The impact of COVID-19 in chronic kidney disease stage 5 patients on haemodialysis in Romania

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Background:
CKD 5 is a life threatening condition irrespective of cause. Most patients reach RRT. Predominant therapy is HD. Pandemic preparedness is an important pro-active public health function.

Objectives:
1) to describe the incidence of COVID19 and IFR among CKD HD patients; 2) to evaluate the vaccination coverage among HD patients (Jan-Mar 2021); 3) to update a spreadsheet CKD5 HD 12-scenario treatment model by considering two new scenarios based on IFR: before and after vaccination.

Methods:
First two objectives use secondary data: JHSU and ECDC (secondary sources of COVID19 data) for Apr 2020-Mar 2021. The 3 NPM periods are: Apr-May 2020 (state of emergency), Jun-Dec 2020 (state of alert; vaccination -), Jan-Mar 2021 (state of alert; vaccination +). Data are taken from the Romanian Renal Registry and population data from Eurostat (available July 2021). IFR was estimated with a modified Kaplan-Meier method (Ghani,2005). A calibrated and validated CKD5 treatment model has previously been defined (10.1093/eurpub/cku161.026). Scenarios are re-run with one parameter adjusted by IFR levels. Analyses used Excel, SPSS.

Results:
n = 14300 adult HD patients in March 2020; highest incidence (risk) was recorded in Apr-May 2020: 4.5% (CI95% from 4.1 to 4.8) and 2.5% (CI95% from 2.2 to 2.7). Cumulative incidence was 6.9% vs 18.5 pmp in the general population (period 1). In the general pop COVID19 incidence was highest at 443 pmp in Nov 2020 (period 2). The IFR requires full data validation; CFR was 7.7% (CI95% from 5.97 to 9.46; period 1).
It is estimated that by Mar 2021 the IFR has decreased by 50%. Vaccination coverage in HD patients reached 94% (Apr 2021). Preliminary results from the updated model are presented. The model upholds its validity as the IFR allows for a better fine tuning of one parameter (mortality).

Conclusions:
Treatment need and inequality in service provision can be addressed with a spreadsheet model by including pandemic preparedness measures.

Key messages:
- Haemodialysis patients had a very high COVID-19 incidence and CFR during the first two months of the COVID-19 pandemic when compared with the incidence in the general population.
- Pandemic preparedness must include protection measures for patients with chronic diseases. Renal patients are particularly vulnerable given their co-morbidity.