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Topic : **Liver**

SAFETY AND EFFICACY OF MINIMALLY INVASIVE ASSOCIATING LIVER PARTITION AND PORTAL VEIN LIGATION FOR STAGED HEPATECTOMY (ALPPS): A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background : Liver malignancies present substantial challenges to surgeons due to the extensive hepatic resections required, frequently resulting in posthepatectomy liver failure. Associating Liver Partition and Portal Vein Ligation for Staged Hepatectomy (ALPPS) was designed to increase the resectable liver volume, yet it is associated with significant mortality and morbidity rates. Recently, minimally invasive techniques have been incorporated into ALPPS, with the potential to improve safety profile whilst maintaining efficacy.

Methods : This PRISMA-adherent systematic review involved a systematic search of PubMed and Embase for studies evaluating the operative outcomes of minimally invasive ALPPS compared to open ALPPS. Random effects meta-analyses were used.

Results : Nine studies with 637 patients were included. Meta-analyses indicated a statistically significant decreased risk of 90-day mortality (RR=0.48, 95%CI: 0.29;0.80) and decreased overall length of hospital stay (MD=-8, 95%CI: -11.25;-4.74) in patients undergoing minimally invasive ALPPS compared to patients undergoing open ALPPS. No significant differences in the rate of future liver remnant growth (MD = 11.37, 95%CI: -4.02;26.77) and risk of posthepatectomy liver failure (RR=0.52, 95%CI: 0.09;2.97) were identified. Subgroup analyses identified a lower risk of posthepatectomy liver failure in patients undergoing laparoscopic ALPPS compared to robotic ALPPS. 92% of patients undergoing minimally invasive ALPPS achieved negative margin resections, while 86% of patients undergoing open ALPPS achieved negative margin resections.

Conclusions : This systematic review and meta-analysis provide evidence that minimally invasive ALPPS offers a safer alternative while maintaining comparable efficacy. These findings highlight the potential of minimally invasive techniques to combat the criticism that ALPPS has been placed under.

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