Research Briefs

Long-Term Health Risks in Childhood Cancer Survivors

Childhood cancer survivors are rehospitalized at least twice before they’re 40 years old, most often for primary central nervous system tumors and other solid tumors. According to a study by researchers from Emma Children’s Hospital in Amsterdam, the main treatment-related risk factors for hospitalization were surgery and radiotherapy, especially head and/or neck irradiation. Childhood cancer survivors also had significantly higher hospitalization rates for neoplasms, endocrine/nutritional/metabolic disorders, diseases of the eye, and diseases of the circulatory system.

The researchers conducted a medical record linkage study comparing data from 1,382 survivors and 25,583 individuals from the general population. After censoring for cancer treatment for recurrences of the primary cancer beyond five years, the researchers identified 1,292 cancer survivors with 1,736 hospitalizations. Among them, the average rate of hospitalizations was 172 per 1,000 person-years, compared with 79 per 1,000 person-years in the control group.

Childhood cancer survivors had about a fourfold rate of hospitalization for eye diseases. The risk of diseases of the eye is known, the researchers say, but less often described in childhood cancer survivors. Likely explanations for the increased risk, they suggest, are diseases such as cataract after radiotherapy and other problems after orbital tumors, retinoblastoma, and glucocorticoids, in combination with a low background risk of hospitalization for eye disease in the general population.

The study was limited by a hospital register that did not contain electronic data from before 1995, the researchers say. However, their finding of a late enhanced increase in hospitalizations between the 20th and 30th years is “concerning,” they note. It could mean deterioration of existing health conditions as well as new, late-onset health conditions.

Because they only studied health conditions that led to hospitalization, the researchers say, the “true burden of unfavorable health conditions after childhood cancer is likely to be even higher.”

Source: PLOS One, July 2016

Blood Test to Diagnose Zika Faster

A blood test that could cut the time needed to diagnose Zika infection from days to hours is getting advanced development support from the Department of Health and Human Services’ (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR).

The current test, developed by the Centers for Disease Control and Prevention (CDC), needs two to three days and must be conducted in qualified laboratories designated by the CDC. The new test, developed by InBios International, Inc., may be able to return results in four hours and can be used in commercial and health care facility laboratories—increasing testing capacity significantly nationwide, according to HHS.

The development will be funded under a two-year, $5.1 million contract with ASPR’s Biomedical Advanced Research and Development Authority (BARDA). The agreement can be extended to fund additional work through 2021 and up to a total of approximately $9.5 million. The company can also apply to the Food and Drug Administration (FDA) to allow the test to be used under emergency use authorization prior to full FDA approval.

“Most people with Zika virus infections do not have symptoms, which makes diagnostics critical in identifying cases, treating patients, and protecting public health,” said BARDA Acting Director Dr. Richard Hatchett. ASPR Assistant Secretary Dr. Nicole Lurie said, “The situation in Puerto Rico, the increasing number of Zika cases in the continental United States, and the potential for local transmission are of great concern. Doctors and patients need Zika test results quickly so that health care providers can offer appropriate guidance and treatment.”

Source: HHS, July 2016

National ALS Biorepository Opens

The prevalence of amyotrophic lateral sclerosis (ALS) appears to have gone up—from 4.7 cases per 100,000 in 2012 to 5.0 cases per 100,000 in 2013. But “appears” is the operative word, according to a recent surveillance summary in Morbidity and Mortality Weekly Report. It’s more likely that the increase is attributable to better detection methods, says Paul Mehta, MD, medical epidemiologist and principal investigator of the National ALS Registry and lead author of the report.

He also credits greater public awareness of the Registry, which is the only available data source that can be used to estimate the prevalence of ALS in the United States. Because ALS is not a nationally notifiable disease, the Registry uses administrative data from Medicare, Medicaid, and the Veterans Affairs Health and Benefits Administrations to determine “definite” cases. It also uses a secure Web portal (https://www.cdc.gov/als) to identify cases not included in the national administrative databases.

This fall, the Registry will launch the National ALS Biorepository, which will store samples (e.g., blood, hair, or saliva) from home visits and postmortem collection (e.g., brain, bone, spinal cord). Currently, the few existing ALS biorepositories rely largely on samples from specific clinics or medical practices or from clinical trials. The National ALS Biorepository specimens will be collected from a geographically representative sample of people with ALS. The specimens will be used for research, such as genetic analysis, identification of biomarkers, and exposure to environmental toxic substances.

Source: Centers for Disease Control and Prevention, August 2016
Novel Method Reveals New Genetic Information on Depression

In a modern twist on clinical data gathering, crowd sourcing has helped researchers identify “weak genetic signals” of depression. By combining data from the genetic information website 23andMe.com and previous genetic research, the study identified for the first time 15 regions of the genome that may be associated with depression in people of European ancestry. These findings should help “make clear that this is a brain disease,” said Roy Perlis, MD, MSc, a lead investigator and Associate Professor of Psychiatry at Harvard Medical School, “which we hope will decrease the stigma still associated with these kinds of illnesses.”

Other studies have, of course, investigated genetic components of depression. But they may have been too small to uncover the subtle effects of the many genes influencing the risk of depression, the researchers said.

In their first analysis, using data from more than 300,000 people of European ancestry who had purchased genetic profiles on 23andMe.com (and who consented to share their information with researchers), they identified two genomic regions significantly associated with depression risk, including one previously associated with epilepsy and intellectual disability.

They then combined that information with data from genome-wide association studies of 9,200 people with a history of depression and 9,500 controls, along with another group of 151,800 people with and without depression. That analysis revealed 15 genomic regions, including 17 specific sites, significantly associated with a diagnosis of depression. Several of the sites are located in or near genes known to be involved in brain development.

“The neurotransmitter-based models we are currently using to treat depression are more than 40 years old,” Dr. Perlis said. “We really need new treatment targets. We hope that finding these genes will point us toward novel treatment strategies.”

Sources: National Institutes of Health and Massachusetts General Hospital, August 2016

Study Launched for New Zika Vaccine

An early-stage study to evaluate the safety and efficacy of an experimental Zika vaccine in humans is being launched by the National Institute of Allergy and Infectious Diseases (NIAID). “Results in animal testing have been very encouraging,” said NIAID Director Anthony Fauci, MD. “Although it will take some time before a vaccine against Zika is commercially available, the launch of this study is an important step forward.”

NIAID scientists developed the investigational vaccine earlier this year. The approach, similar to that taken for another NIAID investigational vaccine developed for West Nile virus, was found safe and effective in a phase 1 clinical trial. The vaccine includes a plasmid (small piece of DNA) engineered to contain genes that code for proteins of the Zika virus. The body reads the genes and makes Zika virus proteins, which cause an immune response. DNA vaccines do not contain infectious material and cannot cause a vaccinated person to become infected with Zika.

The phase 1 clinical trial (VRC 319) will involve four groups of 20 people each. The participants will be vaccinated at the first visit, and then half will receive another vaccination eight or 12 weeks later. The remaining participants will receive two additional vaccines, one group at weeks 4 and 8, and the other group at weeks 4 and 20. Participants will be followed for 44 weeks.

Initial safety and immunogenicity data from the trial are expected by January 2017. If the results are favorable, NIAID plans to start a phase 2 trial in Zika-endemic countries in early 2017.

Source: National Institutes of Health, August 2016

Coordinating Better Care for Opioid-Addicted Women and Their Children

Caring for a woman who is addicted to opioids—and who is a mother or about to become one—can be challenging, and child welfare systems are reporting heavier caseloads. Moreover, hospitals are reporting more infants born with neonatal abstinence syndrome.

As part of the Department of Health and Human Services’ overall initiative to address the many public health problems posed by the opioid disorder crisis, the Substance Abuse and Mental Health Services Administration (SAMHSA), along with the Administration on Children, Youth, and Families, has released A Collaborative Approach to the Treatment of Pregnant Women With Opioid Use Disorders: Practice and Policy Considerations for Child Welfare and Collaborating Service Providers.

The guide aims to promote a coordinated multisystemic approach among agencies and providers, including child welfare, medical, and substance abuse treatment, grounded in early identification and interventions to support families.

The publication covers the extent of opioid use by pregnant women and the effects on the infant. It offers evidence-based recommendations for treatment approaches, along with recommendations for collaborative planning and tools to conduct a needs-and-gap analysis to develop a collaborative action plan.

SAMHSA also published Advancing the Care of Pregnant and Parenting Women With Opioid Use Disorder and Their Infants: A Foundation for Clinical Guidance. This report summarizes the evidence review and rating processes SAMHSA uses to establish appropriate interventions.

Source: SAMHSA, August 2016