Problem of *Chlamydia pneumoniae* Serology Today

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It is known that serological testing is the most useful means for determining the prevalence of *Chlamydia pneumoniae* infection in epidemiologic studies because *C. pneumoniae* is notoriously difficult to cultivate in a cell culture system. Most investigators to date have relied on serological diagnosis using the microimmunofluorescence (MIF) test (1, 2). Epidemiological studies on the prevalence of *C. pneumoniae* antibody, carried out in various populations, have shown that over 50% of adults worldwide have antibodies to this organism. This finding supports the assumption that antigenic boosting occurs throughout life (1, 2). There have been few seroepidemiologic studies of *C. pneumoniae* infection among the Japanese population, using the MIF test (3–5). Our seroepidemiologic studies demonstrated that a very small percentage of children under five years of age show serologic evidence of past infection with *C. pneumoniae* (5). The prevalence then increases dramatically from ages 5 through 14 years, and by age 20 years approximately 55% of those studied have detectable levels of antibody to the organism. This finding supports the assumption that antigenic boosting occurs throughout life (1, 2). There have been few seroepidemiologic studies of *C. pneumoniae* infection among the Japanese population, using the MIF test (3–5). Our seroepidemiologic studies demonstrated that a very small percentage of children under five years of age show serologic evidence of past infection with *C. pneumoniae* (5). The prevalence then increases dramatically from ages 5 through 14 years, and by age 20 years approximately 55% of those studied have detectable levels of antibody to the organism. The seroprevalence continues to increase among older age groups, but at a slower rate, and reaches approximately 70% in the elderly. These observations are consistent with former reports (3, 4). However, the antibody prevalence has been higher in the lower age groups in Japan than in Western countries (1, 2). In this issue, Mizooka et al confirmed a high prevalence of *C. pneumoniae* seropositivity among healthy Japanese adults and a positive association between smoking and *C. pneumoniae* seropositivity (6). However, some data are different from former results. The data presented by Mizooka et al are not new but represent the largest evaluation of *C. pneumoniae* seropositivity presented thus far (6).

See also p 960.

Reports from different laboratories on *C. pneumoniae* infection are highly variable, which has led to calls for more standardized approaches to diagnostic testing. Therefore, the Centers for Disease Control and Prevention (USA) and the Laboratory Centre for Disease Control (Canada) made a recommendation for standardization of *C. pneumoniae* assays in 2001 (7). With regard to serological testing, only the use of the MIF test is recommended. However, many Japanese medical doctors and researchers do not use the MIF test because this assay is technically complex, interpretation is subjective, and due to the difficulty of antigen preparation. In Japan, therefore, most investigators are using an ELISA kit (HITAZYME *C. pneumoniae*; Hitachi Chemical Co., Ltd., Japan) for the diagnosis of *C. pneumoniae* (8). In this issue, Mizooka et al also used this ELISA kit. However, this kit has not yet been well evaluated in Japan; to date there are only a few reports. Further, there are growing problems, such as sensitivity and specificity. Therefore, the different results are observed in Mizooka’s study are not surprising. The data must be comparable with other data published from different laboratories. Thus, data should be compiled by using a universal assay or recommended assays as indicated by CDC. We need well-evaluated, universal commercially available test kits for diagnosis of *C. pneumoniae* as soon as possible.

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**References**