CORRESPONDENCE

Seasonal variation of Mycoplasma infections in Iceland and Israel: different associations with meteorological variables

To the Editor:

We read with great interest the article by LIEBERMAN *et al.* [1] published in this journal last December regarding community-acquired pneumonia in the Beer-Sheva area of Israel. We were especially interested in their results regarding Mycoplasma infections. They found the peak incidence of pneumonia caused by Mycoplasma to be during spring, but not in the winter months ($p=0.054$). Furthermore, they concluded that meteorological variables, such as low temperature and high humidity, were not predominant causes of community-acquired pneumonia. Their findings regarding Mycoplasma infections are in some aspects in contrast to our experience, which is detailed below.

In Iceland, all measurements of Mycoplasma antibodies are performed at the Dept of Medical Virology, National University Hospital in Reykjavík. We have reviewed all test results over a period of 9 yrs from 1988 to 1996. During this period, a total of 11,791 serum samples were tested for Mycoplasma antibodies and 716 individuals turned out to be seropositive by a conventional complement fixation test. The Mycoplasma antigen used in the test was supplied by Behringwerke AG (OTHI 04/05; Mycoplasma pneumoniae antigen, Marburg, Germany). In our study, seropositivity was defined as a titre of $\geq 1:64$ in a single sample or a four-fold increase of Mycoplasma titre in paired samples as reported in some other studies [2–5]. Statistical significance was evaluated with the Chi-squared test and the level of significance set at $p<0.05$. Mean age of the seropositive individuals was 22 yrs; 52% females and 48% males.

Figure 1 shows the seasonal distribution of Mycoplasma infections in Iceland and Israel [1]. In Iceland, a significant seasonal difference in Mycoplasma infections was observed during this period ($p=0.001$). Thus, it is clear from figure 1 that Mycoplasma infections in Iceland were considerably less common in the spring and early summer than during the winter months. In contrast, in Israel, pneumonias caused by Mycoplasma were significantly more common in the spring compared to the winter months ($p=0.054$). It should be noted that the findings of LIEBERMAN *et al.* [1] are based on an observation period of only 1 yr whilst our results are based on 9 consecutive yrs. It is, therefore, possible, as LIEBERMAN *et al.* [1] pointed out, that a single outbreak in the spring of 1992 might explain the high incidence of Mycoplasma pneumonias during this period. In this context it is also relevant that in our material there was a significant difference in the incidence of Mycoplasma infections between years with outbreaks every 3–4 yrs, as reported by others [5, 6].

It should be noted that the selection of our patients and the group of patients reported by LIEBERMAN *et al.* [1] is different. Since the selection of our patients is solely based on serology it is not certain that all of our Mycoplasma patients had pneumonia. However, it must be considered highly unlikely that pneumonias caused by Mycoplasma have a different seasonal predilection than other Mycoplasma infections.

Figure 1 also shows the relationship between Mycoplasma infections and temperature during the observation periods. According to our judgement, LIEBERMAN *et al.* [1] concluded correctly from their data that meteorological factors, such as temperature and humidity, could

Fig. 1. — Seasonal variation of Mycoplasma infections in: a) Iceland (n=716); and b) Beer-Sheva in Israel (n=101), with relation to temperature. - - - : temperature; ▨ : percentage Mycoplasma infections.

not be considered main causes for community-acquired pneumonias in their study. In contrast, as can be seen from figure 1 there is, in our material, an obvious association between low temperature and high incidence of *Mycoplasma* infections, and vice versa. Furthermore, in Iceland at least, there is a statistically significant negative association between temperature and precipitation or humidity. Thus, during the winter months when most of the *Mycoplasma* infections occur, temperature is low and precipitation is relatively high. Our findings are in agreement with other reports showing that *Mycoplasma* infections are most common during autumn and winter [3–5, 7].

We conclude that *Mycoplasma* infections in Iceland show a definite seasonal variation with peak incidence in autumn and winter, when temperature is low and precipitation high. The causes for different associations between *Mycoplasma* infections and meteorological variables in Iceland and Israel are not clear.

References

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