Abstracts of current literature on epidemiology, diagnosis, and treatment

Series Editor: Jihad Slim, MD

HIV-1 IN SEMEN DESPITE LONG-TERM SUPPRESSION

Seminal cells of HIV-1–infected men receiving highly active antiretroviral therapy who had undetectable levels of viral RNA in plasma were examined for HIV-1 proviral DNA and replication-competent HIV-1 virus. Peripheral blood and semen samples were collected from seven patients with plasma and seminal HIV-1 RNA levels less than 50 copies/mL. Samples were analyzed for cell-associated HIV-1 proviral DNA and replication-competent HIV-1 virus. Cell-associated HIV-1 proviral DNA was detected in the peripheral blood samples of all seven patients and in the seminal cell samples of four patients. Replication-competent HIV-1 was recovered from peripheral blood samples in three men. In two of these three patients, replication-competent HIV-1 was also recovered in the seminal cells. The study concluded that sexual transmission of HIV-1 is possible despite the use of seemingly successful, highly active antiretroviral therapy. Because antiretroviral drugs may not be able to enter testicular tissue in high concentrations, the genital tract may serve as a reservoir for HIV-1 replication in men.

Zhang H, Dornadula G, Beumont M, et al: Human immunodeficiency virus type 1 in the semen of men receiving highly active antiretroviral therapy. N Engl J Med *1998;339:1803–1809.*

CHORIOAMNIONITIS AND HIV-1 TRANSMISSION

These authors hypothesize that chorioamnionitis, an inflammation or infection of the placental membranes, may be the major obstetric risk factor for HIV-1 transmission. Preterm birth and prolonged rupture of membranes, two of the most consistent obstetric risk factors for HIV-1 transmission, are both associated with chorioamnionitis. Early preterm birth has been associated with chronic chorioamnionitis caused by such organisms as *Mycoplasma*, *Ureaplasma*, *Bacteroides*, and *Gardnerella*. More than 80% of women who deliver at less than 30 weeks gestation have histologically tested positive for chorioamnionitis; and more than 50% of infants born to HIV-1-positive women at less than 30 weeks gestation may be HIV-1 positive. This increased transmission rate may be associated with preexisting bacterial chorioamnionitis. Evidence such as raised amniotic fluid cytokines at 16 weeks in women who eventually deliver as late as 32 weeks; *Ureaplasma* in amniotic fluid 6 to 8 weeks before labor; markers of intrauterine infection; and documented chorioamnionitis in women in preterm labor before membrane rupture support the association between preterm birth and a chronic intrauterine infection. Two factors support the association between prolonged membrane rupture and chorioamnionitis: first, preexisting chorioamnionitis is a potential cause of membrane rupture; and second, the longer time that the membranes are ruptured, the more likely that virulent vaginal bacteria will ascend and cause chorioamnionitis. The authors propose to target preterm chronic and acute chorioamnionitis through the use of antibiotics both in the second trimester and at delivery in an attempt to reduce perinatal transmission of HIV-1.

Goldenberg RL, Vermund SH, Goepfert AR, Andrews WW: Choriodecidual inflammation: a potentially preventable cause of perinatal HIV-1 transmission. Lancet *1998;352:1927–1930.*

ATOVAQUONE VERSUS DAPSONE FOR PREVENTION OF PNEUMOCYSTIS CARINII PNEUMONIA

An open-label clinical trial compared atovaquone suspension with dapsone for the prevention of *Pneumocystis carinii* pneumonia (PCP) among HIV-infected patients intolerant to trimethoprim, sulfonamides, or both. HIV-infected patients (n = 1057) with either a history of PCP or a CD4 cell count ≤ 200 mm^3 were randomized to atovaquone (1500 mg suspension/day) or dapsone (100 mg/day). The development of confirmed or probable PCP was the study's primary end point; secondary end points included severe drug intolerance that necessitated treatment discontinuation, death, and confirmed or probable toxoplasmosis. Median follow-up was 27 months for each treatment group. A total of 257 patients experienced at least one episode of confirmed or probable PCP: 122 patients in the atovaquone arm and 135 patients in the dapsone arm. In terms of mortality, 440 patients died: 232 patients in the atovaquone arm and 208 patients in the dapsone arm. A total of 436 patients assigned to atovaquone and 407 patients assigned to dapsone discontinued treatment because of adverse events. For both groups, intolerance, patient request, development of PCP, and death were the most common reasons for treatment discontinuation. The study concluded that the rates of PCP onset, survival, and tolerance were similar in the atovaquone and dapsone groups. The high rates of PCP and intolerance in both treatment groups suggest that better PCP prophylaxis options are needed for trimethoprim–sulfamethoxazole-intolerant patients.

El-Sadr WM, Murphy RL, Yurik TM, et al: Atovaquone compared with dapsone for the prevention of Pneumocystis carinii *pneumonia in patients with HIV infection who cannot tolerate trimethoprim, sulfonamides, or both.* N Engl J Med *1998;339:1889–1895.*

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