WHO recommendation on intrapartum antibiotic administration to women with group B Streptococcus (GBS) colonization for prevention of early neonatal GBS infection.

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Recommendation

Intrapartum antibiotic administration to women with group B Streptococcus (GBS) colonization is recommended for prevention of early neonatal GBS infection.

(Very low-quality evidence, conditional recommendation)

Publication history

First published: September 2015

Updated: no update planned

Assessed as up-to-date: September 2015

Remarks

- This recommendation was made based on clinical benefits for the neonates, as there was insufficient evidence on the effect of antibiotic administration on maternal infectious morbidities.
- As the evidence came from studies that tested ampicillin or penicillin G, either antibiotic should first be considered for treatment except where there are contraindications (e.g. allergy history) or GBS strain has been microbiologically shown to be penicillin resistant.
- The GDG noted that although women with urethral GBS colonization were not included in the trials, the recommendation should also be applied to such women because urinary colonization is often persistent following identification and treatment during pregnancy.
- The GDG acknowledged the challenges of implementing GBS screening for all pregnant women, particularly in low-resource countries and in settings where the prevalence of maternal colonization is low, coupled with the limitations in providing appropriate preventive measures and follow-up to the majority of the women screened positive. Therefore, the group agreed that this recommendation should be implemented within the context of local policy and guidance on screening for GBS colonization. In deciding whether or not to administer antibiotics during labour to GBS-colonized women, clinicians should balance the risk and benefits of the use of antibiotics, taking into account different factors (e.g. colonization rates and factors associated with increased transmission).

Background

Bacterial infections during labour and the puerperium are among the leading causes of maternal mortality worldwide, accounting for about one tenth of the global burden of maternal deaths.(1, 2) While the number

of deaths arising from these infections has decreased considerably in high-income settings, the situation has not improved in resource-limited settings. Most of the estimated 75,000 maternal deaths occurring worldwide yearly as a result of infections are recorded in low-income countries.(3) Although the reported incidence in high-income countries is relatively low (between 0.1 and 0.6 per 1000 births), it is nonetheless an important direct cause of maternal mortality.(3, 4)

Apart from deaths and acute morbidities associated with infections during or following childbirth, long-term disabilities such as chronic pelvic pain, fallopian tube blockage and secondary infertility can also occur. Maternal infections around childbirth also have a considerable impact on newborn mortality, and an estimated 1 million newborn deaths are associated with such infections annually.(5, 6) In addition, infection-related morbidities and prolonged hospitalization can interfere with mother–infant bonding in the first days after birth.

**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.(7) Outcomes used for this recommendation were aligned with the prioritized outcomes from the WHO recommendations on prevention and treatment of maternal peripartum infections (2015).(8)

A Cochrane systematic review was conducted on the use of antibiotics during labour or delivery for known maternal GBS colonization to prevent infectious morbidity from GBS.(9) 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 prevention and treatment of maternal peripartum infections in September 2015, 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:

- Among pregnant women with vaginal, rectal or urethral colonization with group B Streptococcus (GBS) (P), does routine administration of antibiotics during labour (I), compared with no antibiotics (C), prevent neonatal infectious morbidities and improve maternal and neonatal outcomes (O)?

**Evidence Summary**

Evidence on the use of antibiotics during labour or delivery for known maternal GBS colonization to prevent infectious morbidity from GBS was extracted from a Cochrane systematic review of four trials including 852 women.(9)

Trials included women with vaginal and/or rectal GBS colonization ascertained by cultures in three trials, at different postmenstrual ages, or by rapid latex agglutination test at the time the mother was giving birth in one trial. Two trials included women at 36 weeks of gestation or more. The included trials were conducted in Finland, Spain and the USA.

Two trials excluded women with rupture or prolonged rupture of membranes, and two trials excluded women undergoing planned caesarean section. Other relevant exclusion criteria varied between trials:
antibiotic intake within the preceding seven days, fever prior to delivery or fetal death prior to labour.

Two trials compared ampicillin versus no treatment – using different antibiotics regimens (2 g of ampicillin IV followed by 1 g every four hours until giving birth or 500 mg of ampicillin IV every six hours until delivery). One trial compared penicillin with no treatment (5 million units of penicillin G IV every six hours during labour, and if labour lasted more than 18 hours, 1 million units of penicillin orally every eight hours until parturition). One trial compared ampicillin with penicillin.

The included trials did not report on antimicrobial resistance or maternal satisfaction.

Intrapartum antibiotics versus no treatment for GBS-positive women (EB Table 4)

- Only one trial reported maternal outcomes. No significant reduction was observed between comparison groups for maternal sepsis in the peri/postpartum period (RR 0.31, 95% CI 0.01 to 7.49; 1 trial, 160 women) or puerperal infections (RR 0.16, 95% CI 0.01 to 3.03; 1 trial, 121 women).
- In one small trial, intrapartum antibiotic administration did not show reductions in neonatal mortality from all causes (RR 0.19, 95% CI 0.01 to 3.82; 164 infants), neonatal mortality from early onset GBS infection (RR 0.31, 95% CI 0.01 to 7.50; 164 infants) or neonatal mortality from infections caused by bacteria other than GBS (RR 0.31, 95% CI 0.01 to 7.50; 164 infants).
- There was a statistically significant reduction in the incidence of early-onset (postnatal age <7 days) GBS neonatal infection (RR 0.17, 95% CI 0.04 to 0.74; 3 trials, 488 infants, number needed to treat to benefit = 25) and probable early infection (RR 0.17, 95% CI 0.03 to 0.91; 2 trials, 324 infants). There was no difference on the late onset (≥7 days) and GBS neonatal infection (RR 0.36, 95% CI 0.01 to 8.69; 2 trials, 289 infants).
- Analysis of the incidence of other neonatal infectious morbidities such as neonatal sepsis, meningitis, urinary tract infection or pneumonia due to bacterial organisms other than GBS showed no difference between the two comparison groups (RR 1.00, 95% CI 0.15 to 6.79; 2 trials, 289 infants).

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, 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 effects of routine prophylactic antibiotics on preventing infection morbidity among women with normal (uncomplicated) vaginal birth?
- What are the effects of routine prophylactic antibiotics during the second and third trimester on women carrying high-risk pregnancies (e.g. history of preterm birth, low birthweight, previous preterm birth with bacterial vaginosis in the current pregnancy)?
Related Links


Supporting systematic review:


References


8. WHO recommendations for prevention and treatment of maternal peripartum infections. 2015


Citation


Source URL: https://extranet.who.int/rhl/topics/preconception-pregnancy-childbirth-and-postpartum-care/who-recommendation-intrapartum-antibiotic-administration-women-group-b-streptococcus-gbs
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