

Respiratory viruses – revision

based on presentation of prof. Votava

- The most important:
 - **influenzavirus A a B**
 - **adenoviruses**
 - **RSV** and **metapneumoviruses**
 - **parainfluenzaviruses** (type 1+3 = *Respirovirus*, type 2+4 = *Rubulavirus*)
 - **rhinoviruses**
 - **coronaviruses** (incl. SARS agent)

Other respiratory agents of virological interest – revision

- **Bacterial agents causing atypical pneumoniae:**
- *Mycoplasma pneumoniae* – the most common
- *Coxiella burnetii* – Q-fever
- *Chlamydia (Chlamydophila) psittaci* – agent of ornithosis & psittacosis
- *Chlamydia (Chlamydophila) pneumoniae*

Etiology of epiglottitis – revision

- Epiglottitis acuta:

Serious disease – medical emergency

The child may suffocate!

Practically one and only important agent:

Haemophilus influenzae type b

Etiology of laryngitis and tracheitis – revision

- Respiratory viruses again but **other** than agents of nasopharyngitis:
parainfluenza and influenza A viruses & RSV
- Bacteria:
C. pneumoniae, possibly ***Mycopl. pneumoniae***,
secondarily: ***S. aureus*** and ***Haem. influenzae***
laryngotracheitis pseudomembranosa (croup):
Corynebacterium diphtheriae

Etiology of bronchitis – revision

- Acute bronchitis:

Viruses: influenza, parainfluenza, adenoviruses, RSV

Bacteria, secondarily after viruses: pneumococci, *Haem. influenzae*, *Staph. aureus*, moraxellae (again “the gang of four”)

Bacteria, primarily: *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, *Bordetella pertussis*

- Chronic bronchitis (cystic fibrosis):

- *Pseudomonas aeruginosa*, *Burkholderia cepacia*

Etiology of bronchiolitis – revision

- **Isolated bronchiolitis in newborns and infants only:**

***Pneumovirus* (= respiratory syncytial virus, RSV)**

Metapneumovirus

Different types of pneumoniae – revision

1. Acute – community-acquired pneumonia

- in originally healthy
 - adults
 - children
- in debilitated persons
- after a contact with animals

2. Acute – nosocomial pneumonia

- VAP = ventilator-associated
 - early
 - late
- others

3. Subacute and chronic pneumonia

Etiology of pneumoniae I

– revision

- Acute, community-acquired, in healthy adults
- bronchopneumonia and lobar pneumonia:
 - *Streptococcus pneumoniae*
 - *Staphylococcus aureus*
 - *Haemophilus influenzae* type b
- atypical pneumonia:
 - *Mycoplasma pneumoniae*
 - *Chlamydia pneumoniae*
 - **Influenza A virus** (during an epidemic only)

Etiology of pneumoniae II

– revision

- Acute, community-acquired, in healthy children
- bronchopneumonia:
 - *Haemophilus influenzae* type b (→ vaccination)
 - *Streptococcus pneumoniae*
 - *Moraxella catarrhalis*
 - In newborns: *Streptococcus agalactiae*
enterobacteriae
- atypical pneumonia:
 - respiratory viruses (RSV, infl. A, adenoviruses)
 - *Mycoplasma pneumoniae*
 - *Chlamydia pneumoniae*
 - in newborns: *Chlamydia trachomatis* D-K

Etiology of pneumoniae III

– revision

- Acute, community-acquired, in debilitated individuals:
 - pneumococci, staphylococci, haemophili
 - *Klebsiella pneumoniae* (alcoholics)
 - *Legionella pneumophila*
- In more serious immunodeficiency:
 - *Pneumocystis jirovecii*
 - CMV
 - atypical mycobacteria
 - *Nocardia asteroides*
 - aspergilli, candidae

Etiology of pneumoniae IV

– revision

- **Acute, community-acquired, after a contact with animals:**
- **Bronchopneumonia**
 - *Pasteurella multocida*
 - *Francisella tularensis* (tularemia)
- **Atypical pneumonia**
 - *Chlamydia psittaci* (ornithosis)
 - *Coxiella burnetii* (Q-fever)

Etiology of pneumoniae V

– revision

- Acute, nosocomial:
- VAP (ventilator-associated pneumonia)
 - early (up to the 4th day of hospitalization):
sensitive **community strains** of
respiratory agents („gang of 4“)
 - late (from the 5th day of hospitalization):
resistant **hospital strains**
- Other nosocomial pneumoniae
 - viruses (RSV, CMV)
 - legionellae

Etiology of pneumoniae VI

– revision

- Subacute and chronic:
 - aspiration pneumonia and lung abscesses
 - *Prevotella melaninogenica*
 - *Bacteroides fragilis*
 - peptococci and peptostreptococci
 - lung tuberculosis and mycobacterioses
 - *Mycobacterium tuberculosis*
 - *Mycobacterium bovis*
 - atypical mycobacteria (e.g. the complex *M. avium–M. intracellulare*)