Clinical Pathology Selected Abstracts, 6/14

Clinical pathology abstracts editor: Deborah Sesok-Pizzini, MD, MBA, associate professor, Department of Pathology and Laboratory Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, and medical director, Blood Bank and Transfusion Medicine, Children's Hospital of Philadelphia.

How a single patient influenced HIV research: 15-year followup

The hope of a cure for human immunodeficiency virus infection is raised by recent reports of people in whom viral replication spontaneously reduced despite the absence of antiretroviral treatment (ART). A "Berlin patient" described in 1999 was immediately treated with ART and hydroxyurea after an acute HIV infection but chose to discontinue treatment. Due to his surprising level of natural control, it was proposed that early intervention might promote HIV-specific cytotoxic T-lymphocyte-mediated control by preserving CD4+ T helper cells. The authors reviewed followup of the patient, who chose to remain anonymous. The authors noted that viral load analysis showed that the patient had continual suppression of viral replication in the absence of any ART during the previous 15 years. During that period, the patient's mean number of HIV RNA copies per milliliter was 2,812 ± 11,451, with one blip to 25,000 copies. Similarly, the patient's CD4+ T-cell count remained stable. Of interest was a genotypic analysis that showed that the patient carried the highly protective HLA class I allele HLA-B*57. This allele is known to be associated with lower viral loads and is enriched in patients in whom HIV is spontaneously controlled in the absence of ART. In this patient, the most dominant cytotoxic T-lymphocyte-mediated response was directed against a known conserved epitope in Nef, suggesting a dominant role for this response in HIV control. The authors concluded that early initiation of treatment may have long-term benefits in certain patients, but the more likely explanation for control of the HIV infection is the patient's genetic background. Therefore, the authors caution against drawing broad conclusions based on a single patient.

Jessen H, Allen TM, Streeck H. How a single patient influenced HIV research—15-year follow-up. *N Engl J Med.* 2014;370:682–683.

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MicroRNA biomarkers in whole blood for detecting pancreatic cancer

Pancreatic cancer, the fourth most common cause of death in the Western world, has a poor prognosis and one- to five-year survival rates of only 20 percent and six percent, respectively. The only curative treatment is surgery, although chemotherapy has been shown to improve survival. However, only 20 percent of patients are surgical candidates due to advanced stage or metastasis at the time of primary diagnosis. Early diagnosis is challenging since no biomarkers in blood identify pancreatic cancer at an early stage. The authors conducted a study to describe differences in microRNA expression in whole blood between patients with pancreatic cancer or chronic pancreatitis or who were healthy. The panels of microRNA used to diagnose pancreatic cancer were compared to serum levels of the cancer antigen 19-9 (CA19-9), also a tumor marker for pancreatic cancer. The authors performed a case control study with 409 patients who had pancreatic cancer, 25 who had chronic pancreatitis, and 312 who were healthy. The microRNA expressions in pretreatment whole blood RNA samples were collected and analyzed in three randomly determined subcohorts. A main objective of the study was to identify microRNA panels for diagnosing pancreatic cancer. The authors identified two novel diagnostic panels based on microRNA expression in whole blood with the potential to distinguish patients with pancreatic cancer from healthy controls. They noted that the analysis did not show that these microRNA panels provide significantly more information than serum CA19-9, but they may be useful in combination with CA19-9 or in patients for whom CA19-9 is normal. The use of microRNAs combined with CA19-9 may result in earlier diagnosis of a greater number of patients with pancreatic cancer and has the potential to increase the number of patients who are cured surgically.

Schultz NA, Dehlendorff C, Jensen BV, et al. MicroRNA biomarkers in whole blood for detection of pancreatic cancer. *JAMA.* 2014;311:392–404.

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Increasing organ donation in Hispanic Americans via media, community outreach

Hispanic Americans are expected to constitute 25 percent of the U.S. population by the end of 2050. This population growth parallels the increase in solid organ transplant need in the Hispanic-American community, with a 260 percent increase in Hispanic Americans on organ waiting lists compared with a 146 percent increase among non-Hispanic groups. Despite the heightened need for organ donation, Hispanic Americans are estimated to be 60 percent less likely to donate organs compared with non-Hispanic whites. The barriers to donation have been poorly understood and difficult to overcome. The authors conducted a study to determine whether outreach interventions that target Hispanic Americans may improve organ donation outcomes. They studied four southern California neighborhoods with a high percentage of Hispanic Americans. Awareness, perceptions, and beliefs regarding organ donation and intent to donate were studied using cross-sectional telephone surveys. Respondents were 18 years or older and drawn randomly from lists of Hispanic surnames. Two years after the outreach interventions, the participants were surveyed again. The interventions included television and radio commercials about organ donation and educational programs at five high schools and four Catholic churches. The results showed a significant increase, after two years, in awareness of and knowledge about organ donation and a significant increase in intent to donate (17.7 percent versus 12.1 percent; adjusted odds ratio, 1.55). The authors concluded that this focused donor outreach effort improved the intent to donate organs in the Hispanic-American population. These programs should continue to be implemented and evaluated to influence donor registration.

Salim A, Ley EJ, Berry C, et al. Increasing organ donation in Hispanic Americans: the role of media and other community outreach efforts. *JAMA Surgery.* 2014;149:71–76.

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