Title: Prophylactic Onlay Mesh Repair (POMR) versus Primary Suture Repair (PSR) for prevention of Incisional Hernia (IH) after abdominal wall surgery- a systematic review and meta-Analysis

Abstract

Background: With many different operative techniques in use to reduce the incidence of Incisional Hernias (IH) following a midline laparotomy, there is no consensus among the clinicians on the efficacy and safety of any particular repair technique. This meta-analysis compares the Prophylactic Onlay Mesh Repair (POMR) and Primary Suture Repair (PSR) for the incidence of IH.

Methods: A meta-analysis and systematic review of MEDLINE, Pubmed Central (via PubMed), Embase (via Ovid), SCOPUS, ScienceDirect, Google Scholar, SCI and Cochrane Library databases was undertaken. Seven randomized controlled trials assessing the outcomes of PSR and POMR were analysed in accordance with the PRISMA statement. The risk of bias was assessed using the Rob2 tool.

Results: According to the pooled analysis, POMR significantly reduced the incidence of IH compared to the PSR (OR 5.82 [95% CI 2.69, 12.58] P<0.01) with a significantly higher seroma formation rate post-surgery (OR 0.35 [95% CI 0.18, 0.67] P<0.01). Furthermore, the length of hospital stay (WMD -0.78 [95% CI -1.58, 0.02] P= 0.05) was significantly shorter for PSR compared to POMR group. Comparable effects were noted for reintervention, post-operative ileus, post-operative hematoma, post-operative mortality, long term intervention and long-term deaths between the two groups.

Conclusions: POMR significantly reduces the risk of IH when compared to the PSR, with an increased risk of post-operative seroma formation and longer hospital stay. However, more RCTs with standardized protocols are needed for meaningful comparisons of the two interventions, along with longer duration of follow-up to assess the impact on the occurrence of IH.

Key words: Incisional Hernia, Prophylactic Mesh Repair, Primary Suture Repair, Prophylactic Onlay Mesh Repair, Abdominal wall surgery