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RISK PREDICTION OF COVID-19 INCIDENCE AND MORTALITY IN A LARGE MULTI-NATIONAL HAEMODIALYSIS COHORT: IMPLICATIONS FOR MANAGEMENT IN OUTPATIENT SETTINGS

Mathias Haarhaus^{1,2}, Carla Santos^{1,3}, Michael Haase^{1,4}, Pedro Mota Veiga^{5,6}, Carlos Lucas¹, Fernando Macário¹

¹Diaverum AB, Malmö, Sweden, ²Division of Renal Medicine, Department of Clinical Sciences, Intervention and Technology, Karolinska Institutet, Stockholm, Sweden, ³Cardiovascular Research and Development Unit, Faculty of Medicine, Porto, Portugal, ⁴Medical Faculty, Otto-von-Guericke University Magdeburg, Magdeburg, Germany, ⁵Polytechnic Institute of Viseu, School of Education, Viseu, Portugal and ⁶NECE Research Unit in Business Sciences, University of Beira Interior, Covilhã, Portugal

BACKGROUND AND AIMS: Experiences from the first wave of the 2019 coronavirus disease (COVID-19) pandemic can aid in the development of future preventive strategies. To date, risk prediction models for COVID-19-related incidence and outcomes in haemodialysis (HD) patients are missing.

METHOD: We developed risk prediction models for COVID-19 incidence and mortality among HD patients. We studied 38 256 HD patients from a multi-national dialysis cohort between March 3rd and July 3rd 2020. Risk prediction models were developed and validated, based on predictors readily available in outpatient haemodialysis units. We compared mortality among patients with and without COVID-19, matched for age, sex, and diabetes.

RESULTS: During the observational period, 1 259 patients (3.3%) acquired COVID-19. Of these, 62% were hospitalised or died. Mortality was 22% among COVID-19

patients with odds ratios 219.8 (95% CI 80.6-359) to 342.7 (95% CI 60.6-13595.1), compared to matched patients without COVID-19. Since the first wave of the pandemic affected mostly European countries during the study, the risk prediction model for incidence of COVID-19 was developed and validated in European patients only (N=22 826, AUCDev 0.64, AUCVal 0.69). The model for prediction of mortality was developed in all COVID-19 patients (AUCDev 0.71, AUCVal 0.78). Angiotensin receptor blockers were independently associated with a lower incidence of COVID-19 in European patients.

CONCLUSION: We identified modifiable risk factors for COVID-19 incidence and outcome in HD patients. Our risk prediction tools can be readily applied in clinical practice. The current study can aid in the development of preventive strategies for future waves of COVID-19.

