Routine ultrasound in late pregnancy (after 24 weeks’ gestation)

27 January 2016

RHL summary

Key Findings

This updated review found that routine late pregnancy ultrasound was associated with:

- No significant effect on induction of labour and caesarean section.
- No differences to the occurrence of preterm birth less than 37 weeks and perinatal mortality.
- No statistically significant differences on perinatal mortality.
- No data were available for preterm delivery less than 34 weeks, neurodevelopment at age two and maternal psychological effects.

Evidence included in this review

Thirteen trials involving 34,980 women were included in the systematic review. Trials were conducted in high-income countries and both reasons for scanning and aspects evaluated showed high variation between trials.

Quality assessment

The overall risk of bias of included studies was mixed. Most included studies had low risk of bias for allocation concealment and selective reporting but had high risk of bias for blinding of both participants and personnel outcome assessment. The GRADE quality of the evidence was moderate to high for primary outcomes.

Clinical implications

Routine late ultrasound scans showed no benefits for induction of labour, caesarean section rates, perinatal mortality, antenatal admission, days in hospital, instrumental delivery, admission to neonatal intensive care unit, Apgar scores, neonatal resuscitation or stillbirth. Two trials showed less post-term births in the routine late ultrasound group, but these women also underwent early routine ultrasound and controls did not. However, due to high levels of heterogeneity results of this review should be interpreted with caution. It may be indicated in high-risk pregnancies in which placenta grading is relevant to care.

Further research

Research on late ultrasound scan in pregnancy should focus on maternal psychological effects and on both short- and long-term neonatal and childhood outcomes and the value of placental grading and texture. In addition, future studies could aim to develop standardised scan protocols and management algorithms of
ultrasound abnormal findings.

Citation: Bricker L, Medley N, Pratt JJ. Routine ultrasound in late pregnancy (after 24 weeks' gestation). Cochrane Database of Systematic Reviews 2015, Issue 6. Art. No.: CD001451. DOI: 10.1002/14651858.CD001451.pub4.

Abstract

Diagnostic ultrasound is used selectively in late pregnancy where there are specific clinical indications. However, the value of routine late pregnancy ultrasound screening in unselected populations is controversial. The rationale for such screening would be the detection of clinical conditions which place the fetus or mother at high risk, which would not necessarily have been detected by other means such as clinical examination, and for which subsequent management would improve perinatal outcome.

To assess the effects on obstetric practice and pregnancy outcome of routine late pregnancy ultrasound, defined as greater than 24 weeks' gestation, in women with either unselected or low-risk pregnancies.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 May 2015) and reference lists of retrieved studies.

All acceptably controlled trials of routine ultrasound in late pregnancy (defined as after 24 weeks).

Three review authors independently assessed trials for inclusion and risk of bias, extracted data and checked them for accuracy.

Thirteen trials recruiting 34,980 women were included in the systematic review. Risk of bias was low for allocation concealment and selective reporting, unclear for random sequence generation and incomplete outcome data and high for blinding of both outcome assessment and participants and personnel. There was no difference in antenatal, obstetric and neonatal outcome or morbidity in screened versus control groups. Routine late pregnancy ultrasound was not associated with improvements in overall perinatal mortality. There is little information on long-term substantive outcomes such as neurodevelopment. There is a lack of data on maternal psychological effects.

Overall, the evidence for the primary outcomes of perinatal mortality, preterm birth less than 37 weeks, induction of labour and caesarean section were assessed to be of moderate or high quality with GRADE software. There was no association between ultrasound in late pregnancy and perinatal mortality (risk ratio (RR) 1.01, 95% confidence interval (CI) 0.67 to 1.54; participants = 30,675; studies = eight; I² = 29%), preterm birth less than 37 weeks (RR 0.96, 95% CI 0.85 to 1.08; participants = 17,151; studies = two; I² = 0%), induction of labour (RR 0.93, 95% CI 0.81 to 1.07; participants = 22,663; studies = six; I² = 78%), or caesarean section (RR 1.03, 95% CI 0.92 to 1.15; participants = 27,461; studies = six; I² = 54%). Three additional primary outcomes chosen for the 'Summary of findings' table were preterm birth less than 34 weeks, maternal psychological effects and neurodevelopment at age two. Because none of the included studies reported these outcomes, they were not assessed for quality with GRADE software.

Based on existing evidence, routine late pregnancy ultrasound in low-risk or unselected populations does not confer benefit on mother or baby. There was no difference in the primary outcomes of perinatal mortality, preterm birth less than 37 weeks, caesarean section rates, and induction of labour rates if ultrasound in late pregnancy was performed routinely versus not performed routinely. Meanwhile, data were lacking for the other primary outcomes: preterm birth less than 34 weeks, maternal psychological effects, and
neurodevelopment at age two, reflecting a paucity of research covering these outcomes. These outcomes may warrant future research.


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Home > Routine ultrasound in late pregnancy (after 24 weeks’ gestation)