OBJECTIVES

There is no consistent evidence of clinical efficacy of IgM-enriched intravenous immunoglobulin (IgM) for reducing mortality in adults, newborns and older children with bacterial infections and sepsis. The aim of the study was to update evidence by considering recent clinical trials and analyzing age populations and comparators separately.

METHODS

We searched publications in PubMed and the Cochrane Library in December 2014. All-cause mortality was analyzed, and systematic review using meta-analysis and indirect comparison was carried out.

RESULTS

Five meta-analyses and 18 RCTs were considered, including 12 trials studied the effect of IgM in adults [1-12], 5 in newborns [13-17], and one in children 1-24 months old [18]. All interventions were applied with basic therapy (BT). No difference between IgM and albumin was found for adults (Fig. 1).

However we found significant efficacy of IgM in adults when compared with all comparators. RR 0.69 [0.56; 0.84] (Fig.2), and BT, RR 0.52 [0.30; 0.84] (Fig.5). Children under 24 months receiving IgM also had lower mortality than in all comparators group. RR 0.48 [0.34; 0.68]. Indirect comparison of IgM vs IgG in adults showed no differences, in newborns the difference is in favor of IgM, RR 0.47 [0.29; 0.77].

In additional search (October 2015) two relevant RCTs were identified (one of them estimates the effect of IgM on mortality in newborns with sepsis, the second one describes effect of IgM in adults). We updated meta-analyses and indirect comparisons, but conclusions did not change both in adults and newborns (indirect comparisons IgM vs. IgG: RR 0.85 95% CI [0.67; 1.09] and RR 0.54 95% CI [0.34; 0.84] (Fig.5). Children under 24 months receiving IgM also had lower mortality than in all comparators group. RR 0.48 [0.34; 0.68]. Indirect comparison of IgM vs IgG in adults showed no differences, in newborns the difference is in favor of IgM, RR 0.47 [0.29; 0.77].

CONCLUSION

IgM is effective in reducing all-cause mortality in adults with bacterial infection or sepsis in comparison with BT, also in newborns in comparison with any comparators (BT with or without placebo, albumin, IgG), in children under 24 months in comparison to BT with or without albumin. Further head-to-head clinical trials are needed to enhance evidence.

REFERENCES