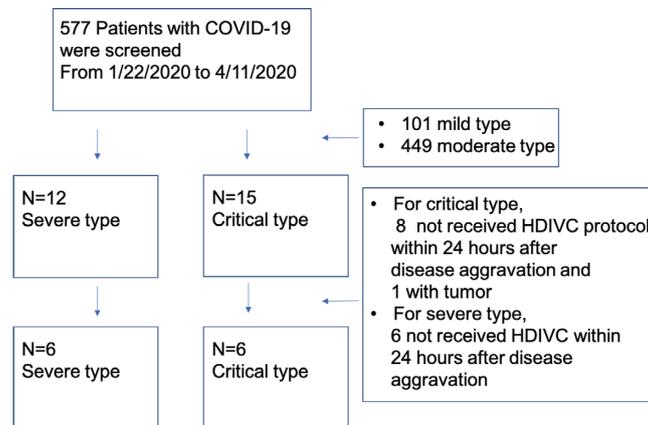
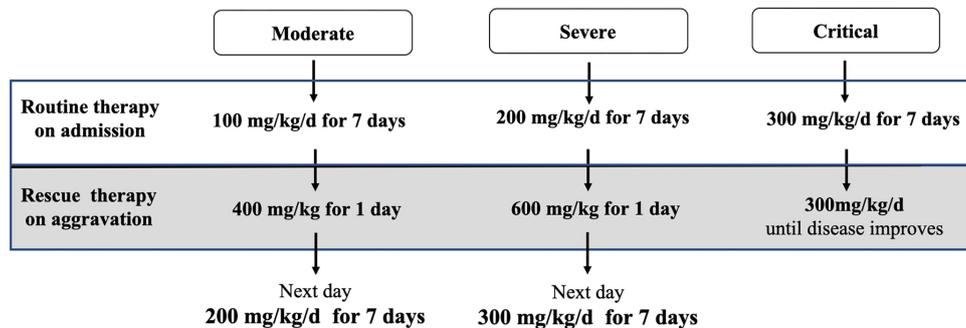


**Table S1** Classification of COVID-19 severity

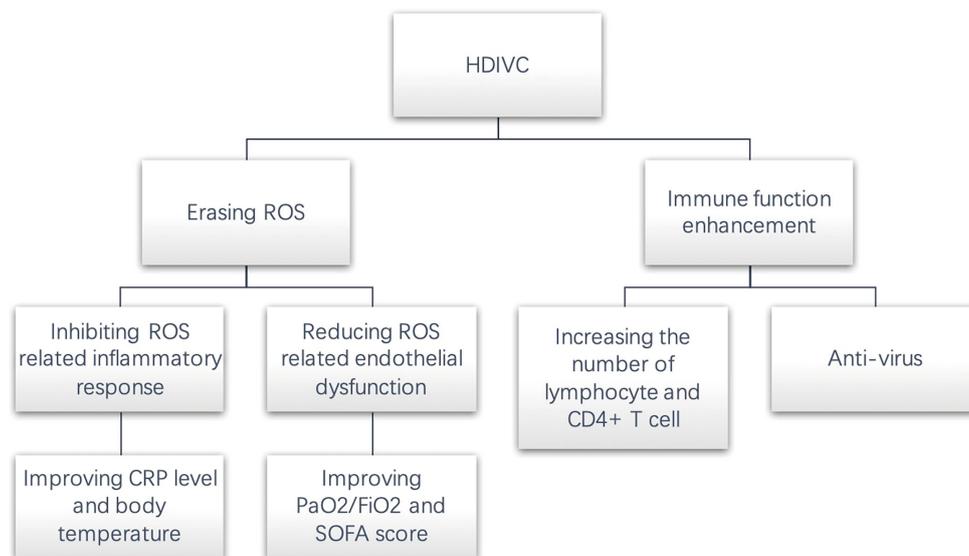
Severity	Severity description
Mild	The clinical symptoms were mild, and no pneumonia manifested on imaging examination
Moderate	With fever, respiratory tract and other symptoms, imaging examination showed pneumonia
Severe	Meet any of the followings: 1. Shortness of breath, respiratory rate $\geq 30$ times/min; 2. In resting state, arterial oxygen saturation ( $\text{SaO}_2$ ) $\leq 93\%$ ; arterial partial pressure of oxygen, $\text{PaO}_2$ /fraction of inspired oxygen ( $\text{FiO}_2$ ) $\leq 300$ mmHg (1 mmHg =0.133 kPa). At high altitudes (above 1,000 m), $\text{PaO}_2/\text{FiO}_2$ should be corrected according to the following formula: $\text{PaO}_2/\text{FiO}_2 \times [\text{Atmospheric Pressure (mmHg)}/760]$ ; 3. Pulmonary imaging showing lesions progressed significantly within 24 to 48 hours, and those with more than 50% of the lesions were managed as severe
Critical	Meet any of the followings: 1. Require mechanical ventilation; 2. Shock occurs; 3. Combination with other organ failure requiring ICU monitoring and treatment



**Figure S1** Flowchart of the study. HDIVC, high dose intravenous vitamin C; COVID-19, coronavirus disease 2019.



**Figure S2** The potential beneficial effect of HDIVC on COVID-19 pneumonia. CRP, C-reactive protein; SOFA, sequential organ failure assessment; HDIVC, high dose intravenous vitamin C; COVID-19, coronavirus disease 2019.



**Figure S3** Flowchart of HDIVC protocol. The application of HDIVC protocol varied on the disease severity which are classified into mild, moderate, severe and critical referred to the guideline of National Health and Family Planning Commission of the People's Republic of China (the seventh edition). The mild type does not need HDIVC treatment. The HDIVC for moderate, severe and critical type are mainly divided into two parts, one is the routine usage of HDIVC from admission and last for 7 days, the other is the rescue therapy after aggravation occurs, which means disease severity transfer to the worse level within 24 to 48 hours. This protocol was promoted based on the previous clinical practice and research of Shanghai COVID-19 pneumonia expert group. HDIVC, high dose intravenous vitamin C; COVID-19, coronavirus disease 2019.