

Letter: Unexpected Decrease in Shunt Surgeries Performed During the Shelter-in-Place Period of the COVID-19 Pandemic

To the Editor:

We read with interest the article published by Laxpati et al¹ entitled “Unexpected Decrease in Shunt Surgeries Performed During the Shelter-in-Place Period of the COVID-19 Pandemic”. The authors reported an unexpected decrease in the number of shunt-related procedures performed during the beginning of the pandemic. Sahoo et al² observed a similar pattern in a predominantly adult population, where surgeries for hydrocephalus reduced from an average of 2.7/d pre-COVID to 1.9/d during the COVID pandemic, although the latter figure could be confounded by the number of elective procedures. One would expect that the incidence of hydrocephalus, and the rate of shunt malfunction, an urgent neurosurgical issue requiring surgical exploration, should remain relatively unchanged. Environmental factors, such as decreased physical activity, reduced exposure to other children, or lifestyle changes, have been suggested as potential reasons for changes to shunt malfunction rate.¹

The volume of elective neurosurgery at our institution, Birmingham Children’s Hospital, one of the larger pediatric units in the UK, has decreased due to workforce redeployment to other critical areas of the healthcare system during the pandemic. Our total operative procedures have decreased from 565 and 582 cases in 2018 and 2019, respectively, to 471 cases in 2020. However, our shunt activities have remained unchanged. In 2018, 2019, and 2020, 90 (46 insertions, 44 revisions), 90 (47 insertions, 43 revisions), and 91 (37 insertions, 54 revisions) shunt procedures were carried out, respectively. As a result, shunt surgeries have contributed to a higher percentage of our overall operative workload during the pandemic. Ventricular access device was excluded from our total numbers, as it is a temporizing procedure not necessarily with an intent of permanent cerebrospinal fluid diversion.

The baseline volume of shunt surgeries carried out in Laxpati et al’s institution is high with up to 64 surgeries carried out over a 4-wk period alone in 2019 (2.3/d), which is significantly more than our institution (0.25/d). As the authors suggested, it would be useful to know whether the shunt activity remains low, or there has been a return to the pre-COVID level, eg, by analyzing a 6- to 12-mo dataset starting from March 2020. Such updated information would shed light on whether (1) their findings were a statistical anomaly; (2) the decreased number was due to non-time-sensitive cases, eg, asymptomatic shunt malfunction, which did not present during the original 4-wk study period; or (3) there were truly environmental factors at play.

Despite the significant decrease in shunt surgeries, Laxpati et al has not observed an increase in possible shunt-related deaths at the time of the publication. This has led them to contemplate that perhaps a proportion of shunt revisions during the pre-COVID periods were not as time-sensitive as previously thought or surgery was not indicated in some cases. While the exact COVID-associated environmental factors affecting the incidence of hydrocephalus and shunt malfunction rate are debatable, the pandemic has more definitely increased the parents’/guardians’/patients’ threshold for attending hospital, which affected the number and severity of presentation.³ Consequently, the proportion of asymptomatic shunt revisions or negative shunt explorations may also vary between the pre-COVID and COVID periods, as the authors suggested. However, the evaluation of shunt malfunction is challenging enough at the best of times, and we appreciate the complex, interplaying factors discussed above are difficult to assess from a retrospective administrative database review.

In 2013, our department introduced the clinical nurse specialist (CNS) service, which provides (1) inpatient education at the time of the shunt insertion or subsequent revisions, and (2) ad hoc telephonic support for concerned parents. In 2018, we also started a weekly CNS-led telephonic clinic that reviews predominantly children with shunts. This service has improved families an understanding of shunt malfunction “red flag” signs, enabled more consistent and reliable clinical assessment, and provided a “safety-net” mechanism from the time of shunt insertion.

There is evidence that the involvement of CNS care leads to reduced rehospitalization as well as improved health outcomes and patient satisfaction in non-neurosurgical chronic conditions.⁴ We believe that good communication between the families and our CNS is a main contributor of reducing unnecessary shunt-related presentations, but, on the other hand, the telephonic service identifies decompensating hydrocephalus, which would otherwise present late to the department. Since the pandemic began, anxiety to attend hospital has understandably increased and face-to-face appointments have decreased. The CNS telephonic service has provided families with reassurance and maintained continuity of care for pediatric patients with shunts, and may partly explain the unchanged shunt activity in our institution. Jalloh et al³ has reported a 7-fold increase in calls to the pediatric neurosurgery specialist nurses during the pandemic, reflecting the important role of telephonic communication.

The full impact of the pandemic on neurosurgical elective and emergency care remains to be elucidated. It would be interesting for readers to learn the trajectory of numbers once again as the pandemic restrictions are eased, at any institution that observed reduced numbers during the pandemic—in particular the number of shunt revisions.

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