27th ECCMID Vienna, Austria 22 – 25 April 2017
The congress of ESCMID

Session: EV015 Molecular diagnostics and MALDI-TOF

Category: 4b. Diagnostic bacteriology – non-culture based, including molecular and MALDI-TOF

22 April 2017, 08:45 - 15:30
EV0226

Evaluation of ESwabs versus dry swabs for the detection of Neisseria gonorrhoeae using molecular assays in patients with urethritis

Koleka Mlisana*[1], Nireshni Mitchev[2], Ravesh Singh[3]

[1]*University of Kwazulu-Natal, National Health Laboratory Services - Kzn Academic Complex; Department of Medical Microbiology - Inkosi Albert Luthuli Central Hospital*

[2]*University of Kwazulu-Natal; Medical Microbiology*

[3]*University of Kwazulu Natal*

Background: Globally 498 million new cases of curable STIs occur every year, with 106 million of these infections caused by *Neisseria gonorrhoeae*. Nucleic acid amplification tests (NAATs) are now preferred over microbial culture for the identification of *N. gonorrhoeae*; as they have a high sensitivity, quick turn-around time, and can detect multiple pathogens. N. gonorrhoeae are fastidious organisms and therefore time from specimen collection to laboratory processing is critical. Use of dry swabs often limits assays that can be performed. ESwabs™ have an enhanced uptake and release of bacteria compared to dry swabs, and can be stored at room temperature and transported without loss of viability of N. gonorrhoeae up to 24 hours. The aim of this study was to evaluate the ESwab™ system versus routine urethral dry swabs in detecting *N. gonorrhoeae*, using molecular assays.

Materials/Methods: Male patients with urethritis attending a busy STI clinic had 3 urethral swabs collected; 2 with ordinary dry swabs and one with Eswab™ (Copan Italia, Brescia, Italy). One dry swab was used for molecular testing and the other immediately smeared onto a slide then inoculated onto NYC agar plate and placed in a CO2 environment. All specimens were then transported to the laboratory within 4 hrs of collection. Gram stained slides were observed and interpreted using bright field microscopy. The Xpert® CT/NG assay (Cepheid, USA), was performed on both swab types while Anyplex STI-7 (Seegene) was performed on ESwab™ samples only.

Results: Urethral swabs were collected from 121 patients over a 3-month period in 2015. The Gram stain showed gram negative diplococci resembling *N gonorrhoeae* in 92(76%) cases and 34(28%) cultures grew *N gonorrhoeae*. Ninety-seven (80%) patients had both dry and ESwab™ samples

collected and 40 of each had Xpert® CT/NG. The same 40 ESwab™ samples were also tested using Anyplex STI-7. Of these 40 Eswab™ samples, N gonorrhoeae was positive in 37 (92.5%) and 34 (85%) using the Xpert® CT/NG and Anyplex assays respectively whereas the dry swabs yielded 28 (70%) Xpert® CT/NG positive results. The Xpert® CT/NG assay showed a sensitivity of 92.5% and 70% for ESwab™ and dry urethral swab respectively.

Conclusion: Urethral specimens collected in ESwab™ performed better than the dry swab (92.5% vs 70%) when using the Xpert® assay. There was agreement in 85% (34 of 40) between Xpert® and Anyplex STI-7 assays. In poorly resourced settings, the ESwab™ has proven to be superior to the dry swab in maintaining viability and in detecting *N. gonorrhoeae* using molecular assays. This will aid in better diagnosis and treatment of STIs. Please copy and paste the corresponding text here