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Title **Palivizumab for Immunoprophylaxis of Respiratory Syncytial Virus (RSV) Bronchiolitis in High-Risk Infants and Young Children: Systematic Review and Additional Economic Modeling of Subgroup Analyses**

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Aim

To estimate the cost effectiveness of immunoprophylaxis of respiratory syncytial virus (RSV) using palivizumab in different subgroups of children with or without chronic lung or heart disease (CLD or CHD) who are at high risk of serious morbidity from RSV infection.

Conclusions and results

Thirteen studies were included. Analysis of 16 128 subgroups showed that prophylaxis with palivizumab may be cost effective at a willingness-to-pay threshold of 30 000 pounds sterling (GBP)/quality-adjusted life-year (QALY) for some subgroups. For example, for children without CLD or CHD, the cost-effective subgroups included those <6 weeks old at the start of the RSV season who had at least 2 other risk factors that were considered in this report and were born at 24 weeks gestational age (GA) or less, but did not include children aged >9 months at the start of the RSV season or had a GA of >32 weeks. For children with CLD, the cost-effective subgroups included children aged <6 months at the start of the RSV season who were born at 28 weeks GA or less, but did not include children aged >21 months at the start of the RSV season. For children with acyanotic CHD, the cost-effective subgroups included children aged <6 months at the start of the RSV season who were born at 24 weeks GA or less, but did not include children aged >21 months at the start of the RSV season. For children with cyanotic CHD, the cost-effective subgroups included children aged <6 weeks at the start of the RSV season who were born at 24 weeks GA or less, but did not include children aged >12 months at the start of the RSV season. Prophylaxis with palivizumab does not represent good value for money based on the current UK incremental cost-effectiveness ratio threshold of GBP 30 000/QALY when used unselectively in children without CLD/CHD or children with CLD or CHD. In summary, the cost-effective subgroups for children who had no CLD or CHD must contain at least 2 other risk factors apart from GA and birth age. The cost-effective subgroups for children who had CLD or CHD do not necessarily need to have any other risk factors except GA and birth age.

Recommendations

See Executive Summary link www.hta.ac.uk/project/2056.asp.

Methods

Searches were conducted for prognostic and hospitalization studies from 1950 to 2009. The database of all references from the original report was sifted to find any relevant studies that might have been missed. Risk factors identified from the systematic review of included studies were analyzed and synthesized using STATA. The base-case decision-tree model developed in the original HTA journal publication was used to derive the cost effectiveness of immunoprophylaxis of RSV using palivizumab in different subgroups of preterm infants and young children at high risk of serious morbidity from RSV infection. Cost-effective spectra of prophylaxis with palivizumab compared to no prophylaxis were derived for children without CLD/CHD, children with CLD, children with acyanotic CHD, and children with cyanotic CHD.

Further research/reviews required

For further details see Executive Summary link www.hta.ac.uk/project/2056.asp.

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