Postoperative mortality after primary cytoreductive surgery for advanced stage epithelial ovarian cancer: a systematic review

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CRD summary
The review concluded, from published studies, that postoperative mortality rates following cytoreductive surgery for epithelial ovarian cancer were generally low. Given the potential for error and bias throughout the review process, the authors' conclusions may not be reliable.

Authors' objectives
To obtain reference standards of postoperative mortality rates after primary cytoreductive surgery for advanced epithelial ovarian cancer.

Searching
MEDLINE, EMBASE and the Cochrane library were searched between January 1981 and March 2008 for English language articles. Search terms were reported.

Study selection
Studies reporting postoperative mortality or in-hospital mortality after primary cytoreductive surgery for advanced epithelial ovarian cancer, fallopian tube cancer or peritoneal cancer were eligible for inclusion. Studies of interval cytoreductive surgery for recurrent ovarian cancer and those reporting results of second-look laparotomy were excluded.

The included studies were all of advanced disease and the median age range (where reported) was 52 to 66 years. Various optimal cytoreduction criteria were utilized by the studies, ranging from 37% at or less than 2cm, to 100% at or less than 1cm. The outcome reported was postoperative mortality, which was defined as 30-day mortality for the majority of studies.

The authors did not state how the papers were selected for the review or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Data were extracted on type of surgery, International Federation of Gynaecology and Obstetrics (FIGO) stage, optimal cytoreduction rate, and the number and percentage of patients who died in the postoperative period.

Two authors extracted the data.

Methods of synthesis
Studies were summarized in tables and narratively discussed according to type of cohort (single centre or population).

Results of the review
A total of thirty studies were included (n=3,349) in the review; twenty-three studies where from the main search and seven additional studies were added. Of the twenty-three studies from the main search, twenty were retrospective single-centre studies and three were prospective population studies. The additional seven studies were in the majority single-centre studies with one multi-centre study.

Postoperative mortality rates: The population based studies (three studies, n=615) found postoperative mortality rates ranging from 2.5 to 4.8% (mean 3.7%); whilst the single-centre studies (20 studies, n=2,367) reported postoperative
mortality rates of 0 to 6.7% (mean 2.5%). The seven additional studies (n=367) gave specific details on the surgical procedures at primary surgery, either bowel or splenectomy, reporting postoperative mortality rates ranging from 0 to 5.9% (mean 2.7%) for bowel, and a postoperative mortality rate of 8.8 to 17% for splenectomy.

Causes of death: Eleven studies specified cause of death. The most common causes of death were pulmonary embolism (25%) and surgical site infection sepsis (20.8%).

Authors' conclusions
Postoperative mortality rates after cytoreductive surgery for advanced epithelial ovarian cancer were low, but there is a need for uniform registration during the preoperative, perioperative and postoperative period for a broad cohort of patients.

CRD commentary
Inclusion criteria for the review were broadly defined and several relevant sources were searched. However, there was the potential for error and bias throughout the review process. Notably, the potential implication for publication bias was not considered and the review was limited to English articles only. Also, the selection of studies was unclear and no study validity assessment was reported. An additional issue was the inclusion of seven studies in the review which may or may not have been from the main review. Taken together, these concerns raise questions as to the validity of the authors' conclusions.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.
Research: The authors stated that an international standard for data collection and reporting needs to be established.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.