infections, when using real life definitions of typhoid fever. Typbar TCR has been recommended by the experts at the WHO-Strategic Advisory Group for routine immunizations and is WHO prequalified.

Typhoid vaccine, 1 dose of parenteral typhoid vaccine, 3 or 4 doses of oral typhoid vaccine; the 4th dose on day 7 is an option – 4 doses may provide better protection than 3.Typhoid vaccine for children and infants less than 2 years of age is recommended. The characteristics of this vaccine will be primarily safety and efficacy and a number of other desirable features if the vaccine is to control a disease of global importance. These include cost, easy oral administration, thermal stability, multivalency and long-lived immunity[4]. Preventive measures will be like washing hands, avoid eating contaminated foods, do sanitize often and be aware of the polluted environment, cook the food and don't eat raw meat.

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VACCINE PREVENTION AND PREVALENCE OF MENINGOCOCCAL INFECTION BETWEEN EUROPE AND SOUTH ASIA

Introduction

Globally one of the leading causes for bacterial meningitis is *Neisseria meningitidis.* The annual number of cases related to invasive meningococcal disease is estimated to be at least 1.2 million with 135,000 deaths [1, 2]. To combat meningococcal infection, an increasing number of countries have included vaccines against *N. meningitides* in their routine immunization programs [1]. These include polysaccharide and conjugate, monovalent and polyvalent vaccine against serogroups A, C, W, and/or Y, and outer membrane vesicle (OMV) vaccines against serogroup B [2, 4]. The specific vaccine use in each country depends on the predominant serogroups, cost, and availability [2]. The positive effect of these vaccines can be seen in several countries with a direct decrease in incidence rates as well as indirect benefits due to induction of herd protection [3]. This research was done to compare the impact of vaccines have had in between Europe and South Asia.

Goal

To compare the prevalence and effective treatment of Meningococcal infection using vaccination in Europe and South Asia.

Material and methods of research

The statistical data of the official registration of diseases and information about vaccination in the European region and South Asia were subject to analysis using generally accepted computer programs. Resources for the latest vaccine related data were collected from the National Library of Medicine (PubMed), the WHO website of the Weekly Epidemiological Record, and the European Centre for Disease Prevention and Control. PubMed searches were done with the following key terms: 'Neisseria meningitidis', 'meningococcal vaccine', 'Europe', 'South Asia'. Searched references of identified articles for additional articles, reviewed abstracts and titles and selected studies was reviewed to collect data on incidence cases and number of vaccinations per year in Europe and South Asia. Countries belonging to the European Economic Area consisted of Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom(UK) (26 countries total; referred to as Europe). 20 specific Asian country considered were China, India, Pakistan, Bangladesh, Sri Lanka, the Philippines, Japan, Indonesia, Singapore, Malaysia, Thailand, Taiwan, Vietnam, Cambodia, Laos, Mongolia, Myanmar, Hong Kong, Republic of Korea and Nepal.

The results of the research and their discussion

The number of doses of vaccines against serogroups B administered during the year 2018–2022, in EU/EEA countries to infants less than 1 year is 420 in 1 dose, 20 in 2 doses, 10 unknown number of doses, 190 not vaccinated and 30 with unknown vaccination status. Children 1–4 years of age is 210 in 1 dose,40 in 2 doses, 30 in 3 doses,20 with unknown number of doses, 160 not vaccinated and 10 unknown vaccinated status. In children 5–14 years 160 with 1 dose, 5 in 2 doses, 20 unknown numbers of doses, and 70 not vaccinated and 8 unknown vaccination statuses can be seen. Adolescence from 15 till 24, 340 in single dose, 7 in 2 doses, 29 unknown number of doses, 165 not vaccinated and 8 with unknown vaccination status. In 24 till 49 year age group 270 with 1 dose, 7 unknown number of doses, 170 not vaccinated were present.50–64 year age group 230 in single dose, 7 unknown number of doses and 153 not vaccinated. Old people more than 65 years 210 with single dose vaccine, 10 unknown number of doses and 130 not vaccinated was present [1, 2]. This data is shown in figure 1.

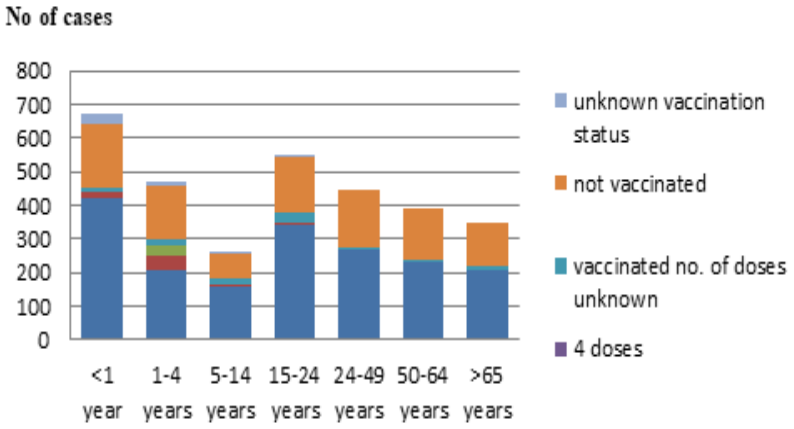

Figure 1 – No. of meningococcal doses administered to cases by age group, EU/EEA, 2018-2022

When considered about the incidence rate of invasive meningococcal disease in Europe, It is highest in infants, followed by young children. But a secondary peak can be seen among adolescents and young adults (5–14 years) [3]. Therefore we can see vaccination strategies in Europe are more focused on infants and adolescents.

When considering about epidemiology of meningococcal disease in Asia it is incomplete due to absence of proper surveillance in many countries, poor bacterial detection methods and social and healthcare barriers to disease reporting [4]. This may suggests that meningococcal disease in some Asian countries can be under-recognized, with a need to introduce new surveillance programs and case identification systems. The incidence of meningococcal infection varied from country to country, ranging from 18.3 to 24.6 /100,000 populations [1]. Its incidence was highest in Thailand, and lowest in India [2]. Nevertheless, in Asian countries, the disease burden is significant when compared to countries in Europe with high incidence rates. Serogroup A meningococcal epidemics are responsible for high morbidity and mortality in Asian countries. There can see an increasing number of cases in serogroups C, Y, and W-135 [3]. Despite high incidence rates and mortality still all the countries in Asia not have been able to include meningococcal vaccine in their routine vaccination programs [1]. Figure 2 shows how the incidence rate of invasive meningococcal disease change over the year starting from 2007 till end of 2022.

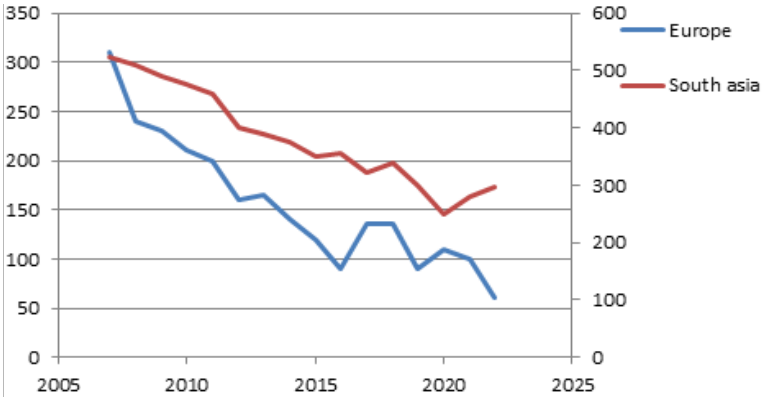

Figure 2 – The evolution of Meningococcal epidemiology following the introduction of Meningococcal vaccine in Europe and South Asia

Here incidence cases per 100,000 populations were considered. We can see that the over the years incidence of meningococcal infection in Europe gradually decreasing with the introduction of meningococcal vaccines into their immunization programs. In South Asia although the incidence rate is slightly decreasing, still number of cases per 100,000 population is high when compared to European countries.

Conclusions

Invasive meningococcal infection is known for its rapid onset, poor outcomes and higher fatality rates in untreated cases all over the world. But with active surveillance, early detection, various immunization programs with different meningococcal vaccines as preventive strategies have been able to decrease the incidence cases in the countries of Europe. Still in countries in south Asia have higher incidence case and. High cost, vaccine hesitancy, misconceptions about vaccines, concerns about adverse events and safety due to immunization, cultural, religious and sociodemographic perceptions and attitudes towards vaccination are the more common reasons seen for this. Educating healthcare providers and the general population about available vaccines and recommended vaccination schedules could increase the adherence and decrease the incidence cases even in South Asia.

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JUXTAPOSITION OF PUBLIC AWARENESS ABOUT CHOLERA IN SRI LANKA AND BELARUS

Introduction

Cholera is an intestinal infection caused by *Vibrio cholerae,* resulting in profuse watery "rice water stool" diarrhea.

This can be an endemic, epidemic or a pandemic disease depending on the disease spread and the control. Initiation and maintenance of epidemic or pandemic disease are caused by poor sanitation with assistance of human migration and seasonal warming of coastal waters [1, 5].

The disease is transmitted through fecal-oral spread of the organism through person-to-person contact or through contaminated water and food [1].

Cholera spread is common in places with poor sanitation, crowding, war and famine. Common locations include the parts of Africa, south Asia, and Latin America [2].

The subsequent loss of fluid volume causes a drop in blood pressure and circulatory shock. If the patient remains untreated, they become progressively weaker, sometimes to the point of death, within 12–24 hour of the onset of symptoms. If the patient survives, then the infection usually lasts 1–5 days [3, 4].

Cholera is a type of diarrheal diseases with a global importance and included in the WHO Communicable Disease Surveillance and Response (CSR) list [1].

Goal

To evaluate the public awareness about Cholera among the population in a country where it has been already eradicated: Belarus and in a country which is having a high risk for an epidemic: Sri Lanka.

Materials and methods of research

A detailed questionnaire was distributed among 58 citizens of Sri Lanka and 55 citizens of Belarus. The questionnaire included general details such as age, profession, gender and the direct questions asking about the source of infection, method of transmission, countries with high prevalence, symptoms, whether Cholera can be treated successfully or not, possible preventive measures and the availability of vaccination program for the prevention.

The results of the research and their discussion

Among all the responses by citizens of Sri Lanka, 72.4 % were in the age range of 35 and above, 8.6 % in the age range of 25–35 and 19 % were in the age range of 18–24 while 53.3 % were female and 46.7 % were male.

Among all the responses by citizens of Belarus, 75 % were in the age range of 18–24 and 25 % were in the 25–35 age range where 62.5 % were females and 37.5 % were males.