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WC3 Rotavirus Vaccine Trial: Correlates of Protection. D.I. Bernstein, V.E. Smith, G.M. Schiff, R.L. Ward. James N. Gamble Institute of Medical Research, Division of Clinical Virology, Cincinnati, Ohio USA.

The safety, immunogenicity and efficacy of WC3, a live, attenuated bovine rotavirus vaccine strain, was evaluated in a double blind placebo-controlled trial of healthy infants 2-12 months of age. One hundred and three infants received one dose of vaccine and the same number received placebo. Vaccination appeared to be safe and induced an antibody response (WC3 neutralizing antibody in 97% of vaccinees). WC3 vaccination did not decrease the number of symptomatic episodes of rotavirus diarrhea compared to placebo recipients (21 vs. 25 respectively) but vaccinees had a slight but significant decrease in the mean symptom score (7.5 vs. 9.7, $p = .05$) during a predominantly serotype 1 rotavirus season. Several factors, however, correlated to protection. The WC3 neutralizing antibody titer was significantly ($p < .005$) higher in vaccinees that did not develop rotavirus gastroenteritis compared to those that did. Furthermore none of the 20 vaccinees with WC3 neutralizing titers of ≥ 200 developed rotavirus disease ($p < .007$ compared to other vaccinees). Similarly serum rotavirus IgG, IgA and stool rotavirus IgA titers were significantly higher in vaccinees that did not develop rotavirus illness. A previous infection with wild type rotavirus also appeared to be protective. Of the 25 infants infected prior to enrollment in the study, none developed a symptomatic rotavirus infection. Finally, the presence of serotype 1 neutralizing antibody at a titer of ≥ 30 acquired from the mother transplacentally provided significant protection ($p < .03$). In this evaluation WC3 rotavirus vaccination was safe but ineffective although several correlates of protection were defined.

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INCIDENCE OF ANTI-IFN ALPHA NEUTRALIZING ANTIBODIES IN HEPATITIS PATIENTS TREATED WITH DIFFERENT IFN ALPHA PREPARATIONS

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There are a number of reports describing the development of antibodies to IFN in patients receiving different preparations of IFN alpha. However, it is still unclear whether these preparations may induce antibody development in different rates. We have addressed this problem by testing, using the same bioassay, a large sample of sera derived from patients who were sufficiently homogenous in terms of disease, dose of IFN, and schedule of treatment and differed only for the type of IFN alpha given. Specifically, the 354 patients, whose sera were tested at the end of 6-12 months therapy, include: 108 patients with hepatitis B or NANB treated with recombinant IFN (rIFN) alpha 2a; 157 patients with hepatitis B, delta, or NANB treated with rIFN alpha 2b; 89 patients with hepatitis B treated with Lymphoblastoid IFN (LyIFN) alpha. The antibody titration was performed by a neutralization test against 5 IU of both rIFN alpha and LyIFN alpha. The results show that the seroconversion frequency was significantly higher ($p<0.001$) in patients treated with rIFN alpha 2a (17.5%) as compared to patients treated with either IFN alpha 2b (6.3%) or LyIFN alpha (1.1%). Furthermore the data indicate that sera obtained from patients treated with either rIFNs neutralize equally well both type of rIFNs but only marginally LyIFN alpha.