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[Intervention Review]

Prophylactic antibiotics to reduce morbidity and mortality in neonates with umbilical artery catheters

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ABSTRACT

Background

Umbilical artery catheters are often used in unwell neonates. Infection related to the use of these catheters may cause significant morbidity and mortality. The use of prophylactic antibiotics has been advocated for all newborns with umbilical artery catheters in order to reduce the risk of colonisation and acquired infection. Countering this is the possibility that harm, such as the emergence of antibiotic resistant organisms, may outweigh benefit.

Objectives

The primary objective was to assess whether prophylactic antibiotics reduce mortality and morbidity in neonates with umbilical artery catheters. Two different policies regarding the prophylactic use of antibiotics in neonates with umbilical artery catheters were reviewed: 1) a policy of prophylactic antibiotics for the duration of catheterization (or other fixed duration of antibiotic treatment) versus placebo or no treatment among neonates with umbilical artery catheters; 2) a policy of continuing versus discontinuing prophylactic antibiotics among neonates with umbilical artery catheters who had been started on antibiotics at the time of catheterization but whose initial cultures to rule out sepsis are negative.

Search methods

MEDLINE (January 1950 to May 2007), CINAHL (1982 to May 2007), the Cochrane Central Register of Controlled Trials (CENTRAL, The Cochrane Library, Issue 2, 2007), the Cochrane Neonatal Group Specialised Register and reference lists of articles were searched. This search was updated in November 2010.

Selection criteria

Randomised and some non-randomised (i.e., quasi-randomised trials) controlled trials of adequate quality in which newborn infants with umbilical artery catheters are randomised to receive prophylactic antibiotics versus placebo or no treatment.

Data collection and analysis

Two reviewer authors independently assessed trial quality.

Main results

Two quasi-randomised trials have been included. However, given their poor quality, we have not pooled the results. There were no statistically significant differences in important outcomes in either study.

Authors' conclusions

There is insufficient evidence from randomised trials to support or refute the use of prophylactic antibiotics when umbilical artery catheters are inserted in newborn infants, and no evidence to support or refute continuing antibiotics once initial cultures rule out infection in newborn infants with umbilical artery catheters.

PLAIN LANGUAGE SUMMARY

Prophylactic antibiotics to reduce morbidity and mortality in neonates with umbilical artery catheters

There is not enough evidence from randomised trials to either support or refute the routine use of preventive antibiotics in newborn babies with umbilical artery catheters. Sick newborn babies occasionally require the insertion of an umbilical artery catheter [a special drip that goes into the artery in the umbilicus (belly button)]. This allows fluid and medicines to be given and blood tests to be taken. Some people believe that antibiotics should be given to all babies with umbilical artery catheters in order to reduce the chance of infection occurring. However, antibiotics can have unwanted effects. The reviewers found inadequate evidence from randomised trials to either support or refute the routine use of antibiotics for all babies with umbilical artery catheters.