

Research Protocol

TITLE: the Mechanism of the Downregulation of Dopamine Receptor in Mechanical Ventilation Induced Lung Injury

PROTOCOL ID: XHEC-C-2020-084

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Materials and methods

1. Patients recruitment

Research protocol was approved by Xinhua Hospital Ethics Committee Affiliated to Shanghai Jiao Tong University School of Medicine. With written informed consents given by all patients, individual information and blood sample were collected.

Fifty patients who developed sepsis are considered for enrollment into the study. Inclusion criteria were patients with sepsis defined as SIRS combined with an infectious episode and dysfunction of one or more organ and age older than 18 years. SIRS is considered to be present when patients have more than one of the following clinical findings: Body temperature higher than 38°C or lower than 36°C ; Heart rate higher than 90/min; Hyperventilation evidenced by respiratory rate higher than 20/min or PaCO₂ lower than 32 mmHg; White blood cell count higher than 12,000 cells/ μ l or lower than 4,000/ μ l . Healthy subjects with no previous history provided blood samples as controls. Exception criteria: patients younger than 18; women during pregnancy or lactation; being involved in other clinical subjects. Acute Physiology and Chronic Health Evaluation II (APACHE II) and Sequential Organ Failure Assessment (SOFA) scores were assessed at the time of patient enrollment.

2. Blood sample collection and preparation:

Blood samples were collected from patients within 24 hours after the diagnosis of sepsis and from the healthy volunteers. Serum or plasma was separated by centrifugation and stored at -80°C until use. R-spondin1-4 and the biomarkers of endothelial dysfunction, for example, vWF, VEGFR1, TM, sFLT, etc will be detected according to the instructions of manufacture.

3. Statistical analysis

All data were presented as mean \pm SEM. Comparisons of plasma Rspos between septic patients and healthy controls were performed using a paired two-sided Student t test. Comparisons of baseline characteristics of included and excluded patients were performed using two-sided Student t test or chisquare test as appropriate. Correlations between Rspos and other markers were investigated by means of scatter plots and Spearman rank correlation coefficients. A value of $p < 0.05$ was considered to indicate statistical significance. Statistical analyses were performed with SPSS Statistics 22.