

Antenatal infection screening reduced preterm delivery

Kiss H, Petricevic L, Husslein P. Prospective randomised controlled trial of an infection screening programme to reduce the rate of preterm delivery. *BMJ* 2004;**329**:371.

Clinical impact ratings GP/FP/Obstetrics ★★★★★☆ Obstetrics ★★★★★☆ Infectious disease ★★★★★★

Q In pregnant women, does an antenatal programme of screening and treating vaginal infections reduce the rate of preterm delivery?

METHODS

-  **Design:** randomised controlled trial.
-  **Allocation:** {concealed*}†.
-  **Blinding:** blinded {participants and healthcare providers}†.*
-  **Follow up period:** to delivery or miscarriage.
-  **Setting:** 25 non-hospital based antenatal clinics in Vienna, Austria.
-  **Participants:** 4429 pregnant women (mean age 29 y) presenting for their routine prenatal visit early in the second trimester without subjective complaints. All women were screened by Gram stain for asymptomatic vaginal infection, which was classified as bacterial vaginosis (BV), vaginal candidiasis, and *Trichomonas vaginalis* infection.
-  **Intervention:** infection screening programme (n=2201) or control (n=2228). For the infection screening programme, women and their obstetricians received the vaginal smear test results; women who were found to have vaginal infection received standard treatment within 7–10 days of diagnosis and obstetricians did follow up vaginal smears. For the control group, vaginal smear test results were not revealed to the women or their obstetricians so that the women's standard antenatal care programme was not influenced.
-  **Outcomes:** spontaneous preterm delivery (delivery at <37 wk gestation). Secondary outcomes were preterm delivery at <37 weeks gestation combined with infant birth weight ≤2500 g, and late miscarriages.
-  **Patient follow up:** 94% (4155 women). Analysis was by intention to treat.

*See glossary.
†Information provided by author.

MAIN RESULTS

The infection screening programme group had lower rates of spontaneous preterm delivery and preterm delivery combined with infant birth weight ≤2500 g than the control group (table). The 2 groups did not differ for rates of late miscarriages (table).

CONCLUSION

In pregnant women, an antenatal programme of screening and treating vaginal infections reduced the rate of preterm delivery at <37 weeks gestation but not the rate of late miscarriages.

Commentary

Preterm birth accounts for a large proportion of neonatal and infant mortality and morbidity worldwide.¹ Screening women who are asymptomatic for risk factors, infection, inflammatory markers, and cervical length early in pregnancy may provide an opportunity to optimise care and prevent prematurity and its complications. Research on the value of screening for asymptomatic vaginal infection is not conclusive, which results in considerable variation in practice. Whereas asymptomatic *Candidiasis* is often ignored, BV may be sought and treated, even though tests for BV have been found to be inaccurate in predicting spontaneous preterm birth.²

The randomised trial by Kiss *et al* informs us that screening for BV, *Trichomonas vaginalis*, and *Candida* between 15 and 20 weeks' gestation in women who are asymptomatic and treating these infections reduces spontaneous preterm birth before 37 weeks' gestation, but not late miscarriages. However, spontaneous birth before 34 (not 37) weeks' gestation is the pertinent outcome associated with complications of prematurity. Because information on this key outcome is lacking, it is difficult to be confident about the clinical significance of the findings. If clinicians convince themselves that screening and treating infections is worthwhile, as purported in the paper, they must realise that the authors diagnosed BV using grade 3 (presumably equivalent to Nugent score of 9 to 10)³ to indicate abnormal results. This represents an extreme end of the spectrum where women have marked presence of anaerobes and virtual absence of *Lactobacillus* species and may be virtually symptomatic (malodorous vaginal discharge). In other screening studies, a Nugent score ≥7 is considered abnormal. In light of the lack of information on a clinically pertinent outcome and the uncertainty that exists in related literature, we are inclined to await further robust evidence with relevant outcome measures before embarking on a screening programme for asymptomatic women.

Honest Honest, MD
Khalid S Khan, MD
Birmingham Women's Hospital,
Birmingham, UK.

- 1 Tucker J, McGuire W. *BMJ* 2004;**329**:675–8.
- 2 Honest H, Bachmann LM, Knox EM, *et al*. *BJOG* 2004;**111**:409–22.
- 3 Nugent RP, Krohn MA, Hillier SL. *J Clin Microbiol* 1991;**29**:297–301.

For correspondence: Dr H Kiss, University of Vienna Medical School, Vienna, Austria. herbert.kiss@medunivien.ac.at

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Infection screening programme (ISP) v control in pregnant women*

Outcomes	ISP	Control	RRR (95% CI)	NNT (CI)
Spontaneous preterm delivery (at <37 wk gestation)	3.0%	5.3%	45% (25 to 59)	43 (28 to 86)
Infants born preterm with birth weight ≤2500 g	1.7%	3.5%	52% (28 to 68)	55 (36 to 115)
Late miscarriages	0.39%	0.72%	46% (-25 to 76)	Not significant

*Abbreviations defined in glossary; RRR, NNT, and CI calculated from data in article.