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[Intervention Review]

Prophylactic antibiotics to prevent surgical site infection after breast cancer surgery

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ABSTRACT

Background

Surgery has been used as part of breast cancer treatment for centuries; however any surgical procedure has the potential risk of infection. Infection rates for surgical treatment of breast cancer are documented at between 3% and 15%, higher than average for a clean surgical procedure. Pre- and perioperative antibiotics have been found to be useful in lowering infection rates in other surgical groups, yet there is no consensus on the use of prophylactic antibiotics for breast cancer surgery.

Objectives

To determine the effects of prophylactic (pre- or perioperative) antibiotics on the incidence of surgical site infection (SSI) after breast cancer surgery.

Search methods

For this third update we searched the Cochrane Wounds Group Specialised Register (5 December 2013); the Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library*); the Database of Abstracts of Reviews of Effects (DARE) (*The Cochrane Library*); Ovid MEDLINE; Ovid MEDLINE (In-Process & Other Non-Indexed Citations); Ovid EMBASE; and EBSCO CINAHL. We applied no language or date restrictions.

Selection criteria

Randomised controlled trials of pre- and perioperative antibiotics for patients undergoing surgery for breast cancer were included. Primary outcomes were rates of surgical site infection (SSI) and adverse reactions.

Data collection and analysis

Two review authors independently examined the title and abstracts of all studies identified by the search strategy, then assessed study quality and extracted data from those that met the inclusion criteria.

Main results

A total of eleven studies (2867 participants) were included in the review. Ten studies evaluated preoperative antibiotic compared with no antibiotic or placebo. One study evaluated perioperative antibiotic compared with no antibiotic. Pooling of the results demonstrated that prophylactic antibiotics administered preoperatively significantly reduce the incidence of SSI for patients undergoing breast cancer surgery without reconstruction (pooled risk ratio (RR) 0.67, 95% confidence interval (CI) 0.53 to 0.85). Analysis of the single study comparing perioperative antibiotic with no antibiotic found no statistically significant effect of antibiotics on the incidence of SSI (RR 0.11, 95% CI 0.01 to 1.95). No studies presented separate data for patients who underwent reconstructive surgery at the time of removal of the breast tumour.

Authors' conclusions

Prophylactic antibiotics administered preoperatively reduce the risk of SSI in patients undergoing surgery for breast cancer. Further studies involving patients undergoing immediate breast reconstruction are needed as studies have identified this group as being at higher risk of infection than those who do not undergo immediate breast reconstruction.

PLAIN LANGUAGE SUMMARY

Antibiotics to prevent surgical site infection after breast cancer surgery

Breast cancer accounts for one in 10 of all new cancer cases diagnosed and surgical removal of the breast is a common treatment approach. An infection of the surgical wound is often a complication of surgery and taking antibiotics just before the operation significantly reduces the chances of developing an infection. The review is not able to establish which antibiotic is most appropriate. No trials were found which considered the effect of antibiotics when the operation involved immediate breast reconstruction.