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Editorial

Group B streptococci screening

Approximately 25% of pregnant women are vaginally and/or rectally colonized with *Streptococcus agalactiae*, known as Group B streptococcus (GBS),[1] which is correlated with preterm labor and neonatal infection and subsequent sepsis,[2,3] contributing to the leading cause of neonatal morbidity and mortality.[4,5] For the last several decades, there has been widespread adoption of screening of pregnant women for GBS colonization and the use of intrapartum antibiotic prophylaxis. This profound change in practice has given rise to an 80% reduction in early-onset GBS infection, resulting in the establishment of a prenatal GBS screening guideline from the Centers for Disease Control and Prevention (CDC).[6] Despite this improvement in the reduction of early-onset neonatal GBS infection, the Active Bacterial Core surveillance system found that optimal implementation of the CDC guidelines may further reduce early-onset GBS disease burden by another 26−59%, because of inappropriate adherence to the recommended practices, including errors which occurred in the screening procedure and the use of antibiotics.[7]

The errors that occur during the GBS screening practices may include irregularities during sample collection, timing for screening, and tools for detection. The gastrointestinal tract, especially the rectum, is considered the major reservoir for the colonized vagina.[1] Therefore, rectal samples are important when GBS screening for pregnant women is attempted. In fact, both rectal and vaginal samples are needed to comply with the CDC guidelines.[6] Unfortunately, anatomic sites routinely used to collect samples for prenatal GBS screening were more variable.[6] For example, a recent report-survey of American obstetricians regarding GBS opinions and practice pattern showed that 62.3% of respondents [95% confidence interval (CI), 55.2−68.9] reported sampling from the lower vagina and rectum (in compliance with the CDC guidelines), and 25.5% (95% CI, 19.7−32.1) reported collecting from the lower vagina and perianal skin but not the rectum.[6] In addition, 3.9% of respondents (95% CI, 1.7−7.6) included the cervix in the sites from which the sample is routinely collected. Besides this violation of the guidelines recommended by the CDC, the same study also found that 10% of the respondents (95% CI, 6.2−15.0) did not know which test they used, and 1% of respondents (95% CI, 0−3.65) used the nonstandard tests to finish their prenatal GBS screening.[6] More than two-thirds of the respondents (95% CI, 60.0−73.5) reported using culture when asked about which test they used for prenatal screening for GBS colonization.[6] Another 12.5% (95% CI, 8.3−17.9) reported using polymerase chain reaction (PCR), and only 9.5% (95% CI, 5.8−14.4) reported using both culture and PCR as a test.[6]

The study by Amin et al[8] in this issue of the *Journal of the Chinese Medical Association* re-emphasized the importance of rectal samples during the performance for prenatal GBS screening. The authors found that the frequency of GBS culture from rectal samples was higher than that from vaginal samples (30.7% vs. 27.2%), although it might not reach the statistically significant difference. In addition, Amin et al[8] found that the positive rate for GBS was 41.6% and 43.8% from rectal and vaginal samples, respectively, using PCR methods.[8] Although the authors did not perform statistical analysis to compare the differences between the culture and PCR methods, the detection rate seemed to be higher when a PCR test was applied. The authors provided an explanation for the low detection rate of the culture method. Other bacteria of the vaginal/genital tract might inhibit the growth of GBS, resulting in the false negative of GBS. The authors highlighted the value of PCR in the detection of GBS, partly because of the higher detection percentage when using the PCR method, and partly because of the little time consumed using the PCR method (3 hours vs. 48 hours using a culture method).

Obtaining a culture for GBS is always considered as a golden standard or a reference to compare the efficacy of other diagnostic tools, such as PCR. However, the possibility of false-negative results of culture is always of concern. In our previous study,[1] we found that the estimated prevalence of maternal GBS colonization was only 6.2%, which was significantly lower than in other reports (ranging from 10−30%).[9,10] We have tried to explain the above finding, including the specimen collection (anatomic sites, including rectum and low vagina) and culture medium.[1] Based on results of Amin et al[8] and Yang et al,[1] we highly recommended that both methods, including PCR and culture at both anatomic sites (rectum and lower vagina), should be routinely used for prenatal GBS screening to improve the GBS detection rate. In addition, in terms of rapid and sensitive diagnosis for GBS infection, the PCR method might be a better choice in women during labor, since *intrapartum* GBS screening for high-risk pregnant women and prompt and appropriate use of antibiotics for these women with GBS colonization is beneficial to infants during delivery. If these pregnant women failed to receive GBS screening at 35−37 weeks of gestational age as recommended by the CDC guideline, an *intrapartum* GBS screening should be used as a

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rescue. For this situation, the PCR method is not only sufficiently sensitive to detect GBS, but also provides rapid information for further medical management.

In conclusion, based on reports by Amin et al[8] and Yang et al[1] we should consider the lapses in adherence to GBS prevention guidelines and try our best to improve adherence to recommended practice, and further reduce the early-onset GBS disease burden. Both the culture and PCR methods, at both anatomic sites (rectum and low vagina), should be emphasized during GBS screening procedures. Unfortunately, the policy of the government in Taiwan only permits us to use one method (culture) and one anatomic site (low vagina) to finish the GBS screening. In order to continue to support the overall strategy of improving global health in Taiwan, such as an annual Papanicolaou smear, bi-annual mammography,[11,12] and GBS screening for pregnant women,[1,8] we encourage more domestic studies to provide better evidence to support the policy of the Taiwanese government.

Conflicts of interest

The authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

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