Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Background & Aim: Indonesia is one the countries in the world that has been severely hit by the outbreak of Coronavirus Disease 2019 (COVID-19). Weekly percentage of positive cases has been extremely increased followed by very high death rate. Amongst other symptoms, cytokine storm is typical in patients admitted to ICU. Autologous activated platelet-rich plasma (aaPRP) contains various types of growth factors and anti-inflammatory cytokines that may have a potential to suppress cytokine release syndrome (CRS) in COVID-19 cases, which is feasible to process without awaiting donors for allo-
genic treatments and only requires basic laboratory equipment. This study was aimed to evaluate the safety and efficacy of aaPRP to treat severe COVID-19 patients.

Methods, Results & Conclusion: A total of 15 severe COVID-19 patients from Koja Regional Public Hospital (Koja RPH) were admitted to the intensive care unit (ICU). All patients received aaPRP administration three times. Outcomes involving mortality rate and C-reactive protein (CRP) level were analysed.

Dyspnoea with low oxygen saturation was observed in all cases, and all patients had comorbid for COVID-19. Severe to COVID-19 was observed in all of patients, as they had increasing CRP level and low level of oxygen saturation. After three times administration of aaPRP (one every two days), the clinical conditions were significantly improved. CRP levels were significantly increased. Five patients had received intubation and put on ventilator machines during their care at ICU, while the others had maintained their conditions on high-flow nasal cannula (HFNC) and non-rebreathing oxygen face mask (NRM). Two patients passed away during this study, all were in intubation group.

Our results demonstrated that the use of aaPRP in severe COVID-19 patients was safe and aaPRP was a promising adjunctive therapy for severe COVID-19 patient.

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Exosomes
IMMORTALIZATION STRATEGIES FOR HUMAN MESENCHYMAL STROMAL CELLS FOR LARGE SCALE PRODUCTION OF EXTRACELLULAR VESICLES
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Keywords: Mesenchymal stromal cells, extracellular vesicles, immortalization.

Background & Aim: Mesenchymal stromal cells (MSCs) are considered as therapeutic agent for many diseases due to their immunomodulatory properties. Apparently, secreted extracellular vesicles (EVs) that MSCs also release in vitro mediate these activities. Indeed, we have successfully confirmed the therapeutic potential of EVs prepared from conditioned media of cultured MSCs in several animal models and a treatment resistant GvHD patient. Thus, MSC-EVs provide a promising therapeutic agent for the future. Currently, we aim to scale the MSC-EV production process for the clinical setting. However, the scaling process is limited by the life span of EV releasing cells.

Methods, Results & Conclusion: To address that issue, we have compared different strategies to immortalize primary MSCs for the production of immunomodulatory EVs. Indeed, we were able to establish immortalized clonal MSC lines which maintained their bona fide MSC features and secrete immunomodulatory active EVs. To learn whether the immortalization affects the quality of released EVs, the immune modulatory capabilities of secreted EVs were analysed in a mixed lymphocyte reaction assay. EVs isolated from immortalized MSC supernatants retained their ability to modulate immune responses in the MLR assay just like EVs harvested from supernatants of the original primary MSCs. EVs produced by these clonal cell lines will now broadly be tested in various disease models.

Importantly, batch-to-batch variations will be addressed.