



## Association of Bacterial Infections with Pediatric Liver Transplantation

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### DESCRIPTION

Due to advancements in medical science, patients with end-stage diseases and organ failure now have longer expected lifespans. This includes patients who have liver failure. Liver Transplantation (LT) is one of the best therapy options for prolonging the lives of patients with advanced liver disease, particularly in kids. Cholestatic conditions, metabolic issues, acute liver failure brought on by viral infections or drug use, chronic hepatitis, and malignancies are the most common indications for LT in kids. Even more so than transplant rejection, infections are now one of the leading causes of morbidity and mortality following solid organ transplants. According to several studies, the infection rate among children after liver transplant varies, ranging from 21%-47%. Bacteria, which can account for up to 70% of post-transplant infections, are most common, followed by viruses and fungi. These patients may have bacterial infections of various severity levels, from superficial wound infections to septic shock. Pediatric liver transplant recipients are more likely to get colonized by and infected with Multidrug-Resistant Organisms (MDRs) for a variety of reasons, such as repeated and protracted hospitalizations, immune system dysfunction, and repeated antibiotic treatment. It is prudent to use caution when extending the findings of adult studies to pediatrics because there are substantial developmental differences between pediatrics and adults that may have a significant impact on the pathophysiology and prognosis. Therefore, it is appropriate to assess the infection rates among pediatric patients receiving LT. In order to assess the multifaceted overview of bacterial infections over the course of a year, including incidence, type, and susceptibility-resistance patterns of isolated pathogens, risk

factors related to infections, as well as evaluation of various antibiotic regimens and their results in pediatric candidates for LT in Shiraz organ transplant centre, a retrospective cohort study was developed.

Postoperative bacterial infections are prevalent and potentially fatal in pediatric LT. This study found that 67.9% infection rate, which was greater than the 54.3% infection rate reported in an Iranian study of adolescent liver transplant recipients. The results are consistent with the few reports that have been published globally on LT in children (51.9% in Germany and 70.8% in France). However, some investigations have shown that Gram-positive bacteria predominate. For example, in a French study, bacterial isolates revealed a majority of Gram-positive bacteria (78%) that included *Staphylococcus aureus* (32%), *Staphylococcus epidermis*, and other species (26%). It's also important to note that all study participants received gentamicin, polymyxin, and nystatin during their time in the Intensive Care Unit (ICU) for selective intestinal decontamination or until oral intake resumed in order to lessen the prevalence of both Gram-positive and Gram-negative aerobic bacteria in the intestinal flora. The risk of bacterial infections in paediatric patients following LT, which increase morbidity and mortality, is significant in the initial postoperative period. A high prevalence of bacterial infection was seen among paediatric patients in hospitals in the immediate after the LT. Higher fatality rates and longer hospital admissions were linked to these illnesses. In multivariate analysis, there was no additional risk factor for acquiring an infection besides lengthier ICU stays. Additionally, it could be sensible to substitute piperacillin-tazobactam for carbapenems in empirical treatment.

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