WHO recommendation on use of betamimetics for women with uterine hyperstimulation during induction of labour

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Recommendation

Betamimetics are recommended for women with uterine hyperstimulation during induction of labour.

(Low-quality evidence, Weak recommendation)

Publication history

First published: February 2011

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Assessed as up-to-date: February 2011

Remarks

- There is insufficient evidence to recommend tocolytics other than betamimetics. The participants in the consultation acknowledged that caution should be exercised in using betamimetics because of their side-effects. Their contraindications (e.g. cardiac diseases) should be respected. The participants noted that various preparations of betamimetics are available in different countries.

Background

Induction of labour is defined as the process of artificially stimulating the uterus to start labour.(1) It is usually performed by administering oxytocin or prostaglandins to the pregnant woman or by manually rupturing the amniotic membranes. Over the past several decades, the incidence of labour induction for shortening the duration of pregnancy has continued to rise. In developed countries, the proportion of infants delivered at term following induction of labour can be as high as one in four deliveries. (2-4)
Over the years, various professional societies have recommended the use of induction of labour in circumstances in which the risks of waiting for the onset of spontaneous labour are judged by clinicians to be greater than the risks associated with shortening the duration of pregnancy by induction. These circumstances generally include gestational age of 41 completed weeks or more prelabour rupture of amniotic membranes, hypertensive disorders, maternal medical complications, fetal death, fetal growth restriction, chorioamnionitis, multiple pregnancy, vaginal bleeding and other complications.

Although currently available guidelines do not recommend this, induction of labour is increasingly being used at the request of pregnant women to shorten the duration of pregnancy or to time the birth of the baby according to the convenience of the mother and/or health-care workers. During induction of labour, the woman has restricted mobility and the procedure itself can cause discomfort to her. To avoid potential risks associated with the procedure, the woman and her baby need to be monitored closely. This can strain the limited health-care resources in under-resourced settings. In addition, the intervention affects the natural process of pregnancy and labour and may be associated with increased risks of complications, especially bleeding, caesarean section, uterine hyperstimulation and rupture and other adverse outcomes.

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. Outcomes used for this recommendation were aligned with the prioritized outcomes from the WHO recommendations on induction of labour (2011).

A Cochrane systematic review was conducted, on use of tocolytics for uterine hyperstimulation. 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 induction of labour in April 2010, 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.

Recommendation question

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

- in pregnant women during induction of labour (P), does use of betamimetics for women with uterine hyperstimulation (I), compared to no intervention, (C), improve maternal and perinatal outcomes (O)?

Evidence Summary

In these guidelines, uterine hyperstimulation is defined as either occurrence of uterine contractions lasting more than 60 seconds, or occurrence of more than four contractions within 10 minutes, regardless the state
of the fetus. The available systematic review (10) focusing on tocolytics for hyperstimulation contains evidence related to interventions aimed at stopping uterine contractions in pregnancies diagnosed with fetal distress. Overall, the evidence is limited and is based on a few small trials. The use of betamimetics is the main intervention studied, being compared with magnesium sulfate, nitroglycerin and atosiban. The use of tocolytics was compared in terms of immediate delivery versus no treatment.

Compared with nitroglycerin, terbutaline was associated with a lower risk of failure to reduce uterine activity (one trial, 109 participants, RR 0.09, 95% CI 0.01–0.71), but there was no other statistically significant effect related to the priority outcomes (EB Table 3.1.3). Compared with magnesium sulfate, terbutaline was associated with a trend towards lower risk of failure to reduce uterine activity (two outcomes, one trial, 46 participants) (EB Table 3.1.2). The comparison of betamimetics with atosiban favoured the latter: the risk of tachycardia was lower in women who received atosiban (one trial, 26 participants, RR 0.1, 95% CI 0.01–0.67). In terms of other selected outcomes, the two drugs were similar (EB Table 3.1.4).

Compared with no treatment, tocolytics reduced the risk of having no improvement in fetal heart rate changes (two trials, 43 participants, RR 0.28, 95% CI 0.14–0.55) with no other statistically significant findings in terms of Apgar score less than seven at five minutes of life, perinatal mortality and admission to a neonatal intensive care unit (EB Table 3.1.1). Tocolytics were also compared with emergent delivery in one trial involving 390 participants. In that trial, the overall caesarean section rate was higher among the participants that had received tocolytics (90.7% versus 80.7%, RR 1.12, 95% CI 1.04–1.22), but there were fewer admission to a neonatal intensive care unit with tocolytics (8.3% versus 17.8%, RR 0.47, 95% CI 0.27–0.81) (EB Table 3.1.5). No other statistically significant effects related to adverse maternal events and Apgar score were observed.

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 induction 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 role of calcium channel blockers and atosiban in the treatment of uterine hyperstimulation?

Related Links
References
