IS IT NOT THE RIGHT TIME TO CONSIDER TRIVALENT MUMPS VACCINE (MMR) IN THE NATIONAL IMMUNIZATION PROGRAMME OF NEPAL? IF NOT NOW, THEN WHEN?

Dr. Nagendra Chaudhary
Associate Executive Editor, JUCMS
eenagendra@gmail.com

Vaccination is the process of administration of a vaccine to help the immune system develop immunity from a disease resulting in reduction of child mortality, morbidity and disability in vaccine preventable diseases. Nepal started its pilot vaccination program in 1979 (2034 B.S) and after a decade (1989), the Expanded Program on Immunization (EPI) was followed to the whole country with the aim of universal vaccination in children.[1]

National immunization programme (NIP) is a high priority 1 (P1) programme of the government of Nepal. NIP provides vaccination services free of cost to the children living in marginalized communities and geographical regions difficult to reach through outreach sessions. Although many more vaccines have been added to the NIP of Nepal since then, vaccination against mumps is still missing. At present, Nepalese children are being vaccinated with MR vaccine (measles and rubella) at 9 completed months and a booster at 15 months in spite of MMR (measles, mumps and rubella) vaccine.[2]

Every year pediatricians and health care workers of the country encounter large number of clinical cases of mumps and is considered to be prevalent in Nepal. More than 90% of mumps cases go unreported who visit health care workers as the disease is not on the top priority of the government. In 2022, total mumps cases reported in Nepal was 8,898.[3] The burden of mumps remains high (100-1000 cases/100000 population) in countries which do not offer routine mumps vaccination, with epidemic peaks occurring every 2-5 years.[4] In spite of the disease prevalence, it is still considered insignificant and is not considered in the priority list of the government`s immunization schedule. The reason may be due to poor documentation of clinical mumps cases and lack of published studies in the country. The higher cost of MMR vaccine in comparison to the MR vaccine may also be another important factor for not considering MMR vaccine in the immunization schedule of low and middle income countries.[5]

Mumps is an acute self-limiting illness which was common in the past but now uncommon in developed countries due to vaccination against it. Every year many children in Nepal are being affected by mumps. Globally, mumps is a public health problem caused by mumps virus, a member of family paramyxoviridae. The virus generally spreads through direct contact with respiratory secretion, saliva, or through fomites and replicates in the upper respiratory tract. The average incubation period is 16-18 days. Mumps affects the salivary glands, leading to pain, tenderness, and swelling in one or both parotid glands. Prodromal symptoms may precede parotitis by several days, consisting of low grade fever, myalgia, anorexia, malaise, and headache. Virus appears in the saliva from up to 7 days before to as long as 7 days after the onset of parotid swelling. The period of maximum infectiousness is 1-2 days before to 5 days after the onset of parotid swelling. Therefore, it is advised that an infected individual should avoid contact or should be isolated with others from the time of diagnosis until five days post-onset of parotitis.[6] The major complications that can occur are meningitis (with or without encephalitis), pancreatitis, myocarditis, orchitis and oophoritis. The management is symptomatic which aims on controlling fever (with antipyretics) and maintaining hydration. Anti-viral drugs have no role in the management of mumps.[7] The only method of prevention of the disease is by vaccination.

Live attenuated mumps vaccines based on live attenuated virus strains including the Jeryl-Lynn, RIT 4385, Leningrad-3, Leningrad-Zagreb, Urabe Am9, S79, Rubini, and others, have been available since the 1960s. However, due to the low level of seroconversion obtained with the Rubini strain, WHO has recommended that this strain should not be used in national immunization programmes. Mumps vaccines are available as a monovalent vaccine, a bivalent measles-mumps vaccine, or as a trivalent measles-mumps-rubella vaccine (MMR).[8] The first vaccine against mumps was licensed in the United States in 1967. It is a live attenuated vaccine, given as a simple subcutaneous dose, usually in the form of MMR vaccine. It is given as part of the MMR 2-dose vaccine schedule, at 12-15 months of age for the 1st dose and 4-6 years of age for the 2nd dose. If not given at 4-6 years, the 2nd dose should be given before the child enters puberty. According to the US Centers for Disease Control and prevention (CDC), the two doses of the mumps vaccine are 88% effective at preventing the disease, whereas only one dose is 78% effective. Vaccinated individuals are less likely to present severe symptoms or complications than under vaccinated or unvaccinated individuals.[9]

Present data shows that more than 100 countries have already included mumps vaccine in their routine immunization schedule in the form of MMR vaccine considering the impact of mumps in regards to its morbidity and public health importance. In Nepal, our children are only being vaccinated with measles and rubella (MR) vaccine. The time to re-think and consider mumps vaccine (MMR) in the immunization schedule of Nepal by the government of Nepal has arrived now. Including MMR vaccine in the national immunization schedule would ultimately result in the reduction of the outbreaks and associated morbidity that occur annually along with the economic benefits.

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