WHO recommendation on augmentation with intravenous oxytocin prior to confirmation of delay in labour

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Recommendation

Augmentation with intravenous oxytocin prior to confirmation of delay in labour is not recommended.

(Weak recommendation, very 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 noted that the clinical benefits of immediate, compared to delayed, commencement of oxytocin following a suspicion of slow labour progress do not clearly outweigh its potential harms.

- The GDG members placed emphasis on the need to confirm a delay in the progress of labour by allowing an interval of watchful expectancy before initiating oxytocin augmentation. The GDG members agreed such a course of action could reduce the frequency of premature diagnosis of labour dystocia and unnecessary oxytocin augmentation. Furthermore, early intervention on the basis of suspected labour dystocia may be associated with more uterine hyperstimulation and poorer maternal and neonatal morbidity in settings where interventions to manage the condition are not available.

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 augmentation with intravenous oxytocin prior to confirmation of delay in labour (I), compared to no intervention (C), improve maternal and perinatal outcomes (O)?

Evidence Summary

Evidence on early use of oxytocin versus delayed use during the first stage of labour was drawn from a Cochrane systematic review of five trials (1200 low-risk women). (8) Women recruited into the trials were
described as being at low risk, with term pregnancies and in the first stage of spontaneous labour. Almost all of the women included in the trials were nulliparous. Three trials were conducted in the United Kingdom and one each in Sweden and Finland.

Women recruited into “early” oxytocin groups in the trials received oxytocin immediately or within 20 minutes following the diagnosis of delay in labour progress. Those in the “delayed” oxytocin group received more conservative management with oxytocin augmentation withheld for a variable time period of between three and eight hours following diagnosis of delay in labour progress.

Diagnosis of slow progress in the first stage of labour was heterogeneous among trials.

**Early versus delayed use of oxytocin: maternal outcomes**

- Women receiving early oxytocin had, on average, a shorter interval between randomization and birth (MD 2.2 hrs shorter, 95% CI −3.29 to −1.1; three trials, 1083 women). There was considerable variation in the size of the effect between the three trials reporting this outcome, but the direction of effect was consistent. Two trials indicated no significant difference between the comparison groups in the number of women undelivered 12 hours after randomization (RR 0.32, 95% CI 0.07 to 1.43; two trials, 1042 women).

- Women in the early oxytocin group were more likely to have uterine hyperstimulation with fetal heart rate changes (RR 2.51, 95% CI 1.04 to 6.05; two trials, 472 women). However, one small trial (60 women) failed to show an effect between groups for uterine hyperstimulation without fetal heart rate changes (RR 6.66, 95% CI 0.39 to 112.6).

- There was no significant difference between groups for incidence of PPH (RR 0.83, 95% CI 0.59 to 1.15; three trials, 1099 women).

- The mode of delivery was similar between the groups. A similar proportion of women in the early and delayed oxytocin groups had caesarean section for any indication (RR 0.88, 95% CI 0.66 and 1.19; five trials, 1200 women), and caesarean section for fetal distress (RR 1.08, 95% CI 0.59 to 2.0; three trials, 909 women). There were no differences observed in the number of women having instrumental vaginal birth (RR 1.17, 95% CI 0.72 to 1.88; five trials, 1200 women) or using epidural analgesia (RR 0.9, 95% CI 0.76 to 1.06; three trials, 1083 women).

- Two trials that collected information on women’s views of their experiences in childbirth indicated no differences in maternal satisfaction between the groups.

**Early versus delayed use of oxytocin: infant outcomes**

- There were no significant differences between groups for any of the neonatal outcomes reported. Serious neonatal morbidity or perinatal death was reported in two trials, and overall there were only two events (one in each group). There were similarities between groups regarding low Apgar scores at five minutes (RR 1.02, 95% CI 0.46 to 2.28), and admission to NICU (RR 0.95, 95% CI 0.60 to 1.50).

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:

[Bugg GJ, Siddiqui F, Thornton JG. Oxytocin versus no treatment or delayed treatment for slow progress in the first stage of spontaneous labour. The Cochrane database of systematic reviews. 2013(6):Cd007123.](#)

**References**

5. Jonsson M, Norden-Lindeberg S, Ostlund I, Hanson U. Acidemia at birth, related to obstetric
characteristics and to oxytocin use, during the last two hours of labor. Acta obstetricia et gynecologica Scandinavica. 2008;87(7):745-50.


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