Cesarean section and postpartum depression: a review of the evidence examining the link

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CRD summary
This review found no evidence that delivery by caesarean section increased the risk of subsequent postpartum depression. The authors' cautious conclusions reflected the evidence presented and were based on data from substantial numbers of women, but the methodological limitations of the review suggested that the conclusions should be interpreted with caution.

Authors' objectives
To examine the evidence for an association between caesarean section and postpartum depression.

Searching
The authors searched MEDLINE and PsycINFO from inception. Search terms were reported but search dates were not. Only peer-reviewed articles in English were included. It appeared that reference lists of relevant articles were screened to identify additional studies.

Study selection
Studies that evaluated the risk of postpartum depression following caesarean section were eligible for the review. It appeared that studies of any design were eligible. Postpartum depression was defined as depression occurring between 10 days and one year after delivery. The included studies varied in terms of geographical setting and the time and method of assessing for postpartum depression. Obstetric data were collected by various different methods, including questionnaires, interviews and medical records or case notes.

The authors stated neither how studies were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
Studies were classified as methodologically superior if they: included at least 100 participants; assessed postpartum depression prospectively using a standard measure; and were controlled for confounding by randomisation or by assessing mood during pregnancy as well as after delivery.

The authors did not state how many reviewers performed the validity assessment.

Data extraction
For studies that used similar criteria to define postpartum depression (Edinburgh Postnatal Depression Scale score of 12, 12.5 or 13) and assessed depression at similar times (six to 20 weeks postpartum), data on depression in women who did and did not undergo caesarean section were extracted. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated. The authors stated neither how the data were extracted for the review nor how many reviewers performed the data extraction.

Methods of synthesis
Pooled ORs were calculated for the group of similar studies and for the methodologically superior studies within that group. Homogeneity across studies was assessed using the Breslow-Day $X^2$ test. Studies were also grouped according to whether or not they showed a significant increased risk of postpartum depression following caesarean section.

Results of the review
Twenty-four studies with over 27,000 participants were included in the review. One study (n = 1,596) was a randomised controlled trial, the remainder were cohort or case-control studies or case series. Eight studies were classed as methodologically superior.

Five studies (one methodologically superior) found a significant increase in postpartum depression associated with
caesarean section, 15 (six methodologically superior) found no significant association and four (one methodologically superior) gave mixed results. Pooled ORs across all similar studies (OR 1.08, 95% CI: 0.95, 1.24, eight studies) and methodologically superior studies (OR 1.15, 95% CI: 0.97, 1.36, four studies) did not suggest that caesarean section significantly increased the odds of postpartum depression. Results of the statistical test for homogeneity were not clearly reported but it appears that heterogeneity was significant for at least one of the meta-analyses.

Authors' conclusions
No link between caesarean section and postpartum depression was established.

CRD commentary
This review addressed a clear question and had clear inclusion criteria for participants, intervention and outcome. It appeared that all study designs were eligible, which meant that the review was not limited to better quality evidence. The authors searched two databases and reference lists for peer-reviewed articles in English only. The possibility that relevant studies were missed cannot be ruled out. The review may also be at risk of language and/or publication bias. Risk of publication bias was not assessed. Validity of included studies was assessed and the results were used in the synthesis, but the assessment was very limited. This meant that the reliability of the included studies and the synthesis based on them was uncertain. Review methods were poorly reported, so the risk of errors and bias during the review process was also difficult to assess. Adequate details of included studies were presented. Selected studies were pooled by meta-analysis; the selection appeared appropriate, but it appeared that some heterogeneity was present, so the results should be treated cautiously. The narrative synthesis was based on counting numbers of studies with a statistically significant result (vote counting), which is not a particularly helpful type of synthesis. The authors' cautious conclusions reflected the evidence presented and were based on data from substantial numbers of women, but the methodological limitations of the review suggested that the conclusions should be interpreted with caution.

Implications of the review for practice and research
The authors did not suggest any implications for practice or research.

Funding
Not stated.

Bibliographic details

PubMedID
16554400

DOI
10.1097/01.psy.0000204787.83768.0c

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Cesarean Section /adverse effects /psychology; Depression, Postpartum /etiology /psychology; Female; Humans; Pregnancy

AccessionNumber
12006006158

Date bibliographic record published
09/08/2008

Date abstract record published
Record Status

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