Welcome. I'm Ruella

d'souza. Today we shall be studying module 24 which

covers influenza caused by Haemophilus influenzae .

The outline of this module we shall be studying the mode of

transmission pathogenesis.Symptoms chemotherapy and

Prophylaxis xis of influenza caused by Haemophilus

influenzae.

At the conclusion of thispresentation, you will have a

comprehensive knowledge of

influenza. And will understand the factors involved with regard

to its mode of transmission,pathogenesis, symptoms,

chemotherapy, and prophylaxis.

A brief introduction about this

Organism. It is a gram negative bacillus that is Pleomorphic.

Which means that it has a variable size and shape.

The bacillus is non motile and

non sporing. Oxidise positive and is capable of fermenting glucose

and xylose. It grows at 37 degrees Celsius and its

growth is characterized by the requirement of one or both of

two accessory growth factors.

These growth factors are namely X & V hemin and the

coenzyme, which may be NAD nicotinamide adenine

dinucleotide or nicotinamide adenine

dinucleotide phosphate.

Hemophilus influenzae type B or HIB is the most common

infectious agent due to the presence of its capsule.

Which contributes to the major factor in its virulence.

The mode of transmission.

Hemophilus Influenza Exclusively affects humans and

colonizes the nose or the throat.

It is spread by respiratory droplets, that is someone

coughing or sneezing and direct contact by inhaling these

infectious particles is responsible for spread and cause

of the disease.

Haemophilus influenzae may spread from the nose

onto to the epiglottis,causing severe inflammation

and edema. The epiglottis is a cartilage present at the

beginning of the windpipe,which prevents food from going

into the windpipe while you are eating. Edema is basically

swelling.

Pathogenesis those most at risk to contract influenza.

Caused by haemophilus influenzae have a weakened or

impaired immune system due to diseases like HIV or cancer.

Those who have an underlying condition, such as sickle cell anemia. Or those who have had their spleen removed or have mostly a condition called asplenia.

The pathogenesis of Haemophilus Influenzae is divided into 2 parts, invasive and non invasive. Non invasive influenza is caused by the spread of the bacillus along mucosal surfaces and usually causes a secondary infection of the respiratory tract.

Also, otitis media and sinusitis is observed in increased condition of chronic bronchitis.

Not invasive influenza is seen in adults and this is because.

The bacterium is not protected by a capsule.

The more concerning type of influenza is that caused by Haemophilus influenzae type B.

This invasive influenza acts as the primary pathogen and causes infection when it moves from the respiratory system to the blood.

Meningitis bacteremia,pneumonia, laryngeal epiglottitis and Cellulitis have all been observed.

This affects mainly children and the presence of a capsule protects this bacillus from immune cell response.

The symptoms of influenza caused by Haemophilus influenzae.

We will focus on the respiratory symptoms, which include those

caused due to pneumonia and acute epiglottitis, while

meningitis and bacteremia have also been observed.

Meningitis is the infection of the brain tissue and spinal cord

while bacteremia is the presence of bacteria in the bloodstream.

In severe lung infection, and inflammation of the epiglottis.

Fever chills stiff neck a headache, . Also, excessive

tiredness, while acute epiglottitis includes a sore

throat and an abnormal high pitched sound when breathing in.

In order to diagnose the presence of HIB in a patient.

CSF, blood or sputum sample is collected from the infected

site. CFS is important in the case of meningitis,

while blood or sputum would be used to diagnose

bacteremia or pneumonia.

In the case of meningitis, the sample that is CSF obtained via

a lumbar puncture is.

Observed under a microscope to detect the presence of gram

negative pleomorphic bacilli.

Antigen detection is carried out to detect the presence of

capsular polysaccharide antigen a test we call the Quellung

reaction. This is indicated by the swelling of the capsule when viewed under a microscope.

Demonstration by latex particle agglutination enables rapid diagnosis. This is essential when treating meningitis.

Lab diagnosis would include culturing where the sample is plated on blood Agar or Fields digest agar.

The plates are incubated at 37degrees in 10% carbon dioxide and high humidity.

Small opaque colonies of gram negative are looked for.

And they are gram stained and confirmation made using immunological tests.Immunological tests could include quelling, reaction and immunofluorescence tests.

Examination of the patient in the case of acute epiglottitis, extreme care must be taken when examining the throat to ensure that the swollen epiglottis is not accidentally sucked into the oedematous airway and causes obstruction.

Treatment for Haemophilus Influenza is usually ampicillin, but due to development of resistance as a result of plasmid chloramphenicol, is now the drug of choice.

Erythromycin and tetracycline are also useful.

Prophylactic treatment of Haemophilus influenzae type B.

A person suffering from acute epiglottitis is sick, secured using integration of the airway in order to enable proper respiratory breathing. Type B May be prevented using the HiB PRP T conjugate vaccine.

PRP stands for phosphoribosyl ribitol phosphate and T indicates activation of T cells. This is given to children up to five years of age. Drugs like rifampicin can prevent nasopharyngeal colonization and eradicate the carrier state, while corticosteroids can reduce complications such as deafness which are a result of meningitis.

To summarize. We studied haemophilus influenzae, a gram negative capsulated invasive pleomorphic Rod, which is transmitted by airborne mode. It Causes pneumonia and meningitis. Its diagnosis is confirmed by isolating the bacteria from the blood and it is treated with antibiotics such as ampicillin and chloramphenicol. Conjugate vaccine is also available and rifampicin may be used prophylactically.

All the above information may be obtained from the below mentioned reference books.

Thank you.