Chlamydia pneumoniae in horses: a seroepidemiological survey in Italy

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KEY WORDS: Chlamydia, Epidemiology, Horses, Serology

SUMMARY

We tested 731 sera from apparently healthy light horses against Chlamydia pneumoniae, by a microimmuno-fluorescence (MIF) test. To verify cross-reactions with other species of chlamydiae, all sera with an antibody titre ≥32 to C. pneumoniae were tested against both C. psittaci and C. abortus. Antibodies to C. pneumoniae were detected in 194 out of 731 (26.5%) samples tested, with antibody titres ranging from 32 to 1024. No antibody titre ≥32 was detected in sera to C. abortus. Only few sera with a high antibody titre to C. pneumoniae reacted weakly with C. psittaci at the dilution of 1:32.

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Chlamydiae in horses cause asymptomatic infections (Mair and Wills, 1992) or are associated with pneumonia (McChesney et al., 1982), rhinitis (Wills et al., 1990), conjunctivitis (Moorthy and Spradbrow, 1978), polyarthritis (Blanco Loizeiler et al., 1976), hepatocerebral syndrome (Blanco Loizeleir, 1968), and genital disorders (Herfen et al., 1999). Since the molecular identification of chlamydial species was rarely carried out before the mid 1990s, the range of chlamydial species involved and their pathogenic role in horses is not yet clear. According to the current taxonomy (Everett et al., 1999), three chlamydial species, namely Chlamydiophila pneumoniae equine biovar, Chlamydiophila psittaci and Chlamydiophila abortus have been isolated from horses to date. C. psittaci and C. abortus were detected in some cases of equine abortion (Everett et al., 1999, Henning et al., 2000, Szeredi et al., 2005). With regard to C. pneumoniae, Wills et al., (1990) isolated a chlamydial strain (N16) from a nasal swab taken from a horse with a serious nasal discharge. At first the strain was classified as C. psittaci. In 1993, Storey et al. sequenced the major outer membrane protein (MOMP) gene of the isolate and compared it with the MOMP gene of C. pneumoniae, C. psittaci, C. trachomatis and C. pecorum. The analysis revealed that N16 was more closely related to C. pneumoniae than to the other chlamydial species.

C. pneumoniae is widespread in humans, with a high seroprevalence in the adult healthy population (Grayston et al., 1990). Symptomatic C. pneumoniae infections are represented by bronchitis and pneumonia, and have also been associated with coronary heart disease and reactive arthritis. Since close contacts can be established between man and horse, it is important to con-