Letter to the Editor

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Vaginal microbiome in pregnant women according to trimester and its association with preterm birth: critical appraisal of a cross-sectional study

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Son et al. [1] reported on the prevalence of vaginal microorganisms among pregnant women according to the trimester of pregnancy and on the associations of abnormal vaginal colonization with preterm birth. In their cross-sectional study of 593 women with singleton pregnancies, they found that the abnormal vaginal colonization rate decreased significantly with advancing trimester of pregnancy. They also found that abnormal vaginal colonization detected in the second trimester was associated with a significant increase in preterm birth before 28 weeks of gestation (6.9% vs. 0%; *P*=0.006). Finally, they found that among the abnormal vaginal flora isolated in the second trimester, the presence of *Klebsiella pneumoniae* was identified as a significant microorganism associated with preterm birth before 28 weeks of gestation.

In this very interesting study, the overall rate of preterm birth in the cohort based on the results of Table 3 was 10.4% (62/593), which is much higher than the average 5% preterm birth rate reported for most European countries but consistent with the rates reported in Southeastern Asia [2]. Son et al. [1], however, did not report on whether the preterm births included in their study were spontaneous preterm births only or whether they also included iatrogenic preterm births initiated for maternal, fetal, or other indications. There is evidence that iatrogenic (non-spontaneous) preterm births may account for up to one-third of overall preterm births, with rates being even higher for middle-income and high-income countries [2,3].

Spontaneous preterm birth has been described as the result of a multifactorial process resulting from the interplay of several factors, among which a previous individual history of spontaneous preterm birth represents a very strong risk factor [2]. Son et al. [1] in their study included 26 women out of 593 (4.4%) with a previous history of spontaneous preterm birth. We cannot but ask how different their results would be should this subgroup of women have been excluded from their analyses.

Moreover, there is evidence that compared with the general population, women with abnormal cervical screening cytology tests presenting to colposcopy clinics for further management and who did not receive cervical treatment, had an additional risk of spontaneous preterm birth of 2.1 per 100 births [4]. This increased risk of spontaneous preterm birth in women attending for colposcopy when compared to the general population has been hypothesized to be a consequence of confounding [4]. The explanation provided is that women with spontaneous preterm birth and abnormal cervical screening cytology tests share common risk factors such as smoking, socioeconomic status, and genital tract

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colonization and infection [5]. In the study of Son et al. [1], there is no report on the cervical screening cytology tests of the women that were included. It could be that those women who had abnormal cervical screening cytology tests demonstrated higher rates of abnormal vaginal flora and thus higher rates of spontaneous preterm birth.

In conclusion, the results of the study of Son et al. [1] are relevant and clinically important. However, in order to further strengthen the validity of their results, certain considerations need to be accounted for, such as using the endpoint of spontaneous preterm births in their study, and also adjusting for the confounding effect of any previous history of spontaneous preterm births and cervical screening cytology history.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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