WHO recommendation on the use of early amniotomy with early oxytocin augmentation for prevention of delay in labour

20 May 2014

Recommendation

The use of early amniotomy with early oxytocin augmentation for prevention of delay in labour is not recommended.

(Very low-quality evidence, weak recommendation)

Publication history

First published: May 2014

Updated: prioritized for updating in 2018

Assessed as up-to-date: May 2014

Remarks

- The GDG noted that the variable reduction in the first stage of labour itself does not justify the interventions given that no substantive differences were found in other important clinical outcomes.

- The GDG noted the substantial overlap between this intervention and the components of active management of labour and considered it as equally highly prescriptive and interventional. Like the package of active management of labour, the group placed much emphasis on its potential to undermine women’s rights, choices and autonomy as recipients of care, and therefore did not recommended the intervention. Additionally, the intervention is not considered feasible in many settings, as it requires considerable health-care resources to implement.

Background
Difficult labour (or dystocia) is characterized by abnormally slow labour progress arising from inefficient uterine contractions, abnormal fetal presentation or position, inadequate bony pelvis or abnormalities of the pelvic soft tissues of the mother.\(^{(1, 2)}\) Evidence suggests that up to one third of first-time mothers experience delay in the first stage of labour.\(^{(3)}\)

Augmentation of labour is the process of stimulating the uterus to increase the frequency, duration and intensity of contractions after the onset of spontaneous labour. It has commonly been used to treat delayed labour when uterine contractions are assessed to be insufficiently strong or inappropriately coordinated to dilate the cervix. Labour augmentation has traditionally been performed with the use of intravenous oxytocin infusion and/or artificial rupture of amniotic membranes (amniotomy). The procedure aims to shorten labour in order to prevent complications relating to undue prolongation, and to avert caesarean section. There is evidence that a significant proportion of women with uncomplicated pregnancies are subjected to routine augmentation of labour with oxytocin.\(^{(4)}\)

While augmentation of labour may be beneficial in preventing prolonged labour, its inappropriate use may cause harm. Augmentation with synthetic oxytocin may result in uterine hyperstimulation, with adverse effects such as fetal asphyxia and uterine rupture, and thus increase the risk of a cascade of interventions during labour and delivery.\(^{(5)}\)

**Methods**

The recommendation was developed using standardized operating procedures in accordance with the process described in the “WHO handbook for guideline development”, guided by the GRADE approach.\(^{(6)}\)

Outcomes used for this recommendation were aligned with the prioritized outcomes from the WHO recommendations on augmentation of labour (2014).\(^{(7)}\)

A Cochrane systematic review was conducted on the use of early amniotomy and early oxytocin compared with routine care for preventing delay in labour.\(^{(8)}\) In the review, randomized controlled trials relevant to the key question were screened by review authors, and data on relevant outcomes and comparisons were extracted. Evidence profiles (in the form of GRADE tables) were prepared for comparisons of interest, including the assessment and judgments for each outcome, and the estimated risks.

WHO convened a Guideline Development Group (GDG) meeting on recommendations on augmentation of labour in September 2013, where this recommendation was developed. The GDG comprised of a group of independent experts, who used the evidence profiles to assess evidence on effects on the pre-specified outcomes. GDG members discussed the balance between desirable and undesirable effects, overall quality of supporting evidence, values and preferences of stakeholders, resource requirements, cost-effectiveness, acceptability, feasibility and equity, to formulate the recommendation. Remarks were added to clarify the recommendation, and aid implementation.

Further information on procedures for developing this recommendation are available [here](#).

**Recommendation question**

For this recommendation, we aimed to answer the following question:

- in pregnant women in labour (P), does use of early amniotomy and early oxytocin augmentation (I), compared to no intervention (C), prevent delay in labour (O)?
Evidence Summary

Evidence on the use of early amniotomy and early oxytocin compared with routine care for preventing delay in labour was extracted from a Cochrane systematic review of 11 RCTs (> 7000 women).(8)

Trials were conducted in both high- and low-resource settings: four in the USA, and one each in Belgium, Chile, France, India, New Zealand, Nigeria, and Thailand.

Women in early spontaneous labour with detected slow progress were allocated to early amniotomy and oxytocin versus usual care. Four of the trials included in the review included the use of early amniotomy and early oxytocin as part of a package of care for the active management of labour (which included strict diagnosis of labour, regular vaginal examinations to assess progress and one-to-one care). A sensitivity analysis was conducted excluding these trials from the main analysis to examine the impact on results.

Early amniotomy and early oxytocin for the prevention of delay: maternal outcomes

- Only one trial reported on maternal mortality; there were no maternal deaths in either group.

- Overall, trials showed a statistically significant reduction in the total duration of labour (from admission) for women in the intervention group (MD –1.11 hrs, 95% CI –1.82 to –0.41; seven trials, 4675 women). The direction of effect was consistent in all trials, with women in the intervention group having shorter labour; however, the size of the mean reduction varied considerably in different trials ranging from a few minutes to more than two hours. The difference between groups remained significant in the sensitivity analysis (excluding trials that used early amniotomy and oxytocin as part of active management of labour) (MD –0.81 hrs, 95% CI –1.36 to –0.25; five trials, 3822 women).

- There was a significant reduction in the length of the first stage of labour for women in the intervention group in the overall analysis (MD –1.57 hrs, 95% CI –2.15 to –1.00; four trials, 4675 women) and in the sensitivity analysis (MD –1.27 hrs, 95% CI –2.08 to –0.47; two trials, 1578 women).

- Overall, there was a modest reduction in the number of women in the intervention group undergoing caesarean section for any indication (RR 0.87, 95% CI 0.77 to 0.99; 11 trials, 7753 women). The difference between the groups for caesarean section was not significant in the sensitivity analysis, but there was a trend towards more women in the intervention group being less likely to undergo caesarean section (RR 0.84, 95% CI 0.70 to 1.01; seven trials, 4885 women).

- Maternal satisfaction with experience during childbirth was similar between comparison groups (RR 1.02, 95% CI 0.99 to 1.04; two trials, 2436 women).

- Overall, there were no significant difference between groups for hyperstimulation of labour (RR 1.37, 95% CI 0.76 to 2.46; two trials, 853 women), PPH (blood loss > 500 ml) (RR 0.83, 95% CI 0.65 to 1.08; four trials, 2674 women), maternal blood transfusion (RR 1.84, 95% CI 0.32 to 10.48; three trials, 2977 women) or postpartum fever or infection (RR 0.88, 95% CI 0.66 to 1.16; five trials, 2824 women). Sensitivity analyses (excluding the active management of labour trials) showed that the occurrences of PPH, maternal blood transfusion and postpartum infection or fever were also not significantly different between the intervention and control groups. Hyperstimulation of labour was not reported in the trials included in the sensitivity analysis.

Early amniotomy and early oxytocin for the prevention of delay: infant outcomes

- For neonatal outcomes, there were no statistically significant differences in serious neonatal
morbidity: seizure/neurological abnormalities (RR 0.83, 95% CI 0.25 to 2.71; two trials, 2666 women); abnormal arterial cord pH (acidosis) (RR 1.11, 95% CI 0.61 to 2.02; three trials, 1416 women); jaundice or hyperbilirubinaemia (RR 1.10, 95% CI 0.68 to 1.77; two trials, 2219 women); admission to NICU (RR 1.13, 95% CI 0.91 to 1.41; six trials, 4479 women); and Apgar score < 7 at five minutes (RR 1.10, 95% CI 0.77 to 1.55; six trials, 4479 women). The sensitivity analysis showed similar observations for the above-listed infant outcomes.

Further information and considerations related to this recommendation can be found in the WHO guidelines, available at: http://apps.who.int/iris/bitstream/handle/10665/112826/WHO_RHR_14.15_eng...

Implementation considerations

- The successful introduction of this recommendation into national programmes and health-care services depends on well-planned and participatory consensus-driven processes of adaptation and implementation. The adaptation and implementation processes may include the development or revision of existing national guidelines or protocols based on this recommendation.
- The recommendation should be adapted into a locally appropriate document that can meet the specific needs of each country and health service. Any changes should be made in an explicit and transparent manner.
- A set of interventions should be established to ensure that an enabling environment is created for the use of the recommendations (including, for example, the availability of augmentation agents and monitoring capacity), and that the behaviour of the healthcare practitioner changes towards the use of this evidence-based practice.
- In this process, the role of local professional societies is important and an all-inclusive and participatory process should be encouraged.

Research implications

The GDG identified that further research on the following high-priority questions is needed:

- What are the comparative effects of oxytocin alone, amniotomy alone and concurrent oxytocin and amniotomy in women with confirmed delay in the first stage of labour?
  - How does the sequence of oxytocin and amniotomy as concurrent interventions affect outcomes when used for labour augmentation?
- What is the safest maximum dose of oxytocin for labour augmentation?
- What is the safest and most effective incremental rate of oxytocin infusion for labour augmentation?

Related Links

WHO recommendations for augmentation of labour (2014) –full document and evidence tables

Supporting systematic review:

References


Citation


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