Prevalence of Measles in Adult Patients During two years in Infectious Disease Hospital Kabul Hospital, Afghanistan

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ABSTRACT
BACKGROUND*: Measles is one of the infectious diseases which is highly contagious and remain one of the leading causes of the death among young children .in 2015 there were 134200 measles death globally. Without immunization morbidity and mortality in recent years, are increasing number of adult measles has been recognized in Afghanistan and reported by the infectious disease hospital Kabul Afghanistan Measles characterized by a maculopapular rash. It continues to be a common and sometimes fatal disease in developing countries. In Afghanistan, it causes many outbreaks in areas with low vaccine coverage. Measles itself is one of the leading causes of death among young children and adults, even though a safe and cost-effective vaccine is available.* ***Methods****, this was two years hospital base, prospected record-based study, which done on adult patients who presented with measles to the infectious disease hospital, Kabul Afghanistan. we first analyzed data gathered by the Infectious Disease Hospital Kabul Afghanistan, in order to develop our understanding of causative factors that lead to the accumulation of susceptible individuals into foci this study based on data gathered in 2019 and 2020 at infectious disease hospital Kabul Afghanistan. In 2019 thirty-three patients came to hospital with measles diagnosis among thirty-three patients 10 were male (33%) and 23 patients were female (69.9%). In 2020 eight adult patients diagnosed with Measels 6 female (75%) and 2 Male (25%) A prospective study was carried out recruiting 41 adult patients with confirmed measles. infection who was managed at Infectious Disease Hospital Kabul Afghanistan. Demographic and clinical data were retrieved retrospectively using a predesigned questionnaire with the help of ward records. Some other relevant data were later obtained by interviewing patients during their clinic visits.* ***Results,*** *although it's often associated with childhood illness, adults can get measles too. The patients present with high grade fever, severe body aches, sore throat, dry cough, red eyes and cervical lymphadenopathy over 5-6 days duration and late they developed maculo popular rash helping the diagnosis. They had variables degree of leucopenia, lymphocytosis, and thrombocytopenia, People who aren't vaccinated are at a higher risk of catching the disease. It's generally accepted that adults born during or before 1957 are naturally immune to measles.in this study that 41 patients diagnosed with measles all of them hospitalized with different hospital stay and all of them discharge from hospital with (0%) mortality rate.* ***Conclusions****, Communicable disease reporting systems can guide public health operations such as the implementation of new vaccines, and permit evaluation of health interventions. For example, measles supplementary immunization activities in Afghanistan have not slowed long-term transmission of the disease, but decreases in typhoid fever and acute viral hepatitis are probably tied to improvements in sanitation in the country.*

Keywords: *Measles, Adult, Infectious Disease, Kabul.*

Introduction

Afghanistan has suffered for decades under military and civil conflict which, combined with natural disasters, has seriously impaired economic development These conflicts have led to over a half million internally-displaced persons (IDPs) moving through the country with precarious ties to the health care infrastructure In addition, although Afghanistan still is majority rural, it is urbanizing at one of the world's highest annual rates– 6% and 5 million people may be currently living in slums. Public health infrastructure, including sanitation and vaccination programs, are slowly rebuilding since the overthrow of the Taliban government in 2001, and health care facilities in Afghanistan are recognized for tending to marginalized groups, such as women and the very poor. However, it remains clear that Afghanistan faces many challenges in fighting infectious diseases: sanitation, such as piped water and private latrines, is limited for slum dwellers and IDPs the nutrition status of children is poor almost half of children have anemia and vitamin A deficiency and substantial disparities exist in childhood immunization coverage between cities and rural areas.[1]

Measles

measles is acute febrile illness caused by virus that belong to family paramyxovirus is the genius of morbillivirus virus .it is characterized by fever (as high as 105F) , malaise ,coryza and conjunctivitis followed by maculopapular rash .rash usually appears 14 days after exposure and on the 3rd-5th days of clinical illness , which spread from head to trunk to lower extremities .measle is usually mild or moderately severe disease however , measles can result in complication such as pneumonia ,encephalitis ,and death.

Measles is a highly infectious viral illness. It is common among children but may affect people of all age groups. Measles, like most other viral ailments, may have a benign course with few complications other than fever and a

1 World Health Organization. 2013. Mortality and global health estimates. Geneva, Switzerland: World Health Organization

rash. [2]However, in special vulnerable populations like malnourished children and those with a diminished immunity.

Measles is rare these days due to effectiveness of the Measles vaccine given in the combined shot of MMR vaccine (Measles, Mumps and Rubella).1 This thin-section transmission electron micrograph (TEM) revealed the ultra-structural appearance of a single virus particle, or "viron", of measles virus. The measles virus is a paramyxovirus, of the genus morbidly virus. It is 100-200 nm in diameter, with a core of single- stranded RNA, and is closely related to the render pest and canine distemper viruses. Two membrane envelope proteins are important in pathogenesis. They are the F (fusion) protein, which is responsible for fusion of virus and host cell membranes, viral penetration, and hemolytic, and the H (hem agglutinin) protein, which is responsible for adsorption of virus to cells.3

Transmission of measles

Measles can occur at all ages but children between the ages of 1 and 4 are most at risk. The virus is spread via millions of tiny droplets that are sneezed or coughed out by an infected person. Persons around who breathe in the droplets with the virus can catch the infection. Infection can also be spread when objects contaminated with the droplets are touched and the hands are brought near the nose of mouth.4

Symptoms of measles

The initial symptoms of measles are much like a common cold of flu. There is high fever, red and runny eyes and nose and a characteristic rash. There are grayish white spots in the mouth and throat. this can lead to serious complications including death.

After a few days a red-brown spotty rash will appear all over the body. This starts behind the ears commonly and spreads around the head and neck before spreading to the legs and the whole body.5

Risks associated with measles is a modifiable disease. This means that any doctor who diagnoses the infection must inform the local health authority in order to identify the source of the infection to stop it from spreading further.

Complications of measles include pneumonia, meningitis and even death. Pregnant mothers who contract measles may be at a serious risk of transmitting the infection to the child. Several congenital abnormalities may occur in the unborn baby is exposed to the infection before birth. Measles in pregnancy can cause miscarriage, premature labor or a baby with low birth weight.

Treatment of measles

There is no specific treatment for measles since it is a viral illness that resolves on its own. An infected person, however, needs supportive care like use of fever reducing medications (Paracetamol/Acetaminophen) and plenty of fluids.

Prevention of measles

There a few ways to prevent becoming ill with measles. Vaccination. Getting vaccinated is the best way to prevent measles. Two doses of the measles vaccine are 97 percent Trusted Source effective at preventing Measles infection. There are two vaccines available — the MMR vaccine and the MMRV vaccine.

Measles in adults

Although it's often associated with childhood illness, adults can get measles too. People who aren't vaccinated are at a higher risk of catching the disease.

It's generally accepted that adults born during or before 1957 are naturally immune to measles. This is because the vaccine was first licensed in 1963. Before then, most people had been naturally exposed to the infection by their adolescent years and became immune as a result.

According to the Centers for Disease Control and Prevention (CDC)Trusted Source, serious complications are not only more common in young children, but also in adults over the age of 20. These complications can include things like pneumonia, encephalitis, and blindness. If you're an adult who hasn't been vaccinated or isn't sure of their vaccination status, you should see your doctor to receive the vaccination. At least one dose of the vaccine is recommended for unvaccinated adults.

Measles in babies

The measles vaccine isn't given to children until they're at least 12 months old. Before receiving their first dose of the vaccine is the time, they're most vulnerable to being infected with the measles virus.

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[2] *Sitaula S, Awasthi GR, Thapa JB, Joshi KP, Ramaiya A. Measles outbreak among unvaccinated children in Bajura. J Nepal Med Assoc. 2010;50:273–6*

[3] *Moss WJ. Measles. Lancet. 2017 Dec 2;390(10111):2490-2502. PubMed*

[4] *World Health Organization. 2013. Expanded Programme on Immunization (EPI). In Immunization service delivery. Geneva, Switzerland: World Health Organization*

[5] *Evaluation of measles surveillance systems in Afghanistan-2010*

Babies receive some protection from measles through passive immunity, which is provided from mother to child through the placenta and during breastfeeding. However, research Trusted Source has shown that this immunity can be lost in just over 2.5 months after birth or the time breastfeeding is discontinued.
Children under 5 years of age are more likely to have complications due to measles.
These can include things like pneumonia, encephalitis, and ear infections that can result in hearing loss.3
Incubation period for measles
The incubation period of an infectious disease is the time that passes between exposure and when symptoms develop. The incubation period for measles is between 10 and 14 days. After the initial incubation period, you may begin to experience nonspecific symptoms, such as fever, cough, and runny nose. The rash will begin to develop several days later.
It's important to remember that you can still spread the infection to others for four days prior to developing the rash. If you think you've been exposed to measles and haven't been vaccinated, you should contact your doctor as soon as possible.6

Measles types

In addition to a classic measles infection, there are also several other types of measles infections that you can get.
Atypical measles occurs in people who received a killed measles vaccine between 1963 and 1967. When exposed to measles, these individuals come down with an illness that has symptoms such as high fever, rash, and sometimes pneumonia.7
Modified measles occurs in people who've been given post-exposure immunoglobulin and in infants who still have some passive immunity. Modified measles is typically milder than a regular case of measles.8
Hemorrhagic measles is rarely reported in the United States. It causes symptoms like high fever, seizures, and bleeding into the skin and mucus membranes.
Other prevention methods
Not everyone can receive the measles vaccination. But there are other ways that you can help to prevent the spread of measles.

- If you're susceptible to infection:
- Practice good hand hygiene. Wash your hands before eating, after using the bathroom, and before touching your face, mouth, or nose.
- Don't share personal items with people who may be ill. This can include things like eating utensils, drinking glasses, and toothbrushes.
- Avoid coming into contact with people who are sick
- If you're sick with measles:
- Stay home from work or school and other public places until you aren't contagious. This is four days after you first develop the measles rash.
- Avoid contact with people who may be vulnerable to infection, such as infants too young to be vaccinated and immunocompromised people.
- Cover your nose and mouth if you need to cough or sneeze. Dispose of all used tissues promptly. If you don't have a tissue available, sneeze into the crook of your elbow, not into your hand.
- Be sure to wash your hands frequently and to disinfect any surfaces or objects that you touch frequently.

Measles Complications

Complications can arise, some of which can be severe.
They include:

- vision loss
- encephalitis, an infection that causes brain swelling
- severe diarrhea and dehydration
- additional infections
- pneumonia and other respiratory infections

During pregnancy, measles can lead to:

- loss of pregnancy
- early delivery
- low birth weight

Those most at risk of complications include:

- people with a weakened immune system

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6 Strebel P, Papania MJ, Dayan GH, Halsey NA. Measles Vaccine. In: Plotkin SA, Orenstein WA, Offit PA, editors. Vaccines. 5th ed. Philadelphia: WB Saunders; 2008. p. 353–98

[7] Long D, Long B, Koyfman A. Zika virus: What do emergency physicians need to know? J Emerg Med. 2016;50:832–

- very young children
- adults over the age of 20 years
- pregnant women

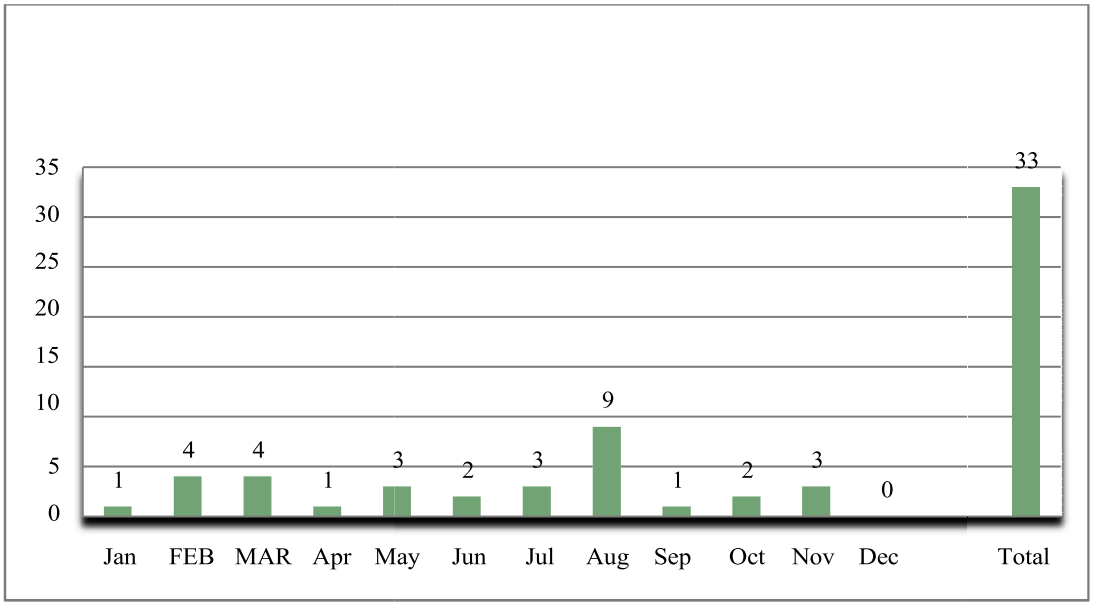
Complications of measles are relatively common, ranging from mild ones such as diarrhea to serious ones such as pneumonia (either direct viral pneumonia or secondary bacterial pneumonia), laryngotracheobronchitis (croup) (either direct viral laryngotracheobronchitis or secondary bacterial bronchitis), otitis media, acute brain inflammation (and very rarely subacute sclerosing pan encephalitis), and corneal ulceration (leading to corneal scarring)

In addition, measles can suppress the immune system for weeks to months, and this can contribute to bacterial super infections such as otitis media and bacterial pneumonia. Two months after recovery there is a 11–73% decrease in the number of antibodies against other bacteria and viruses.

The death rate in the 1920s was around 30% for measles pneumonia. People who are at high risk for complications are infants and children aged less than 5 years; adults aged over 20 years; pregnant women; people with compromised immune systems, such as from leukemia, HIV infection or innate immunodeficiency; and those who are malnourished or have vitamin A deficiency. Complications are usually more severe in adults. Between 1987 and 2000, the case fatality rate across the United States was three deaths per 1,000 cases attributable to measles, or 0.3%. In underdeveloped nations with high rates of malnutrition and poor healthcare, fatality rates have been as high as 28%. In immunocompromised persons (e.g., people with AIDS) the fatality rate is approximately 30%.

Even in previously healthy children, measles can cause serious illness requiring hospitalization. One out of every 1,000 measles cases progresses to acute encephalitis, which often results in permanent brain damage. One to three out of every 1,000 children who become infected with measles will die from respiratory and neurological complications.

Figure :(1) Measle Incidence in Both Male and Female in 2019



Findings

According to the Infectious Disease Hospital Kabul Afghanistan records in 2019 thirty- three adult patients 10 males, with median age 32 (range 25–48) years, presented with high fever, headache, severe body aches, a severe sore throat and a dry cough for 2– 3 days duration. They

complained of severe sore eyes around the 4–5th day associated with intense tearing and 23 Female and ten males with the same signs. Discharged from hospital after treatment and there was no mortality among both female and male patients.

Figure :(2) Measle Incidence in Both Male and Female in 2020

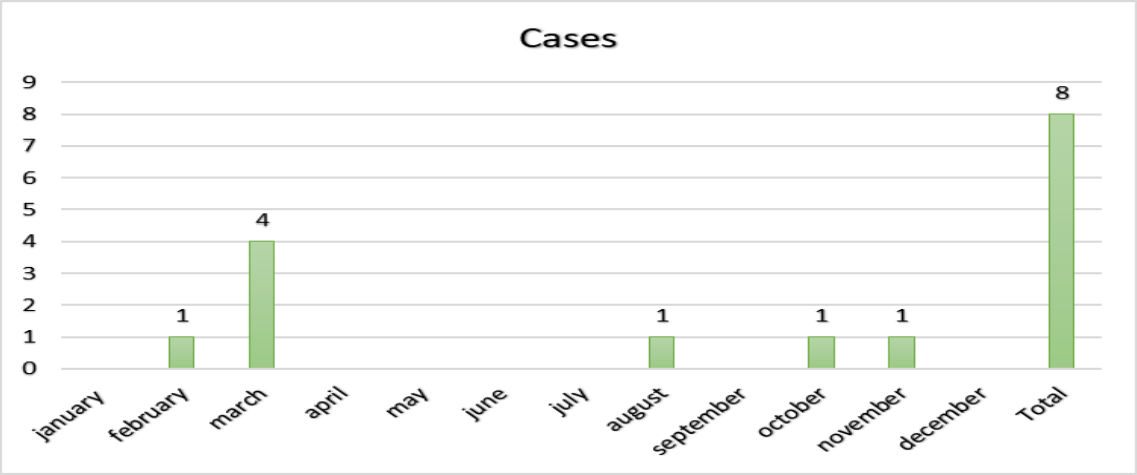
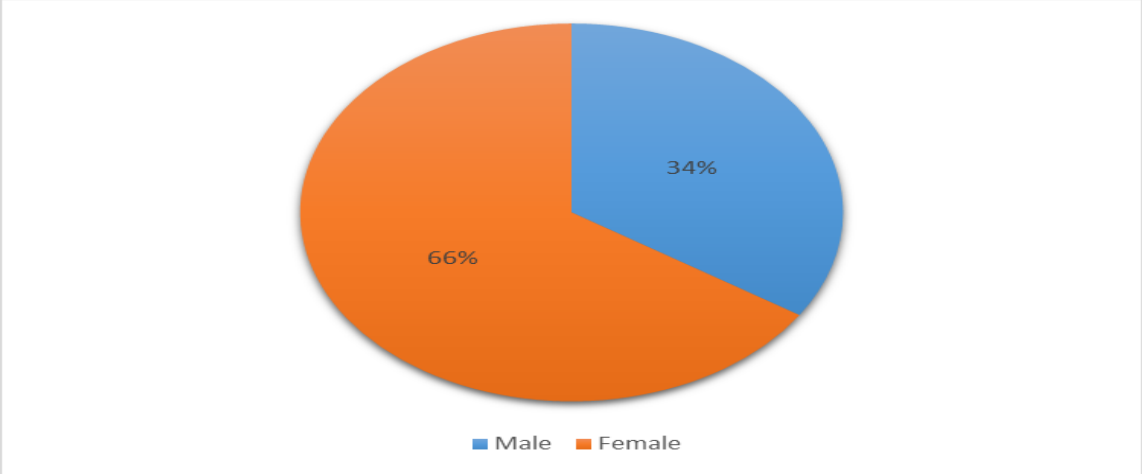


Figure :(3) Measles percentages of cases in sex categories



Discussion:

According to the record of Infectious Disease Hospital Kabul Afghanistan in 2020 only six adult patients having measles, with median age 32 (range 25–48) years discharged from hospital after treatment. Although the most likely reason for measles infections in these adult patients would be the on-going low level measles infection in the community, we feel that it is important to consider other likely source of the measles virus especially in the adults.

Conclusion:

Measles is a highly contagious disease that mainly affects children and rash is one of the most important symptoms. The measles virus is transmitted either through airborne particles through sneezing and coughing, or through direct contact with nasal and oral secretions from infected people.

Ninety percent of people exposed to the measles virus will become infected if they are not vaccinated

In conclusion, clinicians who deal with adult patients should be made aware of the possibility of measles infection among acute febrile illness and be reminded of the symptomatology of measles in adults. Furthermore, it would be essential to understand the community implications of these sporadic cases of adult measles towards the ongoing efforts on eradication of measles both locally and globally. While availability of early diagnostic facilities would help in management of patients, isolation of the virus and genotyping are likely to play an important role in implementing effective immunization and help achieving the targeted elimination of measles.

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