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THE OUTBREAK OF MEASLES IN SRI LANKA

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Introduction

Measles is a highly contagious infectious disease caused by *Morbillivirus*. It is a disease which is mainly known to occur in humans and not known to occur in animals. Up to 9 out of 10 susceptible persons with close contact to a measles patient will develop measles. The mode of transmission of this virus is by direct contact with infectious droplets or by airborne spread when an infected person breathes, coughs, or sneezes. Measles virus can remain infectious in the air for up to two hours after an infected person leaves an area.

Firstly measles was reported in US in 1765, unfortunately killing about 6000 people per year in the early 20th century. The measles vaccination was created in 1963 which led to the elimination of measles in US in 2000. Since then individual cases and outbreaks are on rise especially among unvaccinated individuals. Many countries around the world are experiencing measles outbreaks. As of 5 November 2019, there have been 413,308 confirmed cases reported to WHO through official monthly reporting by 187 Member States in 2019. More than 20 million people are affected each year by measles. Measles remains a leading cause of death among young children in the world, despite the availability of a safe and effective vaccine for the past 40 years. In 2006, it was estimated that there were 242 000 measles deaths globally: this translates to about 663 deaths every day or 27 deaths every hour. Measles symptoms appear in 7 to 14 days after contact with the virus and include high fever, cough, runny nose and watery eyes. And also the rash appears 3–5 days after the first symptoms [1–4].

Goal

To give a territorial-temporal characterization of the incidence of the measles in Sri Lanka and evaluate the effectiveness of the organization of treatment and preventive measures.

Material and Methods of research

The analysis and generalization of modern medical scientific literature on this topic.

The results of the research and their discussion

Measles is one of the most contagious of all infectious diseases; it belongs to the Paramyxovirus Family, Genus *Morbillivirus* (MV), and is spread via the respiratory route. MV was originally thought to enter the host by infecting epithelial cells of the respiratory tract, followed by viremia mediated by infected monocytes. However, neither of these cell types express signaling lymphocyte activation molecule (SLAM, CD150), which has been identified as the main receptor for wild-type MV. Measles has a relatively long incubation period. At late stages of the infection MV also infects epithelial cells, despite the fact that these do not express CD150. Whether these cells express an as yet unidentified additional MV receptor remains unclear. These antigen-presenting cells may traffic the virus to the regional lymph nodes where they can transmit the virus to lymphocytes, which during viremia disseminate the virus throughout the body.

The measles consists of 15894 nucleotides although some variation in genome length has been described. Measles has single non segmented, negative sense RNA genome with a linear arrangement of the gene. That is separated by antigenic trinu-

cleotide, GAA. It normally grows in the cells that line the back of the throat and in the cells that line the lungs. Measles is often an unpleasant mild or moderately severe illness. Severe measles is particularly likely in poorly nourished young children, especially those who do not receive sufficient vitamin A, or whose immune systems have been weakened by HIV/AIDS or other diseases. The first sign of infection is usually high fever, which begins approximately 10 to 12 days after exposure and lasts one to seven days. During the initial stage, the patient may develop a runny nose, cough, red and watery eyes and small white spots inside the cheeks. After several days, a rash develops, usually on the face and upper neck. Over a period of about three days, the rash spreads, eventually reaching the hands and feet. The rash lasts for five to six days, and then fades. The rash occurs, on average, at day 14 after exposure to the virus, with a range of seven to 18 days. Children usually do not die directly of measles, but from its complications. Complications are more common in children under the age of five or adults over the age of 20. 1 The most serious complications include blindness, encephalitis (a dangerous infection of the brain causing inflammation), severe diarrhea (possibly leading to dehydration), ear infections and severe respiratory infections such as pneumonia, which is the most common cause of death associated with measles.

Sri Lanka was the first country in the Southeast Asian region to achieve its measles elimination goal in 2011. In 2012, the measles immunization schedule changed from a measles vaccine at 9 months to a measles, mumps and rubella vaccine at 12 months. However in 2013, Sri Lanka reported its worst recent outbreak of measles. All suspected and confirmed cases notified are entered in the National Measles Register. This study investigated a part of this outbreak in order to describe its epidemiology. An epidemiological profile of patients was constructed, case confirmation was done on all suspected cases and the basic demographic details of these suspected cases were obtained from the available records.

Below explained are the results observed from a study which was carried out at the university medical unit of the Teaching Hospital, Anuradhapura (THA), the third largest hospital in Sri Lanka, from October 2013 until March 2014.

From January 2013 to March 2014, 101 measles suspects were admitted to the THA. Until June 2013, all suspected cases were aged below 12 months of age. During the study period (15 months), the total number of patients aged below 9 months, 9 to 12 months, 1 to 11 years, 12–29 years and over 29 years were 10 (9.9 %), 11 (10.9 %), 6 (5.9 %), 37 (36.6 %) and 36 (35.6 %), respectively (data missing-1). Out of the 33 patients clinically suspected, 32 tested positive for measles. Common clinical features included: fever (n = 33, 100 %), maculopapular rash (n = 33), conjunctivitis (n = 31), posterior cervical lymphadenopathy (n = 23) and Koplik's spots (n = 8). Features suggestive of pneumonia were observed among 30 (90.9 %) patients and 26 (78.8 %) had diarrhea. Two patients (6.1 %) who developed severe pneumonia received care at an intensive care unit due to respiratory difficulties. Out of 33 patients, 15 (45.5 %) had prior immunization for measles, two (6.1 %) reported that they never had a measles immunization and 16 (48.5 %) were unsure about their immunization status. Out of those who reported they were previously immunized, 11 (73.3 %) belonged to the age group of 12–2 years (Figure 1).

For the last three years 2017–2020 there were 51 cases of measles; 2017 — 1 case, 2018 — 1 case, and 2019 — 49 cases. Because of effective efforts, country is considered to have eliminated measles and there is no evidence of endemic transmission of the viruses. Although there were smaller outbreaks, they have been cases contracted abroad, or from people immigrating into Sri Lanka. Fortunately, the government was able to slow these outbreaks.

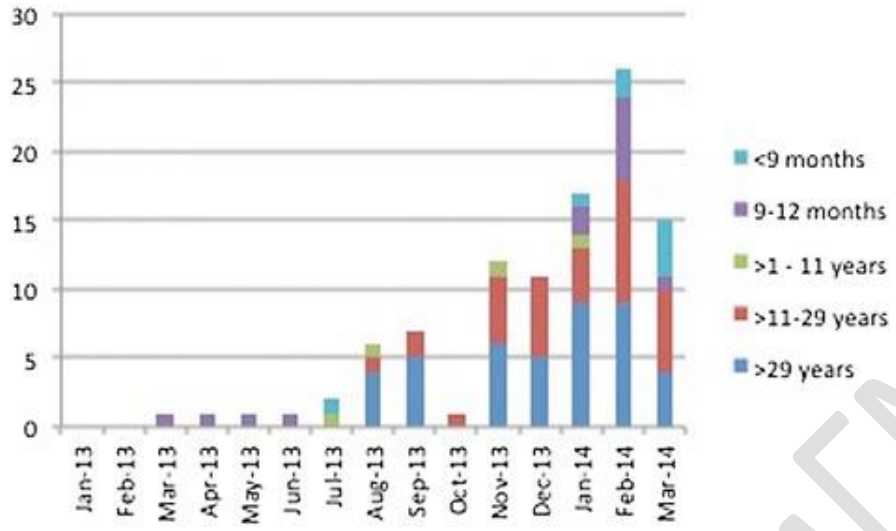

Figure1 — The distribution of suspected measles cases from January 2013 to March 2014, by age group

Conclusion

As mentioned above in the graph infants are the first cases of this outbreak.

Immunization prevents suffering, complications and death caused by measles. The measles vaccine is safe, effective and inexpensive and is one of the most cost effective public health interventions available for preventing deaths. In Sri Lanka measles vaccine is offered to the children through the Expanded Programme of Immunization (EPI) at 9 months of age as the live attenuated measles vaccine and at the age of 3 years as the live attenuated (weakened) measles-rubella (MR) vaccine. Surveillance of Measles is carried out with special investigation forms following the routine notification procedure as for other vaccine preventable diseases.

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PREVALENCE OF *HELICOBACTER PYLORI* IN BENIGN GASTRIC ULCERS IN SRI LANKA AND OTHER COUNTRIES

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Introduction

Peptic ulcers are lesions that develop in the lining of the stomach, they're usually formed as a result of inflammation caused by the bacteria *H. pylori*, as well as from erosion from stomach acids. Evidence suggests that the *H. pylori* remains attached to the cell surface, and does not penetrate into the epithelial layer itself. The