

## The “After Effect” Challenges of COVID-19

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Medicine is a lifelong learning and journey; this is a familiar quote for medical professional during education. The COVID-19 pandemic reminds us to this statement that we face a new emerging disease that in fact the management required multidisciplinary approach. In this issue, several clinical studies regarding COVID-19 are published. In the case report section, this issue contains a challenging series of COVID-19 patients with acute kidney injury, which in clinical settings might be found as early or late complications and management were made on patient-by-patient basis.<sup>(1)</sup> Rahmawati and Mustika and Ramadhan, et al found that liver dysfunction markers correlate with severity of COVID-19.<sup>(2,3)</sup> Indiastari D, et al, found that second waves of COVID-19 in dr. Saiful Anwar Hospital, where delta variants dominating SARS-COV2 in communities were the highest mortality rate in one hospital study.<sup>(4)</sup> Comprehensive analysis regarding these findings is necessary, since we believe that factors associated with outcome of infectious disease

comprise of agent and its' virulence properties, hosts and their defense properties which might be the aim of vaccination program, and environmental factor including healthcare support system. As this been studied by Stepanova, et al, in US that in omicron period the positive rates were high, vaccination rate was higher compare to delta period, yet the hospital bed requirement were decreased.<sup>(5)</sup>

Aside of the acute phase of COVID-19, “after effect” of COVID-19 has been state as several terminologies as long-covid, post-acute COVID-19 syndrome, COVID-19 sequellae, etc. COVID-19 has known to induce several autoimmune and immune-mediated inflammatory condition and this been reported since the early 2020, just as the pandemic begin.<sup>(6)</sup> Learning from the previous SARS-COV endemic, cardiovascular abnormalities found higher compare to healthy controls in small numbers of study by Wu, et al., 2017.<sup>(7)</sup> Findings from German by Puntmann, et al, in 2020 show that 78% have cardiac involvement on MR and 60% subjects



have ongoing myocardial inflammation after COVID-19 infection. These issues become another challenge that immune-mediated disease and cardiovascular disease may be the COVID-19 “after effects” and in this issue two articles on cardiac rehabilitation role been published.

COVID-19 strikes also challenge us, in medical education field, that we learn something new, never seen before during medical school or training. Quoting Ian Hart, “The real role of medical teachers is to promote, encourage, teach and facilitate capability and enthusiasm for self-directed and lifelong learning,” this is a great reminder for medical education practitioners to be able to encourage medical students and residents to sustain the lifelong learning spirit. In this issue, Wahono, et al, coin an issue regarding this matter. Spondyloarthritis, classification criteria and diagnostic modalities are evolving as well as the management of the disease itself, they conclude that despite recognition of spondyloarthritis terminology but the comprehensive diagnostic and initial treatment remain a challenge.<sup>(8)</sup> A continuing medical education forum might not be enough to achieve practical knowledge, yet more

studies on medical education should gain more attention after the pandemic “remind” us.

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