

## **AUTOLOGOUS ACTIVATED PLATELET-RICH PLASMA (aaPRP) AS POTENTIAL THERAPY FOR SEVERE COVID-19 PATIENTS WITH THROMBOCYTOPENIA**

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### **Abstract**

One of the coronavirus disease 2019 (COVID-19) effects in severe level was acute respiratory distress syndrome (ARDS) caused by cytokine storm. The effective treatments of current COVID-19 therapies are still being evaluated; thus, it is necessary to find new therapies to reduce cytokine storm. Platelets contain more than 1,000 bioactive molecules including anti-inflammatory cytokines that could help in the improvement of COVID-19 patients. However, some patients who were infected by COVID-19 had low level of platelets (thrombocytopenia), lead the safety of therapy based on platelets should be evaluated. This study aimed to evaluate the safety and efficacy of autologous activated platelet-rich plasma (aaPRP) treatment to thrombocytopenia patients who were infected by COVID-19. A total of two patients of severe COVID-19 who confirmed with thrombocytopenia from Koja Regional Public Hospital (Koja RPH) were admitted to the intensive care unit (ICU) and received aaPRP intravenously for three times (day 1, 3 and 5). Patients were monitored during hospitalization including length of stay, the need of oxygen, and time of recovery. All laboratory data including haematology and CRP level were recorded. Cytokine level of pro- and anti-inflammatory markers including interleukin (IL) 4, 6, 10 and TNF alpha were measured. Chest X-ray data were evaluated. The results showed that both of patients were recovered and discharged from hospital in good condition in less than two weeks of care. In the last laboratory checkup data, one patient had normal thrombocyte level while the other slightly increased. All oxygen saturation was increased into normal range parallel with the improvement of chest X-ray findings. The cytokine level of IL4 and IL6 were in the normal range, while IL10 and TNF alpha were in elevated level until patients were discharged. Based on the results, it can be concluded that aaPRP treatment is safe and potential to apply in COVID-19 patient even if the patient has less concentration of thrombocytes.

**Keywords:** Platelet-rich plasma, Autologous, Thrombocytopenia, COVID-19