The Impact of the COVID-19 pandemic on diagnosis rates and abandonment of treatment in West Java, Indonesia

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Abstract

The impact of the Covid-19 pandemic on the care of children with cancer in LMIC is of great concern, particularly on diagnosis and abandonment of treatment rates. Data supporting this concern however is limited to survey and anecdotal information. A retrospective with two cohorts design was used to compare new diagnosis and monthly abandonment rate in Java, Indonesia. We found that new diagnoses rates had dropped significantly during Indonesia's first wave as compared to a pre-pandemic cohort [rate ratio 0.57, 95th (CI) 0.41-0.79)] and that as the first wave progressed, abandonment rates also rose in a statistically significant manner.

INTRODUCTION

More than a year into the COVID-19 pandemic, its impact on children with cancer is still not fully described. In addition to the direct infectious risk among children undergoing treatment, pediatric oncologists in high-income countries have noted an increased incidence of delayed diagnosis and treatment.[1] Though issues like under-diagnosis and abandonment of treatment were major issues in low- and middle-income countries (LMIC) prior to the pandemic, whether these have worsened because of COVID-19 is suspected but not known.[2] We therefore aimed to assess the impact of the pandemic in one Indonesian tertiary hospital upon the rate of new diagnoses and abandonment rates.

RESULTS

Dr. Hasan Sadikin Hospital (RSHS) is a large referral hospital in West Java, Indonesia with nearly 1,000 beds. The pediatric oncology service serves a population of around 45 million, has a 32-bed capacity, and sees 300 to 400 new cases annually. Similar to other LMIC centers, insufficient psychosocial and medical personnel and limited financial assistance for families constitute major challenges. Abandonment of treated has been identified as a significant cause of treatment failure in the past. RSHS identified its first COVID-19 positive patient in March, 2020. Stringent lockdowns were implemented between March and June of 2020, with closure of public spaces and businesses and severe travel restrictions. Elective surgeries were postponed and limitations on outpatient clinics imposed.

A retrospective cohort design with two cohorts was used. The first comprised of patients with childhood cancer admitted to RSHS before and during the COVID-19 pandemic (November 2019–May 2020). Both newly and previously diagnosed patients were included. A comparison cohort (November 2018 – May 2019) was also identified comprising all analogous patients a year before the pandemic. The number of new diagnoses was determined through hospital databases. Abandonment was defined as failure to start or continue scheduled curative-intend treatment for four or more consecutive weeks[3], excluding patients transitioning

to palliation, and was determined monthly through review of medical charts. Outcomes were compared between cohorts using Poisson regression (rate of new diagnoses) and Fisher's exact tests (monthly abandonment rate). Two tailed p-values less than 0.05 were considered statistically significant at 95% confidence. The study was approved by the RSHS research ethics board. Compared to the prior year, the rate of new childhood cancer diagnoses decreased by over 40% [rate ratio 0.57, 95th confidence interval (CI) 0.41-0.79)]. Monthly abandonment rates are shown in Table 1. No differences in abandonment were seen in November through March. However, a trend towards higher abandonment was seen in April 2020 as compared to April 2019 (12.8% vs. 8.6%; p=0.06); a substantial and statistically significant increase was seen in May 2020 (14.8% vs. 6.7%; p<0.001).

DISCUSSION

To date, available evidence suggests that children with cancer are at low-risk of developing COVID-19 related complications or mortality.[4,5] At the same time, abandonment of therapy is known to be a major cause of treatment failure among LMIC children with cancer.[6,7,8] In our study, we show that the onset of the COVID-19 pandemic was associated with a statistically significant and substantial increase in abandonment rates in our center in West Java. Our results suggest that the indirect effects of COVID-19 are a far greater contributor to poor outcomes among this population than direct infection-related impacts.

The reasons for the increased abandonment rate are likely multifactorial. In our setting, elective surgeries were rescheduled and often canceled, leading to prolonged times to treatment that may have given more opportunities to abandon therapy. In some cases, COVID-19 positivity led to further delays in asymptomatic children, again giving more opportunity for abandonment. Costs of treatment are also a major factor for abandonment. During the pandemic, a portion of the mandatory screening COVID-19 tests were also charged to families, leading to increased costs and very likely in increase in the likelihood of abandonment. Though not assessed by this study, fear of COVID-19 itself may have caused families to stop therapy.[4] Finally, as reported in Peru, national lockdowns, with resultant loss of income and transportation restrictions, are also likely to have impacted access and thus increased abandonment rates.[6]

Several mitigating strategies are possible. Strong relationships between health services providers and families to explain the risks of COVID-19 as opposed to the risks of stopping therapy are key.[9]At a system level, engagement of health services and health ministries with childhood cancer professionals and parent support organizations in the development and implementation of regional COVID-19 response strategies specific to children with cancer will also.[10] Measures to control and decrease COVID-19 transmission in the broader community will ultimately benefit children with cancer, though only if these children are also prioritized during acute waves of infection. Finally, protecting the physical and mental health of medical professionals themselves is crucial to maintain the necessary childhood cancer services.

Since the study period, a new and more devastating wave of COVID-19 has hit Java, Indonesia, leading to further and more severe disruptions of healthcare services. Our results suggest that the impact of children with cancer will be profound and will likely reverse recent improvements in outcome.

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Conflict of Interest

The authors declare no conflict of interest.

Author Contribution

N. Sari contributed to the design and implementation of the research, to the analysis of the results and wrote the first draft of the manuscript. S. Susanah, N. Suryawan, R. Adrizain, A. Alam, D. Setiabudi were involved in planning and supervised the work. S. Gupta helped design the methodology. All authors were involved with editing the manuscript.

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`Table 1 Monthly Abandonment.docx` available at https://authorea.com/users/733363/articles/711095-the-impact-of-the-covid-19-pandemic-on-diagnosis-rates-and-abandonment-of-treatment-in-west-java-indonesia