WHO recommendation on the use of internal tocodynamometry, compared with external tocodynamometry, in women with augmented labour

23 March 2014

Recommendation

The use of internal tocodynamometry, compared with external tocodynamometry, with the aim of improving outcomes for augmented 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 there is no evidence to suggest that the potential benefits of internal, compared with external, tocodynamometry in women undergoing labour augmentation clearly outweighs its potential harms. The group did not recommend one method over the other but noted that internal tocodynamometry is resource-intensive and currently not widely practiced in many settings.

- The GDG stressed the importance of ensuring that every woman undergoing labour augmentation should receive regular and frequent monitoring of uterine contraction pattern and fetal heart rate, within the limits of available resources.

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
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 augmented labour (P), does the use of internal tocodynamometry (I), compared with external tocodynamometry, (C), improve maternal and perinatal outcomes (O)?

**Evidence Summary**

Findings were extracted from a Cochrane systematic review that included two trials (750 women). (8)
trials were conducted in Singapore and the Netherlands. The trial in the Netherlands also recruited women who had undergone labour induction, but the data on women who had had their labour augmented were provided separately.

Comparing internal versus external tocodynamometry, few outcomes showed statistically significant differences between groups for maternal and infant outcomes.

Internal versus external tocodynamometry in augmented labour: maternal outcomes

- The mean time to vaginal birth was very similar for women monitored by internal or external tocodynamometry (MD: –3.47 min, 95% CI: –42.84 to 35.90; one trial, 500 women).

- There were no estimable data for serious maternal morbidity (including uterine rupture) or maternal death.

- There were no significant differences between groups for caesarean section (RR: 1.25, 95% CI: 0.91 to 1.71; two trials, 750 women) or instrumental vaginal birth (RR: 1.25, 95% CI: 0.91 to 1.73; two trials, 750 women). For all operative deliveries (caesarean section and instrumental vaginal births combined), the difference between groups was statistically significant with a marginally increased risk in the internal tocodynamometry group (RR: 1.25, 95% CI: 1.02 to 1.53; two trials, 750 women).

- Uterine hyperstimulation was reported in only one trial (250 women) and the rate was very similar in both groups (RR: 1.04, 95% CI: 0.63 to 1.72).

- There was no significant difference between groups for maternal intrauterine infection requiring antibiotic therapy (RR: 0.55, 95% CI: 0.26 to 1.16; one trial, 500 women).

Internal versus external tocodynamometry in augmented labour: infant outcomes

- There were no estimable data for several infant outcomes including perinatal mortality and adverse events such as placental or fetal blood vessel damage. There were very few babies with low Apgar scores at five minutes in either group (overall 15/749) and no statistically significant difference between groups (RR: 1.12, 95% CI: 0.41 to 3.06).

- Umbilical cord artery pH of < 7.05 and < 7.15 were reported in one trial: there was no significant difference between groups at either cut-off (RR: 1.13, 95% CI: 0.39 to 3.30, and RR: 1.38, 95% CI: 0.88 to 2.15, respectively).

- There was no significant difference between women undergoing internal versus external tocodynamometry for admission of infants to NICU (RR: 1.00, 95% CI: 0.06 to 15.81) or for prolonged NICU stay (> 48 hrs) (RR: 0.83, 95% CI: 0.51 to 1.35).

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 did not identify further research priorities on this topic.

**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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