

Abstract: Liver transplantation remains the gold standard for end-stage liver disease, but it is limited by donor scarcity and the risk of rejection. This review explores recent advancements in organ preservation, surgical techniques, and immunosuppression, alongside the challenges of infection, rejection, and long-term outcomes. The integration of regenerative medicine and personalized medicine offers promising future directions.

Introduction: Liver transplantation is a life-saving procedure for patients with end-stage liver disease. However, the procedure is associated with significant risks, including infection, rejection, and long-term outcomes. This review aims to provide a comprehensive overview of the current state of liver transplantation, highlighting recent advancements and the challenges that remain.

Advancements in Organ Preservation: The development of machine perfusion techniques has significantly improved the viability of donor livers, allowing for longer transport times and better outcomes. Additionally, the use of normothermic regional perfusion (NRP) has shown promising results in reducing ischemic injury.

Keywords: Liver transplantation, organ preservation, immunosuppression, rejection, infection, regenerative medicine, personalized medicine.

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