(2% and 0.4%), 4 neurology (11.1% and 1.3%), 3 nursing unit (0.7% and 0.13%), 1 haematology (7.7% and 1.9%), 1 allergy (4.3% and 0, 61%), 1 paediatrics (10% and 2%) and other (9.1% and 3.6%). Intervention according to drug: 10 rituximab (23.3% and 11.5%), 7 infliximab (3.6% and 0.74%), 5 immunoglobulins (9.8% and 1.1%), 4 tocilizumab (16.7% and 3.3%), 3 vedolizumab (5.6% and 1.1%) and 1 reslizumab (4.3% and 0.7%). The total estimated savings from performing the interventions was 12 186.9€ (406.2€/intervention).

Conclusion and relevance Approximately half of the interventions carried out consisted of exchange to the biosimilar drug, after consensus. Although the number of interventions was low, their economic impact is important. Despite not being able to prepare these medications centrally and individually, the validation of the prescription and monitoring of the dispensations by the pharmacist is essential.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

4CPS-313 EXPERIENCE OF THE USE OF BARICITINIB IN COVID-19 PNEUMONIA

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10.1136/ejhpharm-2021-eahpconf.145

Background and importance Baricitinib is an immunosuppressive agent included as one of the therapeutic options for COVID-19 in the Spanish protocol Agencia Española del Medicamento y Productos Sanitarios.

Aim and objectives The objective was to assess the effectiveness of this drug in hospitalised but non-critically ill patients.

Material and methods An observational retrospective study was conducted in a third level hospital from 26 March to 5 May. Inclusion criteria were: hospitalised patients diagnosed with COVID-19 pneumonia and treated with baricitinib. Data collected were: age, gender, comorbidities, severe pneumonia diagnosis, ferritin and interleukin 6 (IL-6) prior to the beginning of treatment with baricitinib, standard of care according to the hospital's protocol, concomitant treatment with anakinra, duration of treatment with baricitinib, average hospital stay (AHS), deaths and hospital discharges. The data were collected from the electronic medical records and the hospital's management department.

Results 171 patients treated with baricitinib were included, with an average age of 69.5 (34–96) years. 71.3% (122) were men. 87.1% (149) had comorbidities and 73.1% (125) were diagnosed with a severe pneumonia, with 25% of them dying (31). Median duration of treatment with baricitinib was 5 days (1–12). AHS for the baricitinib group was 14.60 (3–47) days, and AHS for the whole sample of patients diagnosed with COVID-19 pneumonia was 17.2 days. 23.4% (40) of patients had high levels of ferritin (>2500 UI/L). Among them, 87.5% (35) were discharged and 12.5% (5) died. IL-6 levels were high (>40 U/L) in 29.8% (51) of patients, <40 U/L in 37.4% (64) and not measured in 32.7% (56). In the group with high IL-6 levels, 70.6% (36) were discharged and 29.4% (15) died. Among those with normal levels of IL-6, 93.8% (60) were discharged and 6.3% (4) died. 84.2% (144) of baricitinib patients were also treated with the SoC. During the hospital stay, 31.0% (53) of patients were treated with anakinra and baricitinib, 83.0% (44) were discharged and 17.0% (9) died. Global mortality of the whole sample of patients diagnosed with COVID-19 pneumonia was 18.1% (31).

Conclusion and relevance AHS for baricitinib patients was shorter than for the whole sample of COVID-19 patients. The percentage of patients with high levels of IL-6 was superior to that of patients with high ferritin, with mortality greater in patients with IL-6 >40 UI/L. Hence IL-6 level appears to be a better prognostic factor of mortality than ferritin. This could also be related to a greater patient's immune response. Regarding treatment effectiveness, mortality of patients who were treated with SoC plus baricitinib was similar to that of patients treated with anakinra plus baricitinib.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

4CPS-314 3 DAY COURSE OF LOW DOSE SUBCUTANEOUS ANAKINRA IN PATIENTS WITH REFRACTORY MODERATE–SEVERE COVID-19: A PROOF-OF-CONCEPT STUDY

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10.1136/ejhpharm-2021-eahpconf.146

Background and importance Many patients with moderate–severe COVID-19 develop immune dysregulation characterised by marked activation of innate immunity, elevation of acute phase reactants and release of proinflammatory cytokines (eg, interleukin 1 (IL-1) and IL-6), thus creating a hyperinflammatory state.

Aim and objectives To determine the feasibility and safety of fighting hyperinflammation in patients with refractory moderate–severe COVID-19 by using a 3 day course of low dose subcutaneous anakinra.

Material and methods A prospective study was conducted in two hospitals in Spain, from 1 April to 8 May 2020, of nine hospitalised patients refractory to standard-of-care treatment with laboratory confirmed SARS-CoV-2 infection, a clinical course of at least 5 days, radiological pneumonia and moderate–severe COVID-19 according to clinical/analytical criteria. Patients received a daily subcutaneous dose of anakinra 100 mg for 3 consecutive days. The primary outcome was radiological improvement 72 hours after the first administration, together with appropriate clinical and analytical changes according to a combined set of response criteria. Secondary outcomes included incidence of serious adverse events, mortality, need for invasive ventilation at days 3 and 14, and days of hospitalisation.

Results All patients (aged 48–88 years) had bilateral pneumonia and received hydroxychloroquine; 7 received azithromycin, 5 ceftriaxone, 3 cyclosporine, 2 lopinavir/ritonavir, 1 interferon and 6 corticosteroids. Anakinra was introduced between 1 and 17 days (median 8 days) after admission. Six patients reached the primary outcome at day 3. An improvement in

the chest X-ray at day 3 was observed in 7 of the 9 patients, and no radiological worsening was recorded in the 2 other patients. Median SpO_2 at baseline was 92% (IQR 88–95), with a significant improvement of 97% (IQR 96–98) ($p=0.007$) at day 3. Significant differences were also observed in various laboratory parameters between days 0 and 3. No serious adverse events were observed. On days 3 and 14, no patient had died and none required invasive ventilation. One patient died after 21 days of hospitalisation; the remaining 8 were discharged (length of stay 6–45 days).

Conclusion and relevance In this study of patients with refractory moderate–severe COVID-19, a 3 day course of low dose subcutaneous anakinra was effective and safe, resulting in radiological, clinical and analytical improvement in most cases. These observations require further evaluation in clinical trials.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

4CPS-315 EVALUATION OF THE EFFECTIVENESS OF EARLY ADMINISTRATION OF TOCILIZUMAB IN PATIENTS WITH COVID-19

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10.1136/ejhpharm-2021-eahpconf.147

Background and importance From the beginning of the COVID-19 pandemic, tocilizumab has been positioned as an effective drug to treat cytokine release syndrome, which causes acute respiratory distress in patients with SARS-CoV2 pneumonia. Throughout these months, clinical protocols have been developed that improve the effectiveness, introducing it at the onset of symptoms.

Aim and objectives To evaluate if the change in criteria for treatment with tocilizumab between the first and second waves of the COVID-19 pandemic, introducing it at the onset of symptoms, led to an improvement in its effectiveness.

Material and methods A retrospective observational study was conducted between 3 March 2020 and 15 October 2020 in patients with COVID-19 confirmed by PCR, treated with tocilizumab in a first level hospital. Demographic, clinical and pharmacotherapeutic data were collected from electronic medical records. To compare the effectiveness of treatment between the first COVID-19 wave (3 March to 31 May 2020) and the second COVID-19 wave (31 May to 15 October), we collected for each patient: days from admission to tocilizumab administration, oxygen therapy requirement, ICU stay, hospital stay and survival. Differences between quantitative and qualitative variables were analysed, applying the Student's t test and the χ^2 test ($p\leq0.005$). Statistical analysis was performed with SPSS22.0.

Results 167 patients (131 men), average age 58.9±12.6 years, were included. During the first wave, tocilizumab was administered to 100 patients. Days (average) until administration was 5±4.4. Length of hospital stay was 22.9±15.9 days. 39.0% of patients needed a stay in the ICU. Distribution of patients according to requirement for oxygen therapy: 48% high flow (HF) oxygen delivery systems, 19% low flow (LF) oxygen delivery systems and 31% with invasive mechanical ventilation. Two patients did not require oxygen therapy. The mortality rate was 28%. During the second wave, tocilizumab was administered to 67. Days (average) until administration was 2 ±2.2. Length (average) of hospital admission was 13.1±10.4 days. 10.1% of patients needed a stay in the ICU. Distribution of patients according to requirement for oxygen therapy: 11.6% HF and 88.4% LF. The mortality rate was 11.6%. We found statistically significant differences in length of hospital stay and mortality rate between the two groups.

Conclusion and relevance The study showed that early administration of tocilizumab increased survival, decreased ICU income and shortened hospital stay. A limitation of our study was the lack of comparison between inflammatory parameters before and after administration. Further studies are needed.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

4CPS-316 MULTIPLE SCLEROSIS OUTPATIENT PHARMACEUTICAL CARE BY AN IMPLANTED TELEPHARMACY TOOL DURING SARS-COV-2 PANDEMIC

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10.1136/ejhpharm-2021-eahpconf.148

Background and importance The SARS-CoV-2 pandemic has highlighted the need to avoid exposure of patients to places with a high probability of transmission, such as hospitals. Home delivery makes this possible, particularly in patients with disabilities and those especially vulnerable to coronavirus infection due to their drug therapy or previous pathology, such as multiple sclerosis (MS)

Aim and objectives To describe the telepharmacy system implanted in a teaching hospital for MS outpatients, based on telephone consultations and home delivery medication, from 25 March to 30 September.

Material and methods A logistic system was organised and implemented to ship medication to patient's residence, after a telephone pharmaceutical care interview. The following data were recorded: total home deliveries made by the outpatients pharmacy department (OPD), total patients attended by this system, total home deliveries made by OPD for MS patients and total MS patients attended by telepharmacy. All deliveries for MS patients requiring refrigeration conditions were also registered.

Results From 25 March to 30 September 2020, we performed 2166 home deliveries of 10 different MS medicines (24.0% of the total telepharmacy shipments made by OPD during this period). Up to 772 MS patients benefited from the telepharmacy system (75.0% of the total MS patients attended by our OPD). Almost 20% of these shipments required refrigeration. At the beginning, when lockdown was imposed in Spain, shipments for MS outpatients accounted for 23.2% of the total. Afterwards, with concrete conditions to maintain this system (reduced mobility, elderly, pluripathology), the percentage of MS patients attended by telepharmacy and also home delivery increased to 32.6% of the total.

Conclusion and relevance The development of telepharmacy has become a useful and necessary tool for the delivery of specialised pharmaceutical care, especially during the pandemic where patients with certain medical conditions, such as MS, were at risk. This made it possible to guarantee continuity of care for a large number of MS patients, avoiding hospital