Systematic review: elective induction of labor versus expectant management of pregnancy
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CRD summary
This review compared elective induction of labour with expectant management of pregnancy. The authors concluded that elective induction at 41 weeks gestation or later was associated with a decreased risk of caesarean delivery and meconium-stained amniotic fluid, but further research was needed on translating this into usual care. This conclusion is likely to be reliable.

Authors' objectives
To compare the benefits and harms of elective induction of labour and expectant management of pregnancy.

Searching
MEDLINE, CINAHL, and Cochrane Central Register of Controlled Trials (CENTRAL) were searched up to March 2009 for studies in English. The reference lists of included studies and relevant systematic reviews were also searched and the search strategy was reported.

Study selection
RCTs, cohort studies, and case-control studies were eligible for inclusion provided they reported mode of delivery or maternal or foetal and neonatal outcomes, for women who had their labour induced, without a specific indication or need (elective induction), at or after 37 weeks and before 42 weeks gestation.

Most of the included RCTs used expectant management of pregnancy as a control group and most of the observational studies used spontaneous labour as a control group. The key comparator was expectant management as this was viewed as being the most clinically relevant. The studies took place in academic and/or community hospital settings or across multiple centres. Most of them had populations of nulliparous and multiparous women, who were induced at or after 41 weeks of gestation.

Two researchers independently screened studies for inclusion.

Assessment of study quality
Studies were assessed on several aspects of quality including randomisation, baseline similarity between groups, loss to follow-up, sample size, use of intention-to-treat analysis, and statistical analysis. A summary rating of good, fair, or poor quality was applied to each study.

Two researchers independently assessed quality and disagreements were resolved by consensus with a third researcher.

Data extraction
Data were extracted on the number of events, for each outcome of interest, and the odds ratio and 95% confidence interval were calculated. Two researchers independently extracted the data and any disagreements were resolved by consultation and consensus with a third researcher.

Methods of synthesis
Where more than four RCTs or studies reported an outcome, the RCTs and observational studies were pooled in separate random-effects meta-analyses. The primary outcome was the pooled odds ratio and the pooled risk difference was also estimated, where relevant. Statistical heterogeneity was assessed using the $X^2$ statistic, with $p<0.05$ classified as heterogeneity, and the $I^2$ statistic, with $I^2 > 50\%$ classified as heterogeneity present. Subgroup analyses were undertaken to investigate the effects of year of publication, country, gestational age, and setting. A sensitivity analysis was undertaken investigating the impact of removing each study individually from the analysis. Publication bias was assessed by visual inspection of funnel plots and the fail-safe $N$ was calculated.
Results of the review
Thirty-six studies were included and 11 were RCTs and 25 were observational studies (three prospective cohort, 18 retrospective cohort, and four case-control). Two of the RCTs were classified as good quality, four were fair, and five were poor. All the observational studies were classified as poor quality.

Caesarean delivery: Expectant management of pregnancy was associated with a statistically significant higher chance of caesarean delivery compared with elective induction of labour (OR 1.22, 95% CI 1.07 to 1.39; eight RCTs, n=6,054 women). There was no statistically significant difference between groups, where induction was at less than 41 weeks gestation (OR 1.73, 95% CI 0.67 to 4.5; three RCTs, n=657) and in nulliparous women only (OR 1.67, 95% CI 0.81 to 3.46; three RCTs, n=506). There were insufficient data to pool on multiparous women. In the observational studies, there was a statistically significant lower risk of caesarean delivery in the spontaneous labour group compared with the elective induction of labour group (OR 0.65, 95% CI 0.52 to 0.81).

Other maternal outcomes: There was no statistically significant difference, in the odds of an operative vaginal delivery or maternal infection, between electively induced labour and expectant management, in RCTs, and between induced and spontaneous labour, in observational studies. There were insufficient studies on other outcomes for pooling.

Neonatal outcomes: The presence of meconium-stained amniotic fluid was more likely in the expectant management group than in the elective induction of labour group (OR 2.04, 95% CI 1.34 to 3.09; six RCTs, n=5,478), but there was evidence of statistical heterogeneity between RCTs. There were no statistically significant differences between groups in meconium aspiration syndrome, Apgar score of less than seven at five minutes, and admissions to neonatal intensive care units. There were insufficient studies on other outcomes for pooling.

Cost information
In the full report, the cost-effectiveness analysis suggested that elective induction of labour at 41 weeks improved maternal and foetal outcomes and was cost-effective and that elective induction prior to 41 weeks could reach conventional thresholds for cost-effectiveness, but these were hypotheses rather than definitive. They were based on US costs.

Authors’ conclusions
The RCTs suggested that elective induction of labour at 41 weeks gestation or later was associated with a decreased risk of caesarean delivery and meconium-stained amniotic fluid.

CRD commentary
The review had clearly stated inclusion criteria and a number of relevant databases were searched. Study quality was assessed and taken into consideration in the synthesis and methods were used to reduce error and bias in all review processes. The approach to the synthesis seemed to be appropriate and heterogeneity was assessed and relevant subgroups were investigated. The restriction to English-language studies resulted in the exclusion of at least one relevant study, which was relatively large and its inclusion might have altered the pooled treatment effect for the induction of labour at less than 41 weeks gestation.

The authors’ overall conclusion on elective induction at 41 weeks gestation or later was appropriate and likely to be reliable.

Implications of the review for practice and research
Practice: The authors stated that there were concerns about the translation of the review findings from research settings into actual clinical practice.

Research: The authors stated that large RCTs were required to examine the elective induction of labour in settings where most obstetric care is provided, especially for induction before 41 weeks gestation. In these trials, the control group should be women whose pregnancy is expectantly managed and a wide range of outcomes should be assessed. They also stated that well-designed observational studies were required to examine the outcomes in a variety of non-academic settings and that examination of the potential impact of different labour induction policies across providers on
the outcomes was required.

**Funding**
Funded by the Agency for Healthcare Research and Quality (AHRQ, contract 290-02-0017), and supported by the Health Services Research and Development Service, Department of Veterans Affairs.

**Bibliographic details**

**PubMedID**
19687492

**Original Paper URL**
http://www.annals.org/content/151/4/252.abstract

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Apgar Score; Cesarean Section /statistics & numerical data; Delivery, Obstetric /statistics & numerical data; Female; Gestational Age; Humans; Infant, Newborn; Infant, Newborn, Diseases /epidemiology; Labor, Induced /adverse effects /statistics & numerical data; Labor, Obstetric; Observation; Obstetric Labor Complications /epidemiology; Pregnancy; Pregnancy Outcome; Randomized Controlled Trials as Topic /standards; Risk Factors

**AccessionNumber**
12009105537

**Date bibliographic record published**
07/10/2009

**Date abstract record published**
28/07/2010

**Record Status**
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.