Impact of accelerated access to molecular diagnostics on empirical use of acyclovir in suspected encephalitis: A case-control study

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ABSTRACT

Introduction: Lacking of herpes simplex virus (HSV) Polymerase Chain Reaction (PCR) diagnostic testing in Sarawak government facilities often leads to unnecessary prolonged empirical acyclovir treatment duration in patients with suspected encephalitis. In 2017, Clinical Research Centre (CRC) Sibu Hospital set up a PCR laboratory for on-site and accelerated access collaboration. Our study aimed to compare treatment duration, cost of acyclovir, length of stay, and adverse drug reactions related to acyclovir usage before and after the availability of the HSV PCR diagnostic test. **Methods:** This was a case-control study. HSV results and case notes of patients started with empirical acyclovir for suspected HSV encephalitis admitted to five specialist hospitals in the central and northern zones of Sarawak during the pre-intervention period (January 2017-October 2018) were traced (control). During the post-intervention period (November 2019 - December 2020) patients with suspected encephalitis who started empirical acyclovir were recruited prospectively (case) and cerebral spinal fluid samples were tested with real-time PCR at CRC Laboratory. **Results:** A total of 195 control patients (pre-intervention period) and 124 case patients (post-intervention period) were included. Patients in the post-intervention group had significantly shorter mean acyclovir treatment duration (5.3 days vs. 4.1 days, p=0.02), length of stay (22.3 days vs. 11.6 days, p=0.026), and lower cost of innovator acyclovir (RM2076.80 vs RM1606.40, p=0.022). There was lesser adverse drug reaction in the post-intervention period (4.1% vs. 0.8%, p=0.083). **Conclusion:** Accelerated access to HSV PCR testing helps with safer, more cost-effective patient care and clinical practices as well as less burden on patients.