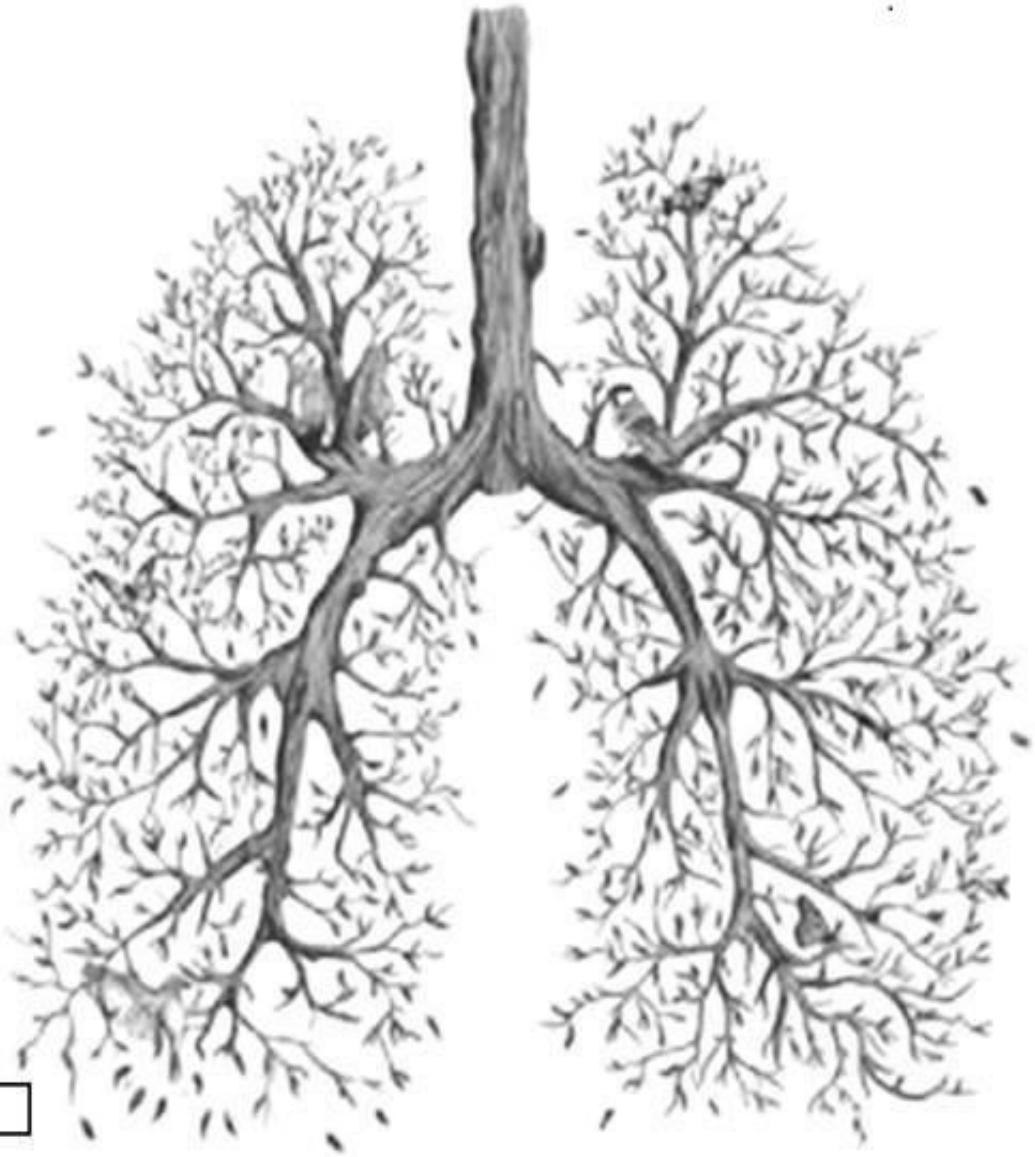




Medical Committee
The University of Jordan

Community Medicine



Slides

Sheet

Lecture # 13

Doctor: Samar Al-shareif

Date: 20/10/2014

Done By: Lojain Rahahleh

Child Morbidity and Mortality

Last lecture, we talked about essential vaccinations that are still being used worldwide "in developed and developing world.

There are 6 vaccines that are a must in all national programs of vaccination.

These 6 infectious diseases are:

1. Tuberculosis
- Triple vaccine: (2. pertussis, 3.Tetanus, 4. Diphtheria)
5. Polio vaccine
6. Measles

Their vaccines are still on the national program of vaccination in the developing and developed world, because they are the main causes of morbidity and if not treated may lead to mortality in childhood. That's why we use vaccines, to drop Rates of Mortality.

There are some other vaccines for –mumps and rubella– but they are not in all international programs in all countries, because it depends on how much they can afford, as we talked before about the priorities, we give vaccines depending on the prevalence and severity of a disease. Mumps and rubella are viral infections, so if the fund was limited we can manage without them. But measles are still on most of the national vaccine programs in the developing world because it has a high risk factor in children, the one that causes complications and mortality in the developing world –if found– which is malnutrition.

We talked before about the Triple Vaccine (pertussis, tetanus and diphtheria). Today, we'll talk about **Polio** and **Measles**.

Polio:

The worst thing about polio is Paralysis, 1% of its cases may cause Paralysis. That's the worst thing about it. It may end up with a major, lifelong morbidity, which is paralysis.

Polio is a viral infection, transmitted through Oro-fecal.

The diseases we're illustrating on are the diseases related to the 6 vaccines we talked about.

The things you need to know about them:

- Incubation period
- Mood of transmission
- Causative (whether are viral or bacterial)
- Emergency management (The first line of management –in diphtheria and tetanus– is to give Anti-toxin, it's very important because it will drop Rates of Mortality very well.)

****Fortunately and unfortunately, Most of the times, Polio is Asymptomatic disease (they show no symptoms). A person can carry the virus and nobody knows, so it's very easy to be transmitted through the community. That's why 90% of Polio show no symptoms (Asymptomatic disease).**

Affected Individuals can have a range of symptoms. One: it alters the blood stream. And around 1% of the cases end up with central nervous system complications (muscle weakness and flaccid paralysis).

****The time between the first exposure and the symptoms (incubation period) is (6–20) days. It's moderate; not very short and not that long, (from a week to three weeks). With a maximum range from (3–35) days**

Viruses are excreted through feces, and can transmit the disease by contaminated food or water, it's occasionally transmitted via the oral-oral route but it's very rare, generally speaking (fecal oral route).

Polio is most infectious between (7-10) days.

**Infectious period is important to know, to isolate. So the one carrying the virus won't transmit the disease to his environment.

*The worst effect in measles is malnutrition

The worst effect in Polio is when the patient is immuno-compromised or malnutrition because malnutrition affects the immune system *it's all related*.

An immuno-compromised patient, it could be for any reason, it may be a congenital problem; it would be due to nutritional deficiency or due to some diseases that attack the immune system.

Autoimmune patients are in a very high risk to get infectious diseases with the most serious complications like:

Polio>> Paralysis

Measles>> Otitis media (ear infection), pneumonia and encephalitis.

Tetanus: fits and respiratory distress.

They jump to complications very quickly, that's why they're at higher risks.

**What type of vaccines we give immuno-compromised patients?

There are two main types of vaccines (other than Anti-toxins. Anti-toxins are for tetanus and diphtheria).

-Attenuated **مضعف**

-Killed vaccine

For Autoimmune disease patients, what do we give them?

-Killed vaccine, because attenuated may cause a serious disease for the autoimmune children.

Back to the causes of immune deficiency: malnutrition, tonsillectomy sometimes (Tonsils are part of the immune system in the early age of under 3 years, it fights the microbes as the first time it gets into the GIT), certain muscle injuries, injection and pregnancy.

**in pregnancy the only vaccine we can give is the toxoid (antitoxin), like tetanus.

Polio symptoms: may be Asymptomatic and may show some symptoms like fever, severe muscle pain, paralysis, headache...

"The symptoms of any disease are not required. I'm not going to ask you about them in the exam. I'm going to ask you about the things in aspects of community medicine I care about, but it's good to know them; for your own knowledge"

**Is it important to know the complications of an infection?

Yes, because it's the complications that cause mortality. More than 50% of death causes in children is due to infectious diseases. Diseases like diarrhea, measles, malaria, HIV "aids". All of these diseases cause death in children in the developing world.

The worst thing in Complications is the paralysis, inability to breathe in case the breathing muscles are affected, and finally death.

Treatment: -it's a viral infection- (antiviral isn't a direct treatment)

What do we treat in the viral infection? We treat the symptoms that we have.

Like in polio: there's fever, muscles pain so we give analgesics (pain killers), they also have diarrhea and nausea so we supply fluids; to make sure the patient isn't dehydrated.

As a **cure**, there's no cure, sometimes we give Antibiotics (not always, not in all viral infections, it's malpractice to always give Antibiotics to treat Viral infections), we give them just when there's an autoimmune disease or a risk for secondary bacterial infection, we give antibiotic to prevent the secondary bacterial infection.

In case of paralysis, they need a long life management of occupational therapy, physical therapy. Orthopedic surgery sometimes to help correct deformity, as they ended up as flaccid muscles, atrophy in one of the legs, and accordingly we end up in shortness -one leg longer than the other-. Sometimes surgery can help the child to improve the organ's form.

The main preventive is vaccination:

Attenuated virus vaccine given orally

Killed vaccine: by injection

Autoimmune patients: we give them killed vaccine

Normal people: we prefer to give them attenuated "oral", because it better stimulates the immune system.

In swimming pools, sometimes in polio epidemics, they close the swimming pools because they are a source of infection as we know. Kids may urinate in pools and others may accidentally drink the water, it can be transmitted through swallowing the water. It's one of the most preventive issues in polio control.

Measles:

Is the 6th disease in where worldwide or internationally are still included in the national vaccine programs in all countries. It's a viral infection and its worst risk factor is malnutrition. In some of the developing world, where malnutrition is very high, it could be a fatal disease. And it's a very simple straight forward viral infection if the child is well nourished.

Spreads through: Droplet infection: coughing, sneezing, talking (highly infectious)

Incubation period: (From week to two weeks) short to moderate (8-12) days.

Symptoms: Usually start with high fever, coughing, (common cold symptoms): red eyes, runny nose, tiredness, muscle and body aches, irritability, swelling of the eye lids. All of these symptoms start before the rash starts.

(Common cold symptoms and high fever) before the rash starts.

The rash starts from the routes of the hair to the face, neck, chest, abdomen, and all the way down. "It starts up and extends to the lower areas".

**it starts after 3-4 days after the common cold symptoms.

Complications: they could be fatal complications: pneumonia, ear infections (otitis media), encephalitis "the most serious" causing brain damage, seizures due to the brain damage, and finally death.

Measles can be clearer in light-skinned people, in darker people it looks a bit pale.

Expanded program immunization (EPI)

90% of all children WHO target to give them the coverage of vaccination in the developing world -because the coverage in the developed world is up to 100% -. To be more than 90% of the children fully immunized by the year of 2000.

Jordan is very near to this target.

Immunization is an essential part of primary health care and its program that was started worldwide by the WHO and UNICEF and was called the expanded EPI which is (Expanding Program in Immunization).

It was nourished in Jordan in 1979. Jordan achieved universal child immunization coverage by 1988.

**When we say, universal child immunization, we mean above 90% EPI program targets reduced morbidity and mortality, to promote international self-reliance in delivering immunization services, within comprehensive health services, to promote regional... >>"This is not important"

This is the national Jordanian vaccination program in where as you can see "in the slides":

BCG is given in the first month or at birth then after 2, 3 and 4 months. Triple vaccine and the polio, HIV, Hepatitis, are given when the baby is (2-3-4) months old.

Measles is given when the baby is (9-10) months old.

Booster dose is given with MMR a year and a half later.

Polio eradication:

a wrong piece of information in the slides: Jordan was free from polio in 2005 not in 1995

It was an epidemic in 1994-95.

Although it's eradicated, they should keep taking the vaccine. You have to wait for 10 to 20 years or more to say that it's completely eradicated. Polio vaccine is still being given in the national vaccination programs worldwide.

*you have to keep the vaccine in a cold temperature. Either fridge temp. (2-3) or some vaccines rather be in a freezer (-15) degrees.

How to evaluate immunization programs?

By comparing the number of birth according to the coverage and see how many children are covered.

Child Mortality

Before talking about child mortality, we are going to talk about a few things regarding child morbidity.

Mainly, morbidity in children is due to infectious diseases, Whereas the older adults' main cause is usually a noninfectious (noncommunicable) disease.

In the developing countries, infectious diseases are still the main cause of morbidity and mortality.

3 important infectious diseases:

- The acute respiratory infection
- Diarrhea (it could be bacterial or viral)

- Fever is due to infectious disease, if you have a child with fever for more than 2-3 days, we have to culture his urine, blood. Because fever mean infection and may be viral.

The acute respiratory infection, causes nearly 4.5 million death cases of children every year – the majority in developing countries. Pneumonia non-associated with measles causes 70% of these deaths, post-measles pneumonia causes 15%, post-pertussis pneumonia causes 10%, and bronchiolitis 5% (both bacterial and viral infections are responsible for pneumonia)

We are very close to the developed countries.

Bacterial causes:

- streptococcus pneumoniae
- H influenza
- staphylococcus aureus

Viral causes:

- Respiratory syncytial virus (15-20) % (the most important one)
- Para influenza viruses (7-10) %
- Influenza A&B Viruses 4%

And mixed viral and bacterial infections can occur.

Risk factors:

- malnutrition
- immunocompromisation
- infectious diseases, we have to consider housing, pollution, and other aspects...

The larger the family and lateness in the birth order (being the 7th child for example).

- low birth weight
- malnourishment
- Vitamin A deficiency
- lack of breast feeding
- pollution
- young age: Higher risk to the baby
- .. And others more –written in the slides–

It's important to know the risk factors.

Diarrhea is another cause of morbidity; it can be due to a viral or bacterial infection.

Still in the developing world we have around 1 thousand million incidents occur each year in children under 5 years of age, diarrhea causes the death of 5 million in children yearly

*most of them in the developing world.

*the most important thing in diarrhea other than treating the bacterial infection by bacterial antibiotic "the first line management in diarrhea" is to replace the fluids, to keep a normal amount of fluids in our bodies.

About 80% of these dead children occur in the first two years of life.

The route of infection, how they are transmitted, is orofecal, by the ingestion of contaminated water or contact with contaminated hands...

Viral causes: mainly in children rotavirus

Also:

- ETEC (E. coli)
- Shigilla

-Vibrio cholera (bacterial infection)

Noninfectious causes of diarrhea.

They are rare especially in children, could be due to drugs or surgical conditions, food intolerance...

*In terms of prevalence of childhood illness in Jordan, we find fever to be the most common, but fever can be due to both (acute respiratory infection and diarrhea or any other infection) so it does not reflect one disease.

Diarrhea causes 16% of children morbidity. Occurring in Jordan (2012)

Child mortality: 14 million of children under the age of 5 die every year and majority of these deaths occurring in developing countries. A very small portion of this number comes from developed countries because there is good vaccination coverage, good control over food and water and no malnutrition.

The difference in deaths between the developing and the developed world reflects that they can be prevented.

The most preventive exercise to do for infectious diseases is vaccination.

For the mother to be educated is very important and the more educated the mother, the more vaccination cover, the less infectious diseases.

Lojain Rahahleh.