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**ZIKA VIRUS** 9/20/17 fg

Summary of The Annals of Internal Medicine review of the existing literature on ZIKV (August 2, 2016, Vol 165, pgs 175-183)

Zika virus (ZIKV) was identified in 1947 and for decades caused only sporadic cases of mild human disease. The explosive nature of recent epidemics and links to Guillain-Barre syndrome (temporary paralysis up to and including respiratory failure) and microcephaly are concerning and poorly understood.

Zika virus is yet another arbovirus that is rapidly emerging on a global scale, on the heels of a chikungunya epidemic in the Americas that began in 2013. A ZIKV epidemic that began in Brazil in 2015 has now spread rapidly to more than 30 countries in the Americas and the Caribbean, infecting more then 2 million inhabitants. This epidemic currently continues unabated.

**Transmission**

The Zika virus is spread through the bite of mosquitos, and multiple mosquito species are capable vectors. Besides nonhuman primates and humans, ZIKV has been isolated from small mammals, reptiles, birds, and livestock. There is evidence of sexual transmission by men for at least 2 months after infection.

Pregnant women in unaffected areas are currently advised to postpone travel to ZIKV-endemic regions if possible and to avoid sex with male partners who have traveled to endemic regions.

**Clinical Manifestations**

Up to 80% of Zika virus infections may be subclinical; the remainder are typically mild, self-limited illnesses lasting 5 to 7 days. A pruritic (itchy), maculopapular (flat to raised) rash (90%), headache, fever (65%), and nonpurulent (no pus) conjunctivitis (55%). Arthralgia (joint pain), particularly of the hands, wrists, and ankles is common (65%) and is frequently associated with periarticular swelling. Arthralgia may persist for weeks to months. Other reported symptoms include aphthous ulcers, prostatitis-like symptoms [perianal pain and dysuria (painful urination)], and hematospermia (blood in ejaculate). Providers should consider Zika in a patient presenting with a rash and personal history of recent travel to an area with active ZIKV transmission or a history of travel in a sexual partner. Few deaths have been attributed to ZIKV infection in previously healthy individuals (not including fetal deaths and those born with intrauterine exposure).

Maternal ZIKV infection at any stage of pregnancy may result in an increased risk for microcephaly (incomplete brain development resulting in an abnormally small head size), intrauterine growth restriction, and fetal death. Early estimates from Brazil suggested a 20-fold increase in the number of microcephaly cases compared with previous years. Historically, causes of microcephaly have included malnutrition, genetic abnormalities, exposure to toxic substances (alcohol, drugs, chemical), and infections (Toxoplama gondii, rubella virus, cytomegalovirus, herpes simplex virus).

**Diagnostics**

Virus in blood may be detectable for only 2 to 3 days after the onset of illness and viremia waned quickly with the onset of rash. There is potential to identify ZIKV infection in saliva and urine longer than in blood. More specific tests to discern infections from ZIKV, dengue, yellow fever, and Japanese encephalitis are desperately needed.

**Treatment and Vaccine Development**

In mild cases (almost all are mild or subclinical), supportive care is all that is recommended (rest, hydration, acetaminophen). The duration of viremia may be extremely short and the opportunity to affect disease process narrow.

At present, no specific antiviral or vaccine is available, although vaccines are in development. Numerous licensed flavivirus vaccines exist, so it is reasonable to assume that a safe and efficacious ZIKV vaccine is possible. All candidate vaccines thus far are in preclinical development, with optimism for human testing before the end of 2016.

A study published in Science concludes “that three different types of vaccines designed to block [Zika] all worked to perfection in monkeys.” Each of the three experimental vaccines had already been found effective in mice, and the researchers say that their effectiveness on rhesus monkeys is “raising optimism for the development of a [Zika] vaccine for humans.”