The Women and Children’s Infectious Diseases Center: An integrated approach to congenital infectious diseases

Abstract

Congenital infectious diseases, transmitted during the course of pregnancy, are estimated to affect nearly one in every hundred births worldwide. These infections may be associated with fetal and infant adverse health outcomes, due to congenital malformations caused by in utero transmission of the infectious organism itself (as is the case with cytomegalovirus, toxoplasmosis, syphilis and Zika virus), or due to chronic infection in the infant (as is the case with human immunodeficiency virus [HIV] and hepatitis B and C). In addition, children who are exposed, yet uninfected, may still suffer from the consequences of exposure to infectious pathogens or to the drugs given to treat pregnant women and prevent in utero transmission (as may be the case with HIV infection).
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The recently created Women’s and Children’s Infectious Diseases Center/Centre d’Infectiologie Mère-Enfant (CIME) at the Centre hospitalier universitaire Sainte-Justine is the first center in North America where the care of women with proven or suspected infections during pregnancy is coordinated with that of their children. Historically, obstetric and pediatric care providers have operated in silos, with separated systems of care for pregnant women and their children. At the CIME, this care is integrated within a family-centered approach. The team includes obstetrician-gynecologists who have sub-specialized in maternal-fetal medicine, pediatric microbiologists/infectious diseases specialists, nurses, pharmacists, a social worker, a psychologist, a nutritionist, occupational and physical therapists and both clinical and basic science researchers, and offers coordinated care of women and their children. At the CIME, this care is integrated within a family-centered approach. The team includes obstetrician-gynecologists who have sub-specialized in maternal-fetal medicine, pediatric microbiologists/infectious diseases specialists, nurses, pharmacists, a social worker, a psychologist, a nutritionist, occupational and physical therapists and both clinical and basic science researchers, and offers coordinated care of women and their children with suspected or confirmed infections. This integration is essential to prenatal counselling, where key decisions must be made using the best available information at hand. Laboratory testing needs specific expertise and rapid results. The information can be very complex, given the many uncertainties surrounding the precise diagnosis of certain infections, the risk of transmission and the long-term impact of congenital infection. Integration allows the team to address more efficiently issues such as guilt, secrecy and deception that can arise in the situation of congenital infection. Finally, the opportunity for expectant families to become familiar with the pediatric team, and to understand the level and type of care and necessary services that may be needed for their child, allows for optimal engagement in care.

Integration of obstetric and pediatric clinical research teams is crucial to understanding the pathophysiology behind these infections, and designing interventions that will allow for the best possible mother-infant outcomes. This is best illustrated in the field of HIV, where optimal treatment of women during pregnancy and their newborn has reduced the risk of transmission from 25%–30% to less than 1%. Follow-up of HIV-exposed children has shown potential effects related to in utero exposure to antiretroviral therapy, and has resulted in changes to the treatment recommended for pregnant women. Embedded within the CIME clinical structure is a research cohort, allowing for the systematic, long-term follow-up of children with congenital infections or who have been exposed to infection during pregnancy but were not infected.

Building on its multidisciplinary expertise, the CIME is establishing itself as a national leader in the field of congenital infection and as an advocate for the best practices regarding its screening and management.