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Cochrane Database of Systematic Reviews 2008, Issue 4. Art. No.: CD006660.
DOI: [10.1002/14651858.CD006660.pub2](https://doi.org/10.1002/14651858.CD006660.pub2).

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[Intervention Review]

Methods of preventing bacterial sepsis and wound complications for liver transplantation

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Editorial group: Cochrane Hepato-Biliary Group.

Publication status and date: New, published in Issue 1, 2010.

Citation: Gurusamy KS, Kumar Y, Davidson BR. Methods of preventing bacterial sepsis and wound complications for liver transplantation. *Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No.: CD006660. DOI: [10.1002/14651858.CD006660.pub2](https://doi.org/10.1002/14651858.CD006660.pub2).

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ABSTRACT

Background

Bacterial sepsis and wound complications after liver transplantation increase mortality, morbidity, hospital stay, and overall transplant costs.

Objectives

To assess the benefits and harms of different methods aimed at preventing bacterial sepsis and wound complications in patients undergoing liver transplantation.

Search methods

We searched *The Cochrane Hepato-Biliary Group Controlled Trials Register*, *the Cochrane Central Register of Controlled Trials (CENTRAL)* in *The Cochrane Library*, *MEDLINE*, *EMBASE*, and *Science Citation Index Expanded* until June 2007.

Selection criteria

We included only randomised clinical trials irrespective of language or publication status.

Data collection and analysis

We collected the data on infections, adverse effects of intervention, ITU (intensive therapy unit) stay, and hospital stay. We analysed the data with both the fixed-effect and the random-effects models using RevMan Analysis and risk ratio (RR) or weighted mean difference (WMD) with 95% confidence intervals (CI) based on intention-to-treat analysis.

Main results

We identified seven trials for inclusion including 614 patients. Four trials compared selective bowel decontamination versus placebo or no treatment. In one trial, patients were randomised to selective bowel decontamination, active lactobacillus with fibres (probiotic with prebiotic), or to inactivated lactobacillus with fibres (prebiotic). In another trial, different doses of granulocyte-colony stimulating factor and placebo were compared. The remaining two trials compared lactobacillus with fibres versus fibres alone and early enteral feeding versus no intervention. Only one trial was of low bias-risk. There was no statistically significant difference in any outcome between the selective bowel decontamination and the control groups. Selective bowel decontamination increased incidence of cholangitis (RR 4.84, 95% CI 1.15 to 20.35), incidence of bacterial infection (RR 3.63, 95% CI 1.36 to 9.74), and hospital stay (WMD 4.00, 95% CI 3.14 to 4.86) than the participants in the combined pre- and probiotic group. Hospital stay was prolonged in the selective bowel decontamination group compared to the prebiotic group. There was a statistically significant lower occurrence of urinary infection in the pre- and probiotic

group than in the prebiotic group. The number of people experiencing gram-negative bacterial infection was not significantly lower in the probiotic group (RR 0.18, 95% CI 0.03 to 1.17). The ITU stay was lower in the probiotic group (WMD -1.41 days, 95% CI -2.09 to -0.73). There were no differences in any outcomes in the other comparisons.

Authors' conclusions

Currently, there is no clear evidence for any intervention offering significant benefits in the reduction of bacterial infections and wound complications in liver transplantation. Selective bowel decontamination increases the risk of infection and hospital stay compared to prebiotics and probiotics. The use of prebiotics and probiotics offers promise. Further randomised clinical trials are necessary.

PLAIN LANGUAGE SUMMARY

No clear evidence that any intervention is beneficial in reducing bacterial infectious complications and wound complications in liver transplantation

Bacterial sepsis and wound complications after liver transplantation increase mortality, morbidity, hospital stay, and overall transplant costs. Various methods have been attempted to decrease the bacterial sepsis and wound complications. A total of seven randomised clinical trials involving 614 patients were included in the review. Four trials compared selective bowel decontamination, ie, prolonged use of antibiotics to clear organisms in the gut) compared with control (placebo or no treatment). One trial compared selective bowel decontamination, prebiotics (fibres), and a combination of prebiotics and probiotics (living lactobacillus). One trial compared pre- and probiotics versus prebiotics. One trial assessed granulocyte-colony stimulating factor and placebo. There is no clear evidence that any of the interventions may benefit the patients. Selective bowel decontamination may even increase the risk of infection and hospital stay compared to pre- and probiotics.