FROM THE BENCH

Genetic Test Could Aid Colon Cancer Treatment

Some 29,000 people in the U.S. have metastatic colorectal cancer. Of those, one in ten have a variant in their DNA that causes white blood cell counts to drop after they undergo standard chemotherapy, putting them at higher risk for bacterial infections and even death. To prevent this, a new genetic test has been developed to identify high-risk patients, potentially allowing physicians to put susceptible patients on lower doses; researchers have now evaluated its cost effectiveness. In work published in Cancer, they determined that testing can be beneficial—but only if reduced doses are as effective as full doses. The work, says lead author Heather Taffet Gold, PhD, assistant professor in the Division of Health Policy, “remains to be verified by clinical research.”

Quick Response Is Key in Bioterror Attacks

In the event of an anthrax attack on a major metropolitan area, rapid response and treatment are vital, says associate professor of public health Nathaniel Hupert, MD. In work published in Medical Decision Making, Hupert and colleagues report that any delay beyond three days in distributing antibiotics would overwhelm hospitals with critically ill patients. “No matter how well-organized and prolonged a treatment program is, it must be quickly implemented,” Hupert says. “In fact, our analysis shows that time-to-treatment is roughly twice as important as the duration of the distribution program.”

Targeted Prostate Therapy

Researchers have discovered a new gene fusion that is highly expressed in 5 percent of prostate cancers. The fusion, known as NDRG1-ERG, produces a cancer-specific protein that may serve as a target for drug therapies. According to Mark Rubin, MD, the Homer T. Hirst Professor of Oncology in Pathology, the discovery “may help physicians prescribe tailored therapies for their patients by avoiding the trial and error that is often associated with cancer treatments.” The work, which was published in Neoplasia, could also make it easier to distinguish between cancer and non-lethal diseases such as benign prostatic hyperplasia.

ECG May Predict Cardiac Death

A measure of the time it takes for an electrical signal to travel through a pumping heart—known as QRS duration, or QRSd—could help physicians identify patients at risk for sudden cardiac death. Using data drawn from the LIFE study (a large, multicenter hypertension study lasting seven years and comprising more than 9,000 patients), cardiologist Peter Okin, MD ’80, and colleagues found a clear link between prolonged QRSd and sudden cardiac death. “No one has ever really looked at this,” Okin says, adding that further studies on larger patient populations will be needed to ascertain if QRSd is a cause of death or merely an indicator. The research was published in the European Heart Journal.

Why Are African Americans Predisposed to Kidney Disease?

African Americans comprise 32 percent of all patients treated for kidney failure and are four times more likely than whites to develop renal disease; a new study may help explain why. Manikam Suthanthiran, MD, the Stanton Griffis Distinguished Professor of Medicine, and Phyllis August, MD, the Ralph A. Baer Professor of Medical Research, have found that blacks are more likely to have elevated levels of the protein TGF-beta1, which raises the risk of hypertension and kidney disease. Although the mechanisms of TGF-beta1 require further study, the authors say that it may boost retention of sodium in the kidneys and also may affect the activity of renin, an enzyme that constricts blood vessels and raises pressure. The results were published in Kidney International.

Preventing Suicide and Depression in Older Adults

“Almost one in ten older adults in the United States has some form of depression,” states George Alexopoulos, MD, “and one-fifth among them contemplates suicide.” Director of the Institute of Geriatric Psychiatry at the Westchester Division, Alexopoulos is lead author of a two-year study of suicide prevention in older adults that followed some 600 patients. He points out that although most older adults are seen by primary care physicians, depression often goes untreated because of doctors’ time constraints and patients’ reticence to discuss their symptoms. The results were published in the American Journal of Psychiatry.

A New Front in the TB Battle

Researchers have identified compounds that inhibit the ability of tuberculosis-causing bacteria to survive dormant in infected cells—a key reason why the disease is so hard to combat. The work, published in Nature, could lead to more powerful TB treatments. “There are few drugs that successfully combat TB in its dormant stage, which makes the bacterium so resilient in the body,” says senior author Carl Nathan, MD, the R. A. Rees Pritchett Professor of Microbiology, whose team screened 20,000 compounds for TB inhibition activity. “More important, there are many antibiotics that kill bacteria by blocking the synthesis of proteins, but there are none that kill bacteria by interfering with protein breakdown, as we have found here.” Worldwide, Mycobacterium tuberculosis infects one person in three.