Delays in Cancer Diagnosis for Children Remain Poorly Understood

Atlanta 2007/07/09 -Though delays in the diagnosis of cancer in children are short and attributable to clinical presentation and healthcare system complexity, the impact of such delays on prognosis remains unclear, according to a new study. Published in the August 15, 2007 issue of CANCER, a peer-reviewed journal of the American Cancer Society, a review of the published literature found that delays could be generally attributed to gatekeeper-type healthcare systems, clinical presentation and stage of disease, as well as parent/patient factors. The study concludes that further research should focus on understanding the impact of delays in diagnosis on morbidity and mortality in children with cancer.

Pediatric cancers, such as leukemia and brain tumors, are rare, but in some countries are the leading cause of death in children from birth to 15 years old. In the U.S., almost 10,000 children are diagnosed with cancer annually. Though incidence rates have increased slightly, five-year survival rates have also increased over the past 30 years to 80 percent in the most recent time period. As in adult cancers, early diagnosis is one of the primary factors related to survival. It is even more important in children because compared to adult malignancies, childhood cancers tend to be more invasive and grow more rapidly.

Studies characterizing and explaining the causes of delays in diagnosis are in their infancy. The few studies that have been done have been limited by methodological weaknesses, such as relying on retrospective chart reviews. As a prelude to a large audit study of diagnosis and treatment delays in Canadian children with cancer Tam Dang-Tan, an epidemiology PhD student working with Dr. Eduardo Franco from McGill University in Montreal, Canada, conducted the first ever analysis of all published studies to look for general trends and associations in this topic.

The authors reviewed 23 studies conducted worldwide and found that delays in diagnosis were generally short but the range of the data included much longer time delays. Because of the small number of studies, there were no conclusive associations between cancer type and time delays. However, brain tumors and retinoblastomas tended to have longer delays than other cancers. In addition, physician-caused delays tended to be longer than those caused by parental or patient recognition of disease.

Overall, studies showed that delays were related to several expected factors. First, evidence suggests that a government-sponsored healthcare system, dependent on primary care physicians to triage and refer, may introduce delays, at least for central nervous system cancers. Second, some studies found that there was a strong association between older age and longer delays to diagnosis. Possible explanations for this significant observation, according to the authors, include more apparent clinical presentations in younger children or different screening practices depending on age. Third, lower parental education status was also associated with longer delays, suggesting either socioeconomic or health care access barriers. Fourth, non-specific clinical presentations depending on the cancer group also delay diagnosis. However, the associations between symptoms and stage of disease may be actually a function of the type of cancer. The authors point out that, for example, “brain tumors have a slower tumor growth rate than other cancers and therefore would have a slower symptom progression.”

Significantly, the impact of diagnosis delay in children on prognosis is still not known. Too few studies have been designed specifically to analyze this question. Those that do fail to come to a common conclusion. In three of seven such studies, there was no difference in survival or even a better prognosis for delays in diagnosis. The others reported poorer prognosis the longer the delay. This finding could, the authors surmise, could be that aggressive disease presents early and therefore, at more treatable stages.

This review clearly underscores the significant gap in our understanding of childhood cancers.

Specifically, the authors conclude, “information on factors that influence delays independently of each other and the individual impact of patient and provider delays on disease severity and prognosis would be useful to form effective policies and programs aimed at eliminating obstacles in the cancer care pathway for children with cancer.”

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