

Abstract

The Prevalence and Genotype Distribution of *Chlamydia trachomatis* in Patients with Reactive Arthritis in Jamaica

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Genital *Chlamydia trachomatis* is one of the most frequent triggering agents of reactive arthritis, a sterile joint inflammation. The prevalence, genotypes and serogroups of *C. trachomatis* were determined in joint fluid from patients with suspected reactive arthritis (n=100) and urine samples from a control group of antenatal women (n=201) using 3 different polymerase chain reaction (PCR) assays. The prevalence of *C. trachomatis* in joint fluid ranged from 25% – 71%. The *C. trachomatis* strains found in joint fluid belonged to 2 serogroups and 4 genotypic groups. The majority of strains from joint fluid (24/26, 92%) belonged to serogroup B while serogroup C accounted for the remaining strains (2/26, 8%). The prevalence of *C. trachomatis* in urine specimens ranged from 25% – 69%. The *C. trachomatis* strains found in the urogenital tract belonged to 3 serogroups and 5 genotypic groups. The majority of strains from urine specimens (23/45, 49%) belonged to serogroup B and the remaining strains belonged to serogroup C (14/45; 30%), serogroup I (2/45, 4%) and serogroup BC (5/45; 17%). Among reactive arthritis patients, *C. trachomatis* positivity was significantly associated with being female (25/44, 57% v. 20/56, 36%; p = 0.035) and 50 years of age and

older (14/25, 56% v. 9/36, 25% v. 22/39, 56%; $p = 0.011$). No direct correlations were observed between serogroups and genotypic groups.

In conclusion a substantial proportion of reactive arthritis cases in Jamaica are Chlamydia induced and strains of serogroup B preferentially affect the joints. The results also confirm the high prevalence of urogenital Chlamydia infection in sexually active females in Jamaica. Further work is needed to determine the relationships between *C. trachomatis* serogroups, genotypic groups and serovars. The selective distribution of serogroup B, compared to other *C. trachomatis* serogroups, in the joints of patients with ReA also requires further investigation.

Keywords: Tiffany Roxanne Butterfield; *Chlamydia trachomatis*; reactive arthritis