Fibrin glue instillation under skin flaps to prevent seroma-related morbidity following breast and axillary surgery.

Authors: Sajid M.S., Hutson K.H., Rapisarda I.F., Bonomi R.

Publication Date: 2013

Abstract:

Fibrin glue (FG) combines fibrinogen and thrombin, under the presence of factor XIII and calcium chloride, and produces a 'fibrin clot' as would occur through the natural clotting cascade. FG is thought to close over any small vessels including lymphatics that are too small for conventional surgical closure, thereby reducing seroma formation, seroma incidence and related comorbidities. To assess the evidence on the effectiveness of FG in people undergoing breast and axillary surgery and to establish whether FG is an efficient modality to prevent postoperative seroma and seroma-related outcomes. We searched the Cochrane Breast Cancer Group's (CBCG) Specialised Register (9 December 2011), the Cochrane Central Register of Controlled Trials (CENTRAL, Issue 1 2012), MEDLINE (9 December 2011), EMBASE (9 December 2011), LILACS (22 October 2012), SCI-E (22 October 2012), the World Health Organization's International Clinical Trial Registry (9 December 2011) and ClinicalTrials.gov (22 October 2012). Randomised controlled trials (RCTs) comparing the effectiveness of FG in terms of reducing the postoperative seroma incidence and related comorbidities in people undergoing breast and axillary surgery. At least two review authors independently scrutinised search results, selected eligible studies and extracted the data. The pooled analysis of the extracted data was achieved by the statistical analysis on Review Manager software. The quality of studies was assessed using The Cochrane Collaboration's 'Risk of bias' tool. The search of four standard electronic databases yielded 119 potentially relevant studies but only 18 RCTs involving 1252 people were found suitable for statistical analysis. There was significant heterogeneity among trials and the majority of trials were of poor quality. The use of FG

under skin flaps following breast and axillary surgery failed to reduce the incidence of postoperative seroma (risk ratio (RR) 1.02; 95% Confidence Interval (CI) 0.90 to 1.16, P value = 0.73), mean volume of seroma (standardised mean difference (SMD) -0.25; 95% CI -0.92 to 0.42, P value = 0.46), wound infection (RR 1.05; 95% CI 0.63 to 1.77, P value = 0.84), postoperative complications (RR 1.13; 95% CI 0.63 to 2.04, P value = 0.68) and length of hospital stay (SMD -0.2; 95% CI -0.78 to 0.39, P value = 0.51). FG reduced the total volume of drained seroma (SMD -0.75, 95% CI -1.24 to -0.26, P value = 0.003) and duration of persistent seromas requiring frequent aspirations (SMD -0.59; CI 95% -0.95 to -0.23, P value = 0.001). FG did not influence the incidence of postoperative seroma, the mean volume of seroma, wound infections, complications and the length of hospital stays in people undergoing breast cancer surgery. Due to significant methodological and clinical diversity among the included studies this conclusion may be considered weak and biased. Therefore, a major multicentre and high-quality RCT is required to validate these findings.