Can the Gram’s Stain Be Used as a Diagnostic Tool?

The Gram’s stain technique was never intended for use as a diagnostic tool. This technique does not possess the characteristics necessary to yield such specific results. However, there is no doubt that the Gram’s stain is a useful technique to distinguish the morphology of bacteria. It is also of significant use, to a degree, in distinguishing two major groups of bacteria, the gram-positive and gram-negative organisms. But use of this particular technique does not extend to establishing the identity of the bacteria. There are also specific experience requirements for the individual preparing the Gram’s stain and interpreting the preparation microscopically.

Daily, clinical use of the Gram’s stain to interpret the microbiology of the lower genital tract raises significant concerns. This is especially true when a course of treatment is embarked upon. The recent article by Rosenstein and colleagues in *Infectious Diseases in Obstetrics and Gynecology* 2000;8:158-65, advocates performing a Gram’s stain on vaginal specimens obtained from pregnant women early in the second trimester in order to distinguish between a grade II and a grade III microflora. These authors did not find any difference in outcome between women treated with clindamycin cream (2%), and those receiving placebo. Yet these authors go on to recommend screening the vaginal microflora using the Gram’s stain method, with the hope that earlier diagnosis and treatment may improve outcomes.

There is a continued effort focused on bacterial vaginosis (BV) to improve perinatal outcome. However it seems as though, in the absence of an understanding of vaginal microbiology, there is also an effort to abort the unfavorable outcome. This seems illogical since specific treatment modalities usually are not effective when there is a lack of understanding with regard to specific etiology. Unfortunately, the pharmaceutical industry has been lead to believe that an abnormal vaginal microflora can be corrected by antibiotic treatment. Thus far, however, the antibiotic treatments advocated for treating an abnormal microflora have yet to be proven effective in restoring a healthy vaginal microflora. A concentrated effort by a group of investigators working on specific questions with regard to the microbiologic physiology and pathophysiology of the lower genital tract is definitely needed if there is to be significant progress made in this area. A cooperative research effort, combining all the groups interested in this basic question, funded by both industry and the government will likely have a greater impact on our understanding of the vaginal microflora and, eventually, lead to meaningful and successful treatment regimens.

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