthematous Fever
objectives

- FEVER WITH RASH
- 1 – Determine the feature of skin rashes
- 2 – Enumerate the most common causes of skin rashes in children (measles, chicken pox, rubella, erythema infectiosum, scarlet fever)
- 3 – Identify the clinical picture and complication of each disease
- 4 – Treat and prevent these diseases
Etiology

- **Infectious causes**
  - **Virus:**
    - Classic viral exanthem: Measles, Rubella, VZV, Parvovirus, Roseola
    - Others: HSV, EBV, HBV, Enterovirus, Dengue
  - **Bacteria:** Scarlet fever, Staph infection (sepsis, 4S, toxic shock syndrome), Meningococcemia, typhoid
  - **Mycoplasma**
  - **Rickettsial infection**

- **Noninfectious cause**
  - **Allergy:** Food, drug, toxin, serum sickness
  - **Uncertain cause:** Kawasaki disease
Measles

- Measles virus: RNA, family Paramyxoviridae
- Airborne transmission
- Winter season
- Only human reservoir
- Infectivity, 3 days before up to 4-6 days after onset of rash
Clinical Manifestation

- Incubation: 8-12 days
- Prodromal period: fever 2-4 day + 3C
  - cough
  - coryza
  - conjunctivitis
  - Koplik spot
- Rash: erythematous maculopapular rash
  - face→sole in 72 hr.
  - face and trunk: mostly distributed
- Convalescence
  - cough may persist for 1 week
  - Generalized lymphadenopathy may persist
Koplik spots
Measles rash
Diagnosis

- History of contact
- Symptoms and Signs
  - 3C, Koplik spot,
  - Rash appears before defervescence
- Investigation
  - CBC: decrease the WBCs with lymphocytes decrease more than neutrophils
  - serology: IgM detection appear 1-2 days after the onset of rash, remain for 1 month OR 4 folds rise in IgG in acute and convalesence
  - CXR: perihilar infiltration
Complication?
Treatment and Care

- Supportive and Symptomatic
- Vit A supplementation
  - 6 mo-2 yr hospitalized with measles and complication
  - > 6 mo who have risk for severe measles and vit A deficiency
- Antibiotic for superimposed bacterial infection
- Isolation: Airborne Precaution
- Prevention: immunization
  - 12-15 months
  - 4-6 years
Rubella (German measles)

- RNA virus: Family Togaviridae, genus Rubivirus
- IP: 14-21 days
- Infectivity: 5 days before – 6 days after onset of rash
- Human is the only reservoir
- Major clinical significance is transplacental infection and fetal damage as apart of congenital rubella syndrome
Clinical Manifestation

- Prodromal period 1-5 days, low grade fever, sore throat, red eye, headache, malaise, anorexia
- Maculopapular rash for 3 days begin in the face and neck as small, irregular pink macules that coalesce and spread to trunk and extremities, resolve without desquamation
- LN at postauricular, suboccipital and cervical area are prominent
- CBC: leukopenia
- Diagnosis: viral isolation
  - Serologic test: rubella IgM
  - PCR
Rubella

- Complication
  - Arthritis 1\textsuperscript{st} week
  - thrombocytopenia
  - Encephalitis
  - Congenital rubella syndrome
- Treatment: supportive
- Isolation:
  - droplet precaution for 7 days after onset of rash,
  - contact precaution for congenital rubella until \geq 1\ yr-old because may excrete virus up to 1 year from respiratory secretions
- Prevention: immunization ,MMR
Congenital Rubella Syndrome

Rubella syndrome

- Microcephaly
- PDA
- Cataracts
Chickenpox (varicella)

- VZV, DNA
- Transmission
  - airborne
  - contact vesicular fluid
  - vertical transmission
- Incubation period:
  - 14-16 days, (10-21 days)
- Infectivity: winter season
  - Most contagious: 1-2 days before onset of rash until crusting of lesion.
Clinical Manifestation

- Prodromal period: 2-3 days of high fever, malaise, anorexia

- Started by pruritic erythematous macules, papules, vesicles, started to clear then clouding and umblication then crusting, new lesion appear

- Generalized, pruritic, vesicular rash 250-500 lesions involving skin and oral mucosa, central or centripetal

- Simultaneous presence of lesions in various stages is characteristic to varicella
complication?
Diagnosis and Differential Diagnosis

- **Diagnosis**
  - S/S
  - Cbc: leukopenia
  - PCR
  - VZV IgG: 4 folds or more

- **Differential Diagnosis**
  - Impetigo contagiosa
  - Enterovirus
  - HSV
  - Drug rash
Treatment and care

- Supportive and symptomatic
  - antipruritic drug
  - for severe case: acyclovir
- Isolation:
  - Airborne and contact isolation 1-2 days before rash until crusting of all lesion.
- Prevention
  - Immunization: 2 doses at 12-15 months and 4-6 year
Erythrema infectiosum (Fifth D)

- Parvovirus (PV) B19 Family Paroviridae, DNA
- 3-15 year, late winter and spring
- Droplet transmission
- Incubation period: 4-28 days, average 16-17 days
- Benign, self limited
- S/S: affected children are afebrile and do not appear ill
- Classical 3 phases
  - Sunburn-like rash both cheek (classic slapped-cheek appearance)
  - Day 1-4 after facial rash → rash spread as macular erythematous eruption at extremities (extensor surface) and trunk (2nd stage)
  - Lacy pattern: central clearance of macular rash, prominent on extremities, reticulated appearance
Scarlet fever

- GAS : pyogenic exotoxin
- Airborne infection, IP 2-5 days
- Acute febrile illness with:
  - pharyngitis
  - Gooseflesh or coarse sand-paper rash within 24-48 hr. begin around neck spread to trunk and extremities, 3 days start desquamation in face then downward, resembling mild sunburn
  - Most intense at pressure area: axilla, groin
  - Strawberry tongue, pallor around mouth
- **Diagnosis:** history of exposure
  - throat c/s
  - rapid antigen detection
  - ASO titer
- **Treatment:** antibiotic
- **D.D:** viral exanthemas, Kawasaki disease, drug eruption
Kawasaki Disease

- Fever > 5 days with 4/5 of the following criteria
  - bilat nonpurulent conjunctival injection
  - Change of mucosa of oropharynx
  - Changes of peripheral extremities
  - Rash
  - Cervical adeonopathy
- Illness not explained by other known disease process
- Coronary arteritis
thanks