Do Classic Preparations of Gastrointestinal Cytology Perform Differently Than ThinPrep® Cases? Observations from the College of American Pathologists Interlaboratory Comparison Program in Nongynecologic Cytology

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Background

Liquid based cytology preparations (ThinPrep® and SurePath™) have become fairly common in cytology laboratories. Since 1991, the ThinPrep processor has been available for processing non-gynecologic specimens. In 1999 the SurePath® liquid based preparation system was introduced to the U.S. and may be used to prepare gynecologic specimens. Many laboratories converted from their classical method of fluid preparation (smears, cytospins) to liquid processing with or without a cell block as a novel liquid based processing in addition to or replacing their usual methods.

After the introduction of ThinPrep methodologies for cytology preparation, few large comparison studies for non-gynecologic cytology specimens are reported in the literature. The College of American Pathologist’s Interlaboratory Comparison Program in Non-Gynecologic Cytology (CAP NPGC) program began in 1997. Over the following 8 years it grew to include 1,750 laboratories and 7,776 participants. This purely voluntary program consists of a quarterly glass slide mailing with five slides, and a hard bound, individual and laboratory participation in the CAP NGC program for combined automation is to provide a measurement of their performance as compared to the other laboratories

The members of the CAP Cytopathology Resource Committee submit cases used for the CAP NPGC program. Cases are selected for the NPGC program by consensus at a scoring session. Two members, who are general and specific interpretation, receive all slides. The two members also agree that the slide is a good representation of the entity, and that it is technically adequate for assessment. Body cavity fluids, respiratory specimens, cytospin slides and fine needle aspirations from a variety of sites are part of the CAP NGC. Each slide in the program has a specific reference diagnosis assigned to it. The field the participants are able to choose from, a general category in which to place the case (Negative, Suspicious, Positive, Unclassifiable), and then a specific reference diagnosis in which participants have to respond to a more specific diagnosis. After circulation in the field all slides have a unique performance profile. The performance of each slide can be compared against the others in the same reference category

Materials and Methods

Participants submitted through the CAP SCORES computer system between 2000-2007 were compared to classical preparations (smears, cytospins) for discordant responses (negative or unsatisfactory). Discordant responses between preparation type, participant type, and diagnostic responses were analyzed. The purpose of this study was to determine if there was an association between the performance and two factors- slide preparation type and reader type. All tests were run at the 0.01 significance level. The significance level is lower than the 0.05 level used in the literature for equal variances not assumed. The generally accepted level of significance is 0.05.

Discussion

ThinPrep® preparations consistently and significantly performed better than classic preparations. The relative higher number of positive responses to GI cytology cases in the CAP NPGC program reflects a recent change in procedures. The relatively higher number of classical preparations in the CAP NPGC program reflected previous practice patterns. The relatively higher number of classical preparations in the CAP NPGC program reflects previous practice patterns. The relatively higher number of classical preparations in the CAP NPGC program reflects previous practice patterns. The relatively higher number of classical preparations in the CAP NPGC program reflects previous practice patterns.