Impact of Caesarean section on future pregnancy: a review of cohort studies

Hemminki E

Authors’ objectives
The authors study the effects of Caesarean section on future pregnancy.

Searching
MEDLINE was searched from 1990 to 1994 using the search terms ‘Caesarean section’, ‘epidemiology’, ‘ectopic pregnancy’, ‘placenta praevia’ and ‘abruptio placentae’. Additional material was obtained by searching reference lists of studies made prior to the review, reference lists on other aspects of Caesarean section, and the Cochrane Database of Systematic Reviews. No other information is provided on the nature or origins of the reference lists used. Included studies were limited to those published in scientific medical journals in English; studies published in books or other languages were excluded.

Study selection
Study designs of evaluations included in the review
The review included only cohort studies with a comparable control group. Exposure to Caesarean section varied between the studies from first birth to all births. Follow-up period varied, with two studies not explicitly stating the period.

Specific interventions included in the review
Caesarean sections undertaken since the 1960s, due to changes in the nature of the intervention.

Participants included in the review
Women who had had a previous Caesarean section were included. No other patient characteristics were provided.

Outcomes assessed in the review
Aspects of subsequent reproduction following Caesarean section: fertility (either lessened capability or lessened desire to have children), outcome of next pregnancy (uncompleted pregnancy), complications during pregnancy and birth, and health of next infant (either because of the first or a repeat Caesarean).

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The author does not report the criteria used to assess validity, or how the validity assessment was performed.

Data extraction
The author does not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
The studies were combined descriptively as the presentation of results (risk ratios, odds ratios and confidence limits) varied between the studies,

How were differences between studies investigated?
The review did not provide a test for heterogeneity, although the author did discuss the differences between the studies in terms of research design, participants, follow-up and adjusted confounders.

**Results of the review**

Eight studies (33,630 patients) were included.

Infertility: all 7 studies show that fewer women having had a Caesarean section will subsequently have children and/or will have less children, due to a combination of a lessened desire for, or an incapability of having, children. Sterilisation rates are higher after a Caesarean section (3 studies).

Uncompleted pregnancy: rates of induced abortions are not increased (5 studies) among women who have had a previous Caesarean section. Women who have had previous Caesarean sections had significantly higher miscarriage rates (2 out of 5 studies) and ectopic pregnancy rates (2 out of 3 studies), although problems of lack of age adjustment, confounding and research design may bias the results.

Next pregnancy and birth: 2 studies assessed the effects of Caesarean section on next pregnancy, though the evidence should be viewed with caution as the studies used potentially incomplete and biased data. These studies suggested that next pregnancy was more complicated, through repeat Caesarean section and placental problems (placenta praevia and abruptio placentae).

Next Infant: 2 studies reporting the health of the next infant following previous Caesarean section showed children of mothers exposed appear to have significantly-worse health than the controls for low birth weight (1 study), perinatal mortality (1 study) and malformations (1 study).

**Authors’ conclusions**

Caesarean sections may have a negative impact on the occurrence of subsequent pregnancies, on their quality and outcome, and on the health of the subsequent infant.

**CRD commentary**

Unfortunately the review lacks information on the criteria used for assessing the quality of a systematic review. No mention is made of the criteria used to assess the validity of primary studies, the process by which decisions of relevance or judgements of validity are made, or the method of extraction of data from primary studies. The search strategy refers to ‘reference lists of studies made prior to the start of this review’ and ‘reference lists of studies on other aspects of Caesarean section, which provide no indication of their origin or potential bias. Differences between the studies were discussed but no statistical measure of heterogeneity was provided. Study details were adequately discussed, though confidence intervals and probability levels were excluded from the tables of results. The problems noted by the author, such as data quality, the influences of unadjusted confounders, selection bias and research design, weaken the evidence presented and suggest a cautious approach towards the conclusions.

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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.