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Abstract (publication only)

**Laboratory diagnosis of Neisseria gonorrhoeae pharyngeal and rectal infections by culture and real-time polymerase chain reaction (RT-PCR)**

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Objectives: Nucleic acid amplification testing (NAAT) has become the preferred method to detect Neisseria gonorrhoeae infections, but no commercial tests have been cleared so far for use with rectal or pharyngeal swab samples, despite anal and oral sex practices are common, in particular for MSM (men having sex with men). In this study a comparison between Real Time PCR Versant CT/GC DNA 1.0 (Siemens) and N. gonorrhoeae culture performances has been conducted testing rectal or pharyngeal secretions collected by E-swabs (Copan). Methods: Study group. A prospective study was performed with 172 subjects (133 males and 39 females) attending the STD Outpatients Clinic of St. Orsola Hospital, Bologna. All the patients were enrolled because having unsafe receptive anal and/or pharyngeal sex intercourses. NAAT methods. All the specimens were tested by commercial test Versant CT/GC DNA 1.0 (Siemens). As a confirmation, all the specimens scored positive for N. gonorrhoeae were retested, using the same extraction, by a "home-made" PCR assay, targeting cppB gene. N. gonorrhoeae culture. N. gonorrhoeae was isolated in Thayer-Martin medium and identified by API NH assay (bioMérieux). Antimicrobial susceptibility was assessed by Kirby-Bauer Test. Results: Fifty-three patients provided both the rectal and pharyngeal specimens, 96 patients provided only pharyngeal swabs, whereas only rectal specimens were collected from the remaining 23 patients, for a total of 225 specimens. Versant CT/GC DNA 1.0 gave positive results for N. gonorrhoeae in 13 pharyngeal in 4 rectal samples. Interestingly, all the 4 patients having rectal infection by N. gonorrhoeae had also pharyngeal infection. All the Versant CT/GC DNA 1.0 results were confirmed by cppB "home-made" PCR. Prevalence of rectal infection was 5.3% (4 positive out of 76 patients), whereas prevalence of pharyngeal infection was 8.7% (13/149). No woman was found positive. Culture was far less sensitive than NAAT: only 1 pharyngeal sample and 2 rectal specimens were identified. All of them were resistant to quinolones, but they were susceptible to cephalosporins (cefixime and ceftriaxone). Conclusions: Rectal and pharyngeal screening should be an essential part of consultations in STD clinics. N. gonorrhoeae culture demonstrated to be far less sensitive than NAAT. Anyway, the use of one single swab for performing both culture and NAAT could be of some interest for those clinicians who need to provide antimicrobial test-driven therapy.