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Determining the Trend of Public Interest in Pediatric Solid Tumors: A Pre- and Post-COVID Pandemic Analysis

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To

The Editor,

The coronavirus pandemic has had a significant impact on our daily life and led to a surge in digitization and utilization of resources available on the Internet.[1] This shifting trend is also reflected in health care and medicine, where apart from general medical anxiety due to the pandemic, the public relied on information technology for addressing their medical concerns. Pediatric solid tumors often cause a degree of anxiety and stress among parents of the affected children.[2] With growing access to the Internet, parents of children diagnosed with cancer often resort to using its resources for finding further information related to their child's diagnosis and prognosis. We sought to evaluate the pre- and postpandemic interest in the information on pediatric solid tumors available on the Internet by the public.

Google Trends is a powerful, freely accessible tool that provides information on Internet search data and gives access to a largely unfiltered sample of actual search requests made to Google.[3] Google Trends was used to conduct search for terms from the parents' perspective after a diagnosis of an extracranial pediatric solid tumor for their child. Three common tumors used were "Wilms Tumor," "Neuroblastoma," and "Hepatoblastoma." The search terms list consisted of "Wilms Tumor," "Wilms Tumor Survival Rate," "Wilms Tumor Symptoms," "Wilms Tumor Treatment," "Neuroblastoma," "Neuroblastoma Survival Rate," "Neuroblastoma Symptoms," "Neuroblastoma Treatment," "Hepatoblastoma," "Hepatoblastoma Survival Rate," "Hepatoblastoma Symptoms," and "Hepatoblastoma Treatment." Searches were conducted for the "worldwide" trend between May 14, 2017 and January 15, 2023. Pre-coronavirus disease 2019 (COVID-19) was designated as May 14, 2017 to March 15, 2020, and post-COVID-19 was designated as March 15, 2020 to January 15, 2023. March 2020 was chosen as the designated midpoint because this was the month that World Health Organization declared COVID-19 a pandemic, stay-at-home orders were issued in most parts of the world, and elective surgeries were postponed.[4] The first 17 months were designated as the "immediate" postpandemic phase as it included the period of the first and second COVID-19 wave, and the next 17 months were designated as the delayed postpandemic phase. The data was collected from Google Trends in a monthly format as a search volume index (SVI). SVI is a weighted scale from 0 to 100 of searches for specific terms relative to overall search volume, which is calculated first using daily search interest and then normalized to control for the overall increase in the number of Internet searches over time. The search interest is then indexed to values ranging from 0 to 100 on a relative scale,[5] which allows us to gauge relative changes in search interest over that period. The monthly SVIs for all 12 search terms from May 14, 2017 to January 15, 2023 were compiled and evaluated by statistical methods (Mann–Whitney *U* test).

We noted a variability in the median SVI for the three solid tumor search terms. The search term "Wilms Tumor symptoms" had a significantly increased SVI in the immediate postpandemic phase (p 0.004) which persisted even in the delayed postpandemic phase (p 0.0002). The term "Neuroblastoma symptoms" did not show any change in the immediate postpandemic phase but had a significantly increased SVI in the delayed postpandemic phase. On the contrary, the term "Neuroblastoma" showed a decline in the entire postpandemic phase, and "Neuroblastoma treatment" showed a decline in the immediate postpandemic phase. No other terms showed any changes in their SVI. Neuroblastoma is the most common extracranial solid tumor of childhood, and

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with a decrease in access to the hospital and more teleconsultations during the pandemic,[6] there was a decrease in diagnosis. This might explain the reduced search volumes of an otherwise relatively common pediatric tumor.

The public interest in the symptomatology of Wilms Tumor and Neuroblastoma had increased in the postpandemic period, possibly because of increased medical anxiety and utilization of the Internet sources for allied differential diagnosis of abdominal distention and lump, while having limited access to a health care professional to examine the child.[7] The increased search attempts on Google might also reflect the possibility of increased detection of these diseases as the health facilities gradually lifted the COVID restrictions. The backlog related to health services that were previously stalled also would have led to an unprecedented increased diagnosis during the postpandemic period. Hepatoblastoma being an otherwise less common tumor, compared with the other two tumors, did not show an increase or decrease in the searches. Overall, the median SVI pre- and postpandemic did not show a significant difference for pediatric cancers. Future data and studies can possibly demonstrate whether this reflects a decrease in early diagnosis, which may cause worse outcomes in the affected children, or is due to the general underutilization of Internet-based resources by parents of these children.

Conflict of Interest
None declared.

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