Immune globulins reduce nosocomial infections but some doubts expressed

In surgical patients. The Intravenous Immunoglobulin Collaborative Study Group have reported the results from a multicentre European study which found that standard IV immune globulin ('Gammagard'; Baxter Healthcare) significantly reduced the incidence of focal infections at patients at high risk of infection following surgery[1]. In contrast, this study unexpectedly showed that hyperimmune globulin (containing a high titre of antibodies to core lipopolysaccharide) was not effective in preventing infection in these patients.

There were significantly fewer focal infections in immune globulin recipients (n = 109) compared with both hyperimmune globulin (108) and placebo recipients (112). Notably, immune globulin significantly reduced the incidence of pneumonia, in particular that caused by Gram-negative bacteria.

Immune globulin also reduced the length of hospitalisation compared with both hyperimmune globulin and placebo.

There were no significant differences in mortality or in the incidences of systemic infections and septic shock between groups.

Both immune globulin and hyperimmune globulin were administered for up to 4 infusions of 400mg/kg.

Dr GR Siber, from the Dans-Farber Cancer Institute, USA, comments that, while the lack of efficacy of hyperimmune globulin remains unexplained, it is possible that it could be related to differences in the concentration or quality of antibodies between the 2 immune globulin preparations[2].

In premature neonates. A significant reduction in the risk of first infection in premature neonates (aged 3-7 days; birthweight 500-1750g) who received up to 5 infusions of IV immune globulin ('Gammagard') 500 mg/kg (n = 287) was observed compared with placebo recipients (297) in a multicentre US study[3].

Protection against infection was independent of birthweight and the time to the onset of first infection was also significantly reduced in immune globulin recipients. However, there were no significant between-group differences in morbidity and mortality.

The duration of hospitalistaion was significantly reduced in immune globulin compared with placebo recipients in the subgroup of neonates who had infections. This may have resulted from less severe infections in the immune globulin recipients.

Despite these apparent positive results, Dr Siber believes that the evidence from this study does not support the routine use of prophylactic immune globulin in premature neonates[2]. He states the following reasons:

- no overall reduction in morbidity or mortality was demonstrated
- the results may not be generalisable to other lots of immune globulin
- a consistent reduction in nosocomial infection has not been demonstrated in other studies
- experience is too limited to be sure that immune globulin is completely safe in neonates.
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More consistency in quality of preparations required. Dr Siber believes that at present we do not have the knowledge to sufficiently control the quality of immune globulin preparations to ensure consistent levels of antibodies. The future should bring advances in the measurement of antibodies and means to increase their concentrations in the preparations. ***'It may then be possible to prepare more effective immune globulins with high and consistent levels of functional antibodies to the most common nosocomial pathogens.'***

1. Reynaert M, et al. Prophylactic intravenous administration of standard immune globulin as compared with core-lipopolysaccharide immune globulin in patients at high risk of postsurgical infection. New England Journal of Medicine 327: 234-240, 23 Jul 1992 2. Siber GR. Immune globulin to prevent nosocomial infections. New England Journal of Medicine 327: 269-271, 23 Jul 1992 3. Baker CJ, et al. Intravenous immune globulin for the prevention of nosocomial infection in low-birth-weight neonates. New England Journal of Medicine 327: 213-219, 23 Jul 1992

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