WHO recommendation on high starting and increment dosage regimen of oxytocin for labour augmentation

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Recommendation

High starting and increment dosage regimen of oxytocin is not recommended for labour augmentation.

(Weak recommendation, low-quality evidence)

Publication history

First published: May 2014

Updated: prioritized for updating in 2018

Assessed as up-to-date: May 2014

Remarks

- The GDG considered the evidence in favour of high starting and increment dosage regimen of oxytocin (in terms of labour duration and overall caesarean section rate) to be uncertain and chose not to recommend the intervention. The group emphasised the need for caution in initiating and increasing oxytocin at high dosage levels, given the paucity of evidence on critical neonatal outcomes and the danger associated with injudicious use of oxytocin in clinical practice.

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 use of the partograph as a monitoring tool to identify when intervention becomes indicated during 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 high starting and increment dosage regimen of oxytocin for labour augmentation (I), compared to low dosage regimens (C), improve maternal and perinatal outcomes (O)?

Evidence Summary

Evidence on the use of high- versus low-dose oxytocin regimens was drawn from one Cochrane systematic review including four trials (644 women). (8)

Two of the trials recruited nulliparous women only. High-dose regimens were defined as those with starting doses and increments of ≥ four milliunit (mU) per minute of oxytocin, and low-dose regimens as those with a starting dose and increments of < four mU per minute. The division into “high” and “low” doses was based
on an arbitrary decision.

Two of the trials were conducted in the United Kingdom and one trial each was conducted in the USA and Iran.

**High- versus low-dose oxytocin: maternal outcomes**

- In one trial (92 women) there was no significant difference between the high- and low-dose groups for the mean interval from onset of the first stage of labour to delivery (MD –26 min, 95% CI –128.06 to 76.06) while in another trial (40 women), the mean interval from the start of oxytocin administration to delivery was reduced by 3.5 hours in the higher-dose group (95% CI –6.38 to –0.62).

- There was no significant difference between groups in the incidence of PPH (RR 0.95, 95% CI 0.61 to 1.48).

- For caesarean section, there was a significant difference between groups, with the high-dose group being less likely to undergo caesarean section (RR 0.62, 95% CI 0.44 to 0.86; four trials, 644 women). However, there was inconsistency between trials in the size of the effect, and more than half of the weight in this analysis was from a trial at high risk of bias; when this trial was excluded from the analysis, the observed difference between groups was not statistically significant, and the effect size was considerably reduced (RR 0.89, 95% CI 0.57 to 1.38). The above results were reflected in the rate of spontaneous vaginal birth, which favoured the high-dose group (RR 1.35, 95% CI 1.13 to 1.62), but again this was largely due to the data from a single trial at high risk of bias. There was no significant difference in the rate of instrumental vaginal births (RR 0.83, 95% CI 0.61 to 1.13).

- No significant difference was observed between groups for uterine hyperstimulation, although there was a trend towards an increased risk among women receiving a high dose of oxytocin for labour augmentation (RR 1.63, 95% CI 0.97 to 2.72; four trials, 644 women). Use of epidural analgesia was very similar in the two groups (RR 0.98, 95% CI 0.86 to 1.12).

- There was no significant difference between groups for chorioamnionitis (RR 0.7, 95% CI 0.44 to 1.12).

**High- versus low-dose oxytocin: infant outcomes**

- Few data on neonatal outcomes were reported. There were no estimable data to show an effect in neonatal mortality or Apgar score < 7 at five minutes. No significant differences were observed for mean umbilical cord artery pH (MD 0, 95% CI –0.03 to 0.03) or admission to NICU (RR 0.5, 95% CI 0.22 to 1.15).

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...](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 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?
- 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?

**Related Links**

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

Supporting systematic review:


**References**


Citation


Published on RHL (https://extranet.who.int/rhl)

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