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Risk factors for the mortality among Hemodialysis patients with COVID-19 infection: a multicenter study from Yeolin medical foundation, 28 hemodialysis centers.

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Objectives : Understanding mortality risk factors in hemodialysis patients with COVID-19 is critical for effective management. This study aimed to identify the factors influencing mortality risk and to evaluate the efficacy of COVID-19 vaccines in this specific population.
Methods : This retrospective study analyzed clinical data from patients with COVID-19 who underwent hemodialysis at 28 affiliated centers of the Yeolin Medical Foundation between January 2020 and December 2022. Risk factors contributing to mortality were assessed through comparative analysis between survivors and deceased patients using R statistics.
Results : Of the 1,983 (±47) individuals across 28 centers, 903(45.5%) were infected with COVID-19, resulting in a mortality rate of 3.8%. Univariable analysis comparing survivors and deceased individuals revealed significant associations between mortality risk and several factors such as the omicron dominance period, age ≥65 years, dyspnea, and congestive heart failure. Notably, the frequency of vaccination, except for one dose, showed a decreasing trend in mortality risk with increasing doses. In the multivariable analysis, age ≥65 years(OR 1.04;95% CI[1.00 - 1.09],p=0.028) , dyspnea(OR1.13;95% CI [1.07 - 1.19],p<0.001), and multiple doses of COVID-19 vaccination{2 doses(OR 0.91;CI[0.86 - 0.96],p=0.001), 3 doses(OR 0.88;CI[0.84- 0.92],p<0.001), 4 doses(OR 0.88;CI[0.84 - 0.93],p<0.001), 5 doses(OR 0.87;CI[0.81 - 0.93],p<0.001)} retained significance. Mortality did not appear to be significantly affected by sex, duration of ESRD, BMI, pneumococcal vaccination status, type and total number of comorbidities, or use of immunosuppressants.
Conclusions : Hemodialysis patients with COVID-19 infection have a high mortality rate per se, and comorbidity had no effect on mortality. Age(>65) and dyspnea were associated with higher mortality rates, and the lower ORs with increasing number of vaccines suggest that vaccination is a crucial protective factor in dialysis patients.