

A B S T R A C T

Cholera is an acute diarrheal disease naturally confined to man. The inefficient conventional vaccine (give low protection to a short duration with complication e. g. fever in the vaccinated subjects) needs much development. Most of the work in cholera research are, therefore, directed towards the finding of an efficient means to immunize against cholera. This thesis was undertaken to study the protective role of Vibrio cholerae El Tor hemolysin antibody in intestinal immunity with particular references to its ability to prevent cholera symptoms, pathological changes and cholera death in experimental animals.

V. cholerae, biotype El Tor was recognized as being the general causative agent of the present epidemics. The El Tor vibrios can produce a substance, named "hemolysin" which has a lytic effect on sheep erythrocytes. The production of the hemolysin was one of the criteria for differentiation of the Classical vibrios from the El Tor vibrios. The methods of Watanabe and Seaman (1962) was followed with modification in the partial purification of the hemolysin. The protamine sulphate precipitate which formed two precipitin bands in LEP against anti-crude hemolysin serum, was obtained. These two

bands designated as band A and band B, were proved to be the bands of LPS and hemolysin respectively. The anti-hemolysin was prepared by rabbit immunization with the protamine sulphate precipitate and the subsequent absorption with homologous LPS. The anti-hemolysin was tested for purity by IEP. The serum (1) developed a single band against crude-hemolysin preparation, (2) did not have haemagglutinating activity against the LPS coated red blood cells, (3) had hemolysin neutralizing property. The anti-hemolysin serum gave protection to 5-6 day old mice against V.cholerae O₁₇SR as the evidence revealed by its PD₅₀ (1 : 11 - 1 : 15). There was a decrease in the bacterial recovery from gastrointestinal tracts of the baby mice after oral challenge with anti-hemolysin treated V.cholerae. The serum showed ability to prevent severe pathological changes due to V.cholerae. However, it was unable to prevent the cholera diarrhea.

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