THE FUTURE STREPTOCOCCAL M.VACCINE AGAINST RHEUMATIC FEVER

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Rheumatic fever is the commonest cause of heart disease in children over five years of age and the resulting rheumatic heart disease accounts for 20-30% of cardiovascular diseases in all age groups[1]. In the past few decades there has been a dramatic decline in its incidence and severity in Western world. It however, remains a serious and common health problem in almost all developing countries[2,3].
Prevention of rheumatic fever (both primary and secondary) with the help of antibiotics is difficult and far from perfect, because only one third of rheumatic fever patients give history of preceding sore throat, others have asymptomatic streptococcal infection. Only 0.3-3% of all patients with streptococcal sore throat develop rheumatic fever[4] and a fraction of these consult the doctors even in developed countries. This is because of the lack of awareness on the part of the patient (and doctor) that sore throat may lead to heart disease[5]. In order to prevent one case of acute rheumatic fever about 600 to 2000 cases of diagnosed streptococcal sore throats and about 1600 to 10,000 undiagnosed sore throats will require treatment[6]. Similarly, prevention of recurrent attacks (secondary prevention) is not less cumbersome. It requires health education of the patient and family, constant vigilance and efforts. Although it may decrease the morbidity and mortality, it never eradicates the disease. The only solution of the whole problem is therefore, a safe and effective Vaccine.
M.protein, a cell wall antigen and virulence factor of group. A streptococci, produces protective antibodies when introduced into human beings. These antibodies are opsonic in character and provide type specific and long lasting immunity.[7] The presence of hypersensitivity and! or toxicity to M. protein and the streptococcal antibodies which are cross reactive with human tissues[8] indicated that M.Vaccine may cause rheumatic fever instead of ‘preventing it. This obstacle of immunotoxicity and cross reactivity was removed by separating M.protein from the non-type specific antigen (or M.associated protein)[9,10] . Initial trials of 24 M. protein were successful. It was well tolerated and produced primary immune response without any toxicity in 10 out of 12 human volunteers[11]. The major problem is the presence of large number of serotypes of streptococci (70 or more). It is not feasible to produce a polyvalent vaccine containing more than 70 separate M. proteins. Therefore, prevalence studies are needed to know the main rheumatogenic serotypes in any community. Type 5,14 and 24 are the best knoWn serotypes found in Indian subcontinent, Saudi Arabia and Central and South America[12], but these serotypes vary from place to place and from time to time.
Another solution of the problem will be a reduction in number of M. protein serotypes and making it easier for the host to acquire antibodies to the whole range. Although M. protein is generally considered as strictly type specific, some degree of antigenic relationship among various.
M. Types has recently been reported[9]. This requires further confirmation because of its important implications in the development of vaccine. However, it should also be kept in mind that streptococci may not be the only agent responsible for rheumatic fever. It has been suggested that coxsackie B4 virus is the cause of rheumatic fever[13]. Others believe that measles[14] or rubella[15] viruses may have primary or secondary role in the development of rheumatic fever.

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