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Annual Incidence of Tsutsugamushi Disease in Miyazaki Prefecture, Japan in 2001 - 2005

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We report here the 2001-2005 epidemiological trend in Miyazaki Prefecture, Japan, of tsutsugamushi disease, which is endemic to this region. Serological diagnosis and confirmation of the serotypes of *Orientia tsutsugamushi* were done in the manner described before (1).

As shown in Fig. 1, the number of patients confirmed by serological diagnosis annually was around 70-80, and fluctuated with peaks at several-year of intervals. However, it has dropped to around 10 reports per year since 2004.

From 2001 to 2005, 129 patients were confirmed; of these cases, 87 (67%) were Kawasaki type, 34 (26%) Kuroki type, and the serotypes of the remaining 8 infections could not be determined. Thus, Kawasaki and Kuroki type *O. tsutsugamushi* dominated in Miyazaki Prefecture. Between them, Kawasaki type was more frequent than Kuroki type; the ratio of Kawasaki type to Kuroki type was 23:11 in 2001, 23:5 in 2002, 21:15 in 2003, 11:1 in 2004, and 9:2 in 2005.

Ninety-three percent of the 129 patients confirmed in 2001-2005 presented in the 3 months from October to December, and 84% in November and December. The percentage of patients reported in December appears to be increasing; i.e., cases in November and those in December respectively occupied 59 and 28% of cases in 1991-1995, 54 and 35% in

1996-2000, and 46 and 38% in 2001-2005. Fig. 2 showing the monthly incidence from 2001 to 2005 confirms the shift of the infection peak towards the end of the year in recent years.

The patients are nearly equally distributed between sexes, with a male to female patient ratio of 68:61. In both sexes,

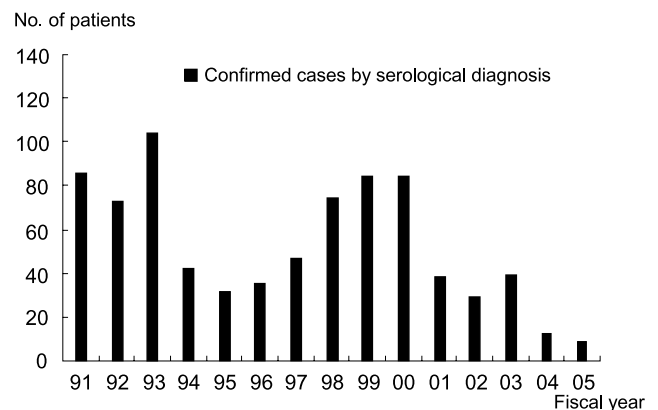


Fig. 1. Annual incidence of tsutsugamushi disease in Miyazaki Prefecture.

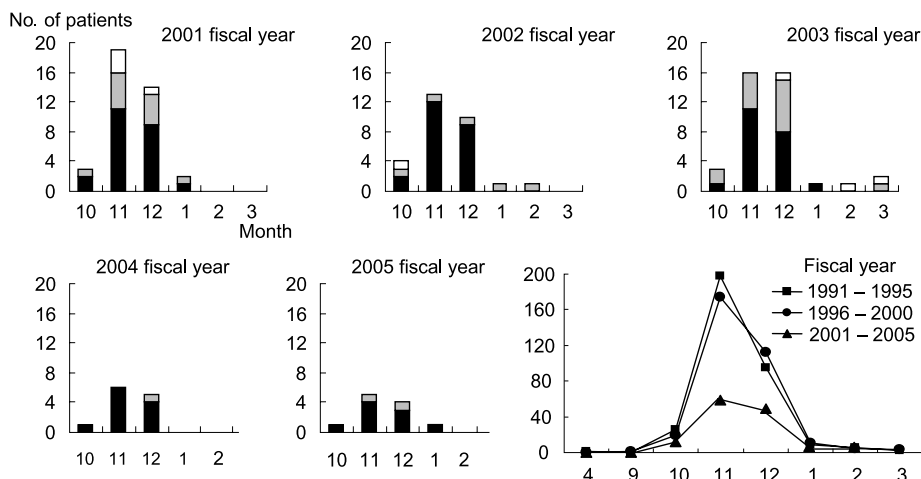


Fig. 2. Monthly incidence according to serotypes in Miyazaki Prefecture. Sera reacting with Kawasaki type (■); sera reacting with Kuroki type (□); sera reacting with multiple types (□).

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most patients were older than 50 (82% in male and 85% in female), though they ranged in age from teenagers to people in their 80s. Fifty-one percent of the patients had a chance of being infected in their occupational activities in agriculture and forestry. Other chances of infection were wild plant gathering in the mountains, hunting, hiking and other recreational activities. Sixty-five percent of infections were in mountainous areas or on agricultural land, as was the case in other endemic areas in Japan (2).

We were unable to determine the serotypes of about 6% of the cases confirmed in 2001-2005. The vector most prevalent in Miyazaki Prefecture is presumably *Leptotrombidium scutellare*, which transmits Kawasaki or Kuroki type *O. tsutsugamushi*. However, *Leptotrombidium pallidum*, which transmits Karp or Gilliam type *O. tsutsugamushi*, has been reported in Miyazaki Prefecture, and infection with Karp type (JP-2 type) *O. tsutsugamushi* was reported (3). It is, therefore, necessary to use isolates of these types of *O. tsutsugamushi* as antigens in serodiagnosis.

Decreased incidence and later onset of the epidemic in the year characterize the recent *O. tsutsugamushi* infection in Miyazaki Prefecture. Whether it is a Japan-wide phenomenon needs to be confirmed.

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