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Epidemiological Study of Japanese Spotted Fever and Tsutsugamushi Disease in Shimane Prefecture, Japan

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Japanese spotted fever and tsutugamushi disease are tick-borne infections that persist in Shimane Prefecture. Their respective causative agents are *Rickettsia japonica* and *Orientia tsutsugamushi*. We report here their outbreak characteristics.

Since the first report in 1987 (1), Japanese spotted fever has been reported every year, totaling 80 cases at the end of 2005 (Fig. 1). Among 80 cases, it is estimated that 77 occurred in a mountainous area (ca. 10 km from east to west) of the Misen that is situated on the western end of the Shimane Peninsula (ca. 60 km from east to west and 4-6 km from south to north). More recently, however, the endemic area has extended eastward; two cases occurred in the mountainous area 10 km east of the east end of the Misen, and one case occurred at the eastern end of Mihonoseki-Cho, Matsue City. The infection peaked in May in spring and from August to October in autumn (Fig. 2). Persistence of *R. japonica* in the Shimane Peninsula was confirmed by its isolation from patients and also by detecting an *R. japonica*-specific gene sequence in *Apodemus* or *Ixodes* inhabiting the Shimane

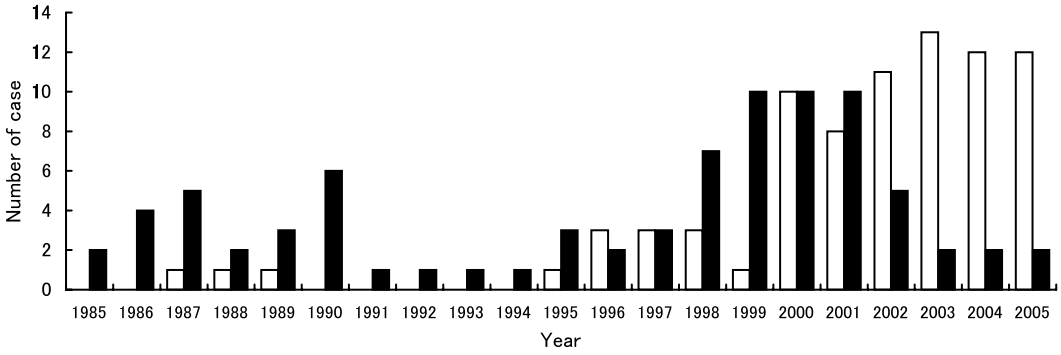

Fig. 1. Yearly cases of Japanese spotted fever and tsutsugamushi disease in Shimane Prefecture, 1985-2005. □, Japanese spotted fever; ■, tsutsugamushi disease.

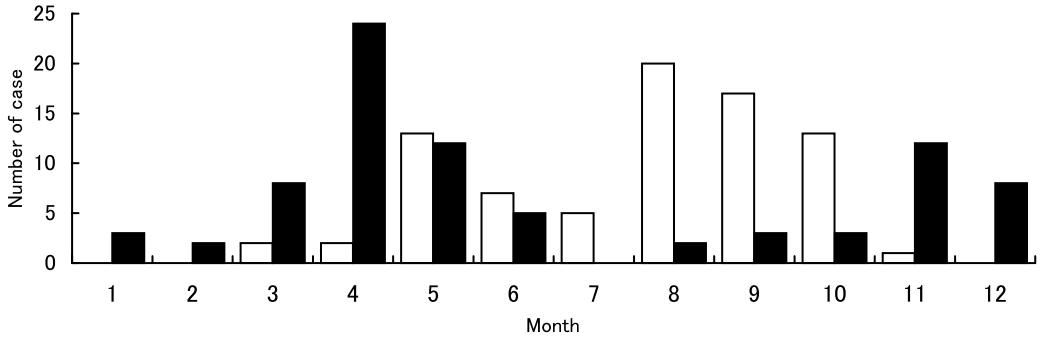

Fig. 2. Monthly cases of Japanese spotted fever and tsutsugamushi disease in Shimane Prefecture, 1985-2005. □, Japanese spotted fever; ■, tsutsugamushi disease.

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Peninsula (2,3).

Since 1985, 82 tsutsugamushi cases have been reported. In 1998 - 2001, approximately 10 patients were reported regularly every year. More recently, the reported number dropped to 2 - 4 cases a year, probably due to changes in the residential environment. The infection has been most frequent in the eastern part of Shimane Prefecture and next most frequent in the central part of the prefecture, however, the western part of Shimane Peninsula and Oki Archipelago are not free of tsutsugamushi cases. The infection has been high in November to December in winter and in March to May in spring (Fig. 2). The serotypes of the human isolates were Gilliam type and Karp type. The Karp type *O. tsutsugamushi* was isolated from *Apodemus* trapped in the endemic area. Habitats of *Leptotrombidium pallidum* were confirmed in Oki Archipelago and in the eastern and central parts of Shimane Prefecture, but those of *L. scutellare*, a host of Kawasaki type *O. tsutsugamushi*, were not. Probably, tsutsugamushi disease endemic to Shimane Prefecture is caused by Karp type and Gilliam type *O. tsutsugamushi* transmitted by *L. pallidum*.

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