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The relationship between vaginal flora changes and spontaneous abortion in early pregnancy at advanced age

Objective

To investigate the relationship between vaginal flora change and spontaneous abortion in pregnant women during early pregnancy at advanced maternal age.

Methods

Two hundred and fourteen pregnant women of advanced age in early pregnancy, 214 women of the same age group and 214 early pregnant women at age of <35 years were set as group A, group B and group C, respectively. The relative abundance, density and diversity of vaginal flora at genus level were detected. Follow-up was carried out till the end of pregnancy. The spontaneous abortion rates in the group A and group C were recorded. The influencing factors of spontaneous abortion in early pregnant women of advanced age was analyzed.

Results

The relative abundances of *Lactobacillus* and *Prevotella* in the group A were lower ($P < 0.001$), while those of *Mirabilis* and *Gardnerella* were higher than those in the group B and group C, respectively ($P < 0.001$). The density of vaginal microflora grade I/IV, Chao index and Shannon-Wiener index in group A were higher than those in group B and group C, respectively ($P < 0.05$). The spontaneous abortion rate in the group A was 25.2%; the relative abundances of *Mirabilis* and *Gardnerella* were higher ($P < 0.05$), while those of *Lactobacillus* and *Prevotella* were lower than those in the non-abortion group ($P < 0.05$), respectively, but the density I/IV, Chao index and Shannon-Wiener index were higher than those in the non-abortion group ($P < 0.05$). The relative abundances *Mirabilis* and *Gardnerella* of women with spontaneous abortion in group A were higher ($P < 0.05$), while those of *Lactobacillus* and *Prevotella* were lower than those in group C respectively ($P < 0.05$), but the density I/IV, Chao index and Shannon-Wiener index were higher than those in group C ($P < 0.05$), respectively. Multivariate logistic regression analysis showed that *Lactobacillus*, *Prevotella*, *Mirabilis*, *Gardnerella*, grade I/IV density, Chao index, Shannon-Wiener index, abortion history and self rating anxiety scale score ≥ 50 points were the influencing factors of spontaneous abortion in early pregnant women of advanced age ($P < 0.05$).

Conclusion

The amount of beneficial bacteria in the vagina of advanced pregnant women in the early stage decrease, and the density and diversity increase. The imbalance of vaginal flora may increase the risk of spontaneous abortion.

Keywords: Aged pregnant women; Early pregnancy; Vaginal flora; spontaneous abortion