

Podcast: Vaccines against meningococcal infection

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My name is Chloee, I am a member of the health team of the German Institute for Medical Mission, also called Difäm. With me is my colleague, Ute.

Today, we will talk about a vaccination that is highly recommended in most countries of Western and Eastern Africa: Vaccination against an infection with meningococcal bacteria. Ute, can you tell us why it is so important for those two regions to immunize against meningococcal bacteria?

Yes, of course. Meningococcal bacteria cause meningitis which is an inflammation of the protective membranes that surround the brain and the spinal cord. Most countries of Western and Eastern Africa belong to the African meningitis belt. It expands roughly from Senegal to Ethiopia and from Ivory Coast to Kenya. In this African meningitis belt, the incidence of meningitis is the highest worldwide and 80% of meningitis cases here are caused by the meningococcal bacteria *Neisseria meningitidis*.¹

What is so special about an infection with meningococcal bacteria?

It is very dangerous. The bacterium *Neisseria meningitidis* with its 12 subtypes causes meningococcal meningitis and a sepsis or septicaemia, which is the technical name for blood poisoning. Both diseases have a high case fatality of over 50% without treatment. Even with antibiotic and hospital treatment 10% of patients with meningitis or sepsis die. Another 20% of patients will suffer from severe complications and long lasting effects like hearing loss, seizures or difficulties with vision, speech and memory. Some may experience limb weakness or amputations after sepsis. These complications can have an enormous impact on individuals, families and communities, both financially and emotionally.

This multidimensional view is very interesting. So, meningitis and the disability and the psychosocial consequences it may cause impacts not only on health but also on education, social life and human rights.

Yes. Meningitis epidemics can cause huge public health problems, especially in the African meningitis belt.¹ Small children bear the highest burden of meningitis. The bacteria is often transmitted by asymptomatic carriers who are not sick themselves but who carry the bacteria in nose and throat and spread it to other persons through droplets. In small children, symptoms may start with poor feeding, vomiting, bulging of the fontanelle and sleepiness. Then the typical symptoms develop: high fever, severe headache, neck stiffness and convulsions, leading to impaired consciousness and coma.

Meningitis can also cause a petechial rash presenting as pinpoint sized round spots on the skin . This can easily be overseen on dark skin.¹

Musik einspielen 3-5 sekunden

Menigitis is a real menace. What is the best way to prevent an infection with meningococcal bacteria?

In an outbreak, we can give chemoprophylaxis to those persons who have been in close contact with a patient suffering from meningitis. This chemoprophylaxis is usually done by giving antibiotics, like Ciprofloxacin or Ceftriaxone.

But it is much better to prevent infection by vaccination. Vaccinating children is the most effective way to reduce meningitis.. Vaccination prevents that individuals become carriers of the meningococcal bacteria without knowing it. Thereby, vaccination prevents these silent carriers and leads to herd immunity.

You mentioned before that there are 12 subtypes of the bacteria. Do we have a vaccine that prevents the spread of all 12 subtypes?

Well, we have different vaccines that respond to different serotypes. In different regions of the world, different subtypes are more common. Type A is common in sub-Saharan Africa, type B occurs more often in Europe, just to give you an example. Therefore, we can recommend certain vaccines for a specific region.

Let us have a closer look at the vaccines. If we look specifically at sub-Saharan Africa: What is the name of the most common vaccine?

In 2010, the Meningitis Vaccine Project introduced the low-cost vaccine MenAfriVac. In 6 years, 235 million people were vaccinated. This almost led to elimination of type A meningococcal meningitis in participating countries.³

Does the MenAfriVac also protect against infection with subtypes other than A?

No, it is a monovalent vaccine against type A. Of course, other serotypes are also prevalent in sub-Saharan Africa though less frequently. But there is a promising pentavalent vaccine candidate active against 5 subtypes. It passed already a phase II study and is specifically designed for the African meningitis belt. We can expect a new vaccination campaign in the near future.⁴

Thanks a lot for this positive outlook. A last question: Can we recommend the vaccine in pregnancy and to people living with HIV/AIDS?

Yes, if, for example, the child of a pregnant mother suffers from meningococcal meningitis, the mother should be vaccinated. You also mentioned people living with HIV as another risk group. Since the vaccines against meningococcal disease are dead vaccines, they can and should be offered to all immunocompromised patients, especially to people living with HIV.²

Thank you very much for this interesting and reassuring overview over vaccination against meningococcal disease. This gives us good information at hand to inform parents who may be reluctant to allow their child to be vaccinated. Meningitis is a very dangerous disease that can cause tremendous long-term disability and suffering. With vaccines like the MenAfriVac we have a good tool at hand to protect our patients and to work on herd immunity so that one day Neisseria meningitidis will be history.

With this hopeful prospect for the future, I would like to thank you for listening. Join us for our next podcast.

Be blessed and stay safe

Internet sources as of 22.08.2022

- 1 www.who.int/news-room/fact-sheets/detail/meningitis
- 2 www.who.int/teams/immunization-vaccines-and-biologicals/diseases/meningitis
- 3 <https://web.archive.org/web/20170202004714/http://immunizationinafrica2016.org/releases/2016/2/23/as-meningitis-nears>
- 4 www.path.org/media-center/serum-institutes-meningitis-acwxy-vaccine-candidate-demonstrates-strong-safety-and-immunogenicity/
- 5 <https://historyofvaccines.org/history/yellow-fever/overview>
- 6 www.who.int/health-topics/yellow-fever#tab=tab_1
- 7 www.who.int/news/item/17-05-2013-yellow-fever-vaccination-booster-not-needed
- 8 www.who.int/news-room/fact-sheets/detail/yellow-fever
- 9 <https://historyofvaccines.org/history/yellow-fever/timeline>