

Research on Disaster-Related and Tropical Infectious Diseases

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Translated by Catherine Sachi Kikuchi

I was in a meeting with a collaborator from the Philippines (Dr. Susan Leano), Assistant Professor Haorile Chagan-Yasutan, and a graduate student in my office regarding the method of diagnosing tuberculosis (TB), when I felt a shaking that I had never experienced before. We hid under the large desk and escaped danger. Dr. Leano, who is from the disaster-prone country of the Philippines, seemed anxious, but she calmed down and spent the night in a hospital. One week later, a bus from the Embassy came to pick her up, and she safely returned to the Philippines. I heard much excitement in the Philippines about her miraculous survival. After that, I had the opportunity to research disaster-related infectious diseases at the International Research Institute of Disaster Science. Many disaster-related infectious diseases have the characteristics of tropical infectious diseases. Fortunately, Assistant Professor Chagan-Yasutan had identified Galectin-9 (Gal-9) as a biomarker that is elevated in plasma of patients with dengue fever, and based on that, research proceeded on biomarkers for disaster-related infectious diseases. With the help of Dr. Leano, we were able to analyze the samples of leptospirosis patients after a flood that occurred in Manila in 2012. https://hontotsutae.blogspot.com/2015/06/blog-post_10.html

Recently, it became clear that the protein we had been analyzing was an immune checkpoint molecule (ICM). We then read data from 7 years ago and were unexpectedly able to report that osteopontin is a marker of acute kidney injury in leptospirosis (Chagan-Yasutan H, et al. 2020).

In sub-Saharan Africa, AIDS associated with TB (AIDS/TB) was claimed to be a disaster since 40% of the deaths were caused by AIDS/TB. Recently we found that Gal-9 could be a good marker for it in collaborative research with India, (Shete et al., 2020). Gal-9 is an eosinophil migration active substance, a protein that was isolated by Professor Hirashima through joint research while I was studying at Kumamoto University. In recent years, it has become known as a Treg inducer and ICM. We are now studying Gal-9 as a possible factor involved in the cytokine storm of COVID-19 and dengue fever.

References

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