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Is there a correlation between Chlamydia trachomatis detection and development of disease in reactive arthritis/ undifferentiated spondyloarthropathy patients

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Background: The search for *Chlamydia trachomatis* or its components at the site of the primary infection or in the joint is the optimal approach to confirm chlamydial aetiology of Reactive Arthritis (ReA). The most specific diagnosis of *C. trachomatis* induced-ReA is made by detection of the pathogen in the joint itself. Undifferentiated Spondyloarthropathy (uSpA) patients generally have asymptomatic ReA. Also, the majority of infections are asymptomatic in both males and females, hence, diagnosis during these phase is a challenging task. 1 - 15% patients with genital infection subsequently develop acute arthritis which later becomes chronic. No diagnostic modalities are available till date for such cases. We aim to detect *C. trachomatis* using various diagnostic methods in Synovial Fluid (SF) and urine and correlate these findings with age, sex, duration/ development of disease.

Methods & Materials: With the permission of hospital ethics committee, study was conducted in 115 arthritic patients, *viz.:* ReA/ uSpA (n- 45) / Rheumatoid Arthritis (n- 35)/ Osteoarthritis (n- 35). SF/ urine samples were investigated for *C. trachomatis* infection by various molecular/ non-molecular methods of diagnosis, *viz:* nucleic acid amplification test, anti-*C. trachomatis* IgA antibodies and direct fluorescence assay. Data was clinically correlated and statistically analyzed.

Results: 91% (10/11) PCR-positive ReA/ uSpA patients for *C. trachomatis* in SF and 77% (10/13) anti-*C. trachomatis* IgA-positive patients had chronic infection (disease duration > 06 months) while 83.3% (5/6) patients positive for *C. trachomatis* by DFA in urine had an acute infection (disease duration < 06 months). Further, DFA in urine followed by PCR in SF was able to detect *C. trachomatis* infection in 83.3% (5/6), 63.6 (7/11), respectively in 18-30 years age group. 91% male ReA/ uSpA patients had *C. trachomatis* infection. 69.2% (9/13) ReA/uSpA symptomatic patients had anti-*C. trachomatis* IgA antibodies in SF.

Conclusion: This study demonstrated that PCR and anti-*C. trachomatis* IgA in SF might be useful techniques to differentiate between acute and chronic chlamydial infection, respectively; while male patients in the younger age group are more prone to develop *C. trachomatis*-induced ReA.

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The evaluation and risk assessment of sexually transmitted disease in Korean adolescents at risk

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Background: There have been little researches of sexually transmitted infection (STI) for adolescent at risk in Korea and these studies were just for prevalence limited to Chlamydia trichomonas and Neisseria gonorrheae. We explored prevalences and risk factors of 10 pathogens of STI at risk adolescent. Through conducting treatment model, we aim to develop a substantial management plan.

Methods & Materials: Total of 237 subjects in one youth protection center and five probation offices were examined in Korea. First-voided urine specimens were collected for analysis of C. trachomatis, N. gonorrhoeae, Trichomonas vaginalis, Mycoplasma. hominis, Mycoplasma genitalium, Ureaplasma. urealyticum, Ureaplasma parvum by nucleic acid amplification tests using multiplex real-time PCR and VDRL titer, HSV-1 & 2 IgG and HIV Ag/Ab were tested by serum. Through anonymous, self-administered, structured questionnaire, basic characteristics and risk factors were collected. We conducted treatment model for adolescents who were infected with STI and agreed to treatment.

Results: The prevalence of C. trachomatis (13.9%) was the highest followed by N. gonorrhoeae (1.7%), T. vaginalis (0.8%), syphilis (0.8%), HSV (0.4%) and HIV (0%). The prevalence of U. urealyticum (24.7) was the highest in other infectious diseases followed by U. parvum (24.1%), M. hominis (17.3%), M. genitalium (4.2%). There were no significant association in family structure, economic status and psychologic factors with STI. Only past STI history was significant difference according to infection (OR = 7.039, 95% CI = 2.051-24.157, P <0.001). Total of 88 (66.2%) adolescents treated in our treatment model and 89.6% were satisfied with discovery of STI, connection to treatment and explanation of medical team.

Conclusion: Prevalence of STI at risk adolescents is similar level as adults in Korea and institutionalization of screening and treatment for adolescents is needed. Screening system should include at least chlamydia and gonorrhea and one stop system from screening to treatment will be effective.

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