Global Health Elective Report: A Case of Zika

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CC: Fever, Rash

HPI: Mr. S is a 22 yo M who presents with a 5 day history of fevers and rash. Rash is located over his face and upper body, and it is very itchy. He also reports sore throat and generalized achiness. He denies any abdominal pain, diarrhea or constipation. He has no known sick contacts.

Physical Exam:
Vitals: Temp - 37.3ºC (99.14ºF), BP - 110/80, HR – 105, Weight - 124 lbs
General: alert and oriented, in no acute distress but moderately ill appearing, +tactile warmth
Cardiac: tachycardia, regular rhythm, no murmurs rubs or gallops
Pulmonary: respirations unlabored on room air, clear to auscultation bilaterally
Skin: scattered papular guttate rash over face, abdomen and back with excoriations

As I saw this young man during the busy clinic day, my initial thoughts were: "Well, this is likely just another virus, though that rash seems rather interesting. But unfortunately, all I really have to offer is paracetamol to hopefully alleviate some of his aches and fevers." However when my translator (who previously worked as a hair stylist) turned to me with a knowing look and said, "I think this is Zika," my curiosity was piqued. I remembered hearing that Dr. Emaunel, the local intern, had seen a lot of Zika so I quickly rushed over to his exam rooms in search of a second opinion. He took one look at this man's rash and said, "Yes, that's Zika," and disappointingly agreed we could do little more than treat his symptoms and let the virus run its course.

Transmitted by mosquitoes of the genus *Aedes*, Zika virus is a flavivirus, related to other flaviviruses including yellow fever virus, dengue virus, and West Nile virus. Approximately 20 percent of patients will have clinical manifestations of the virus, which may include acute low-grade fever, a pruritic maculopapular rash, nonpurulent conjunctivitis, and arthralgias, typically of the small joints in the hands and feet. Both in vivo and in vitro neurotropism of Zika has been

demonstrated, and neurologic complications of the infection can include Guillain-Barré syndrome, meningoencephalitis, myelitis, and congenital microcephaly, as well as other developmental issues in infants born to mothers infected during pregnancy.

Because no vaccine or medication exists to prevent or treat Zika, CDC recommendations for travelers focus on prevention of mosquito bites. Recommendations include long sleeves and pants to cover exposed skin; use of permethrin-treated clothing and gear; use of mosquito netting, screens or air-conditioning; use of EPA-registered insect repellents containing DEET, including for pregnant and breast-feeding women and children over age 2 months. Additionally, 8 weeks of abstinence from sexual intercourse with a man without symptoms who has recently traveled to an area of known local transmission, or use of condoms, is also recommended. A man who has symptoms or a diagnosis of Zika should follow these precautions for 6 months. Women who have recently traveled to a Zika area and have returned without symptoms should still wait at least 8 weeks before trying to get pregnant. Travelers returning to the United States from an area with Zika should take precautions to prevent mosquito bites for three weeks after returning, even if they do not feel ill, in order to prevent spread of Zika to uninfected mosquitos.

Many of these precautions for travelers are quite unrealistic for residents of Haiti, where temperatures are over 100° F for many months of the year, and most people's work and commerce happens outside, precluding long protective clothing. There is limited access to insect repellant and family planning options as well. Additionally, living conditions related to water have significant impact on Haitians' risk for Zika. Lack of water security leads people to collect buckets of water in their homes, which serve as reservoirs for mosquitos and their eggs and larvae. Poor environmental conditions and lack of proper waste disposal leads to an excess of garbage which also collects water that can serve as mosquito reservoirs. Community education

on this challenging issue will be crucial going forward in the prevention of this infection. By educating residents of an area, with the involvement of local leaders, communities can become active and successful in efforts at mosquito source reduction.

It appears the Zika virus was circulating in Haiti prior to the first reported cases in Brazil. To address Zika in Haiti, Partners In Health (PIH) in Haiti (*Zanmi Lasante*) is working with officials from the Ministry of Health and representatives from the Pan American Health Organization, the World Bank, and several international nongovernmental organizations. They are creating an action plan which includes six target areas: epidemiologic surveillance, vector-borne disease control, family planning, social communication and mobilization, clinical management, and monitoring and evaluation. From listening to stories of Zika in the news to standing face-to-face with this young gentleman bearing the hallmarks of the infection, I am reminded that the vast issues affecting healthcare around the world are also very personal, significantly impacting the everyday lives of individuals, and I am humbled to have had the opportunity to provide care to some of those people in Haiti.

CDC: Zika Virus in Haiti. http://wwwnc.cdc.gov/travel/notices/alert/zika-virus-haiti

Partners in Health: Q&A with Dr. Louise Ivers: The Zika Virus in Haiti. http://www.pih.org/blog/addressing-zika-in-haiti

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