

Poster 36 – Leptospirosis of rodents in Miyakojima island, Japan (progress)

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Leptospirosis is a zoonotic disease that is endemic throughout the world and an important public health problem in tropical areas of Latin America and Asia. In Japanese archipelago, more than 200 deaths were reported annually until the 1960s, mostly among rice farmers. In the past few decades, improvements in environmental sanitation have reduced the number of infected people, with only about 20 outbreaks per year. A recent trend in domestic outbreaks is characterized by the fact that most outbreaks have occurred in Okinawa prefecture. Today, infection has been confirmed in the northern region of the main island of Okinawa and in Yaeyama region, but there have been no cases of human infection on Miyakojima Island. However, in October 2021, two cases of the leptospirosis infection in humans were reported for the first time, and it is imperative to clarify the source of infection. Pathogenic *Leptospira* (*Leptospira* spp.) is mainly transmitted by rodents such as rats and mice. Pathogenic *Leptospira* are carried in the kidneys of the vectors, and the bacteria are discharged with urine, and are transmitted percutaneously and transmucosally through contact with the vector's urine or soil or water contaminated with urine. To clarify the situation of pathogenic *Leptospira* carrier, trapping rodent in Miyakojima Island and the neighboring Shimoji Island. Sherman traps were used to capture, and oatmeal, rice, and corn-flavored snack food were used as bait to attract rodent. So far, trapping were conducted over four periods, in May, August, and November 2022 and February 2023. 29 rodents were captured in Miyakojima Island and 8 in Shimoji Island, and the species of these rodents were brown rat (*Rattus norvegicus*), black rat (*Rattus rattus*) or eastern black rat (*Rattus tanezumi*), and yonakuni house mouse (*Mus musculus yonakunii*). Kidneys were then collected from the captured rodents and DNA analysis was conducted to investigate the pathogenic *Leptospira* carrier state. Whole kidneys were used and total DNA was extracted for analysis. Shotgun sequencing was performed in the analysis using an illumina next-generation sequencer. To identify the species, read data that obtained from shotgun sequencing were mapped to rodents and *Leptospira* genome sequences. In this study, DNA analysis of 37 rodents captured in the Miyako area was conducted to survey the occurrence of leptospirosis, and the occurrence of interbreeding of *Rattus rattus* and *Rattus tanezumi*, which has been pointed out in previous studies, through genome analysis. Then discussing the history of rodents and infectious diseases brought with farming culture to Miyakojima Island.