declared, Akpabio Akpabio: None declared, Ranjeny Thomas: None declared, Suleman Bhana Consultant of: AbbVie, Horizon, Novartis, and Pfizer (all <\$10,000) unrelated to this work, Wendy Costello: None declared, Rebecca Grainger Speakers bureau: Abbvie, Janssen, Novartis, Pfizer, Cornerstones, Jonathan Hausmann Consultant of: Novartis, Sobi, Biogen, all unrelated to this work (<\$10,000), Jean Liew Grant/research support from: Pfizer outside the submitted work, Emily Sirotich Grant/research support from: Board Member of the Canadian Arthritis Patient Alliance, a patient run, volunteer based organization whose activities are largely supported by independent grants from pharmaceutical companies, Paul Sufka: None declared, Philip Robinson Speakers bureau: Abbvie, Eli Lilly, Janssen, Novartis, Pfizer and UCB (all <\$10,000), Consultant of: Abbvie, Eli Lilly, Janssen, Novartis, Pfizer and UCB (all <\$10,000), Pedro Machado Speakers bureau: Abbvie, BMS, Celgene, Eli Lilly, Janssen, MSD, Novartis, Pfizer, Roche and UCB, all unrelated to this study (all <\$10,000), Consultant of: Abbvie, BMS, Celgene, Eli Lilly, Janssen, MSD, Novartis, Pfizer, Roche and UCB, all unrelated to this study (all <\$10,000), Milena Gianfrancesco: None declared, Jinoos Yazdany Consultant of: Eli Lilly and AstraZeneca unrelated to this project
DOI: 10.1136/annrheumdis-2021-eular.2984

OP0287

IMMUNOMODULATORY THERAPIES FOR SEVERE FORMS OF COVID-19: A SYSTEMATIC LITERATURE REVIEW TO INFORM EULAR POINTS TO CONSIDER

A. Alunno¹, A. Najm², X. Mariette³, J. Emmel⁴, L. Mason⁴, G. De Marco⁵, D. McGonagle⁵, P. Machado⁶. ¹Rheumatology Unit, University of Perugia, Department of Medicine, Perugia, Italy; ²Institute of Infection, Immunity and Inflammation, University of Glasgow, College of Medical Veterinary and Life Sciences, Glasgow, United Kingdom; ³Paris-Saclay University, AP-HP, INSERM, Le Kremlin Bicêtre, France; ⁴Leeds Teaching Hospitals NHS Trust, Library & Evidence Research Centre, Medical Education, Leeds, United Kingdom; ⁵University of Leeds, Leeds Institute of Rheumatic and Musculoskeletal Medicine, Leeds, United Kingdom; ⁶University College London, Centre for Rheumatology & Department of Neuromuscular Diseases, London, United Kingdom

Background: The severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) pandemic is a global health problem. Beside the specific pathogenic effect of SARS-CoV-2, a deleterious aberrant non-effective host immune response plays an important role especially in severe forms of COVID-19. There is intense investigation to explore the utility of immunomodulatory drugs commonly used in the Rheumatology arena as agents that may mitigate against COVID-19 to improve disease prognosis. Rheumatologists are used to the utilization of these immune targeted therapies.

Objectives: To summarize the available information on the use of immunomodulatory agents in severe COVID-19.

Methods: As part of a EULAR taskforce, a systematic literature search was conducted from January 2019 up to December 11, 2020. Two reviewers independently identified eligible studies according to the PICO framework P (population): patients with SARS-CoV-2 infection; I (intervention): any immunomodulator agent/strategy; C (comparator): any comparator; O (outcome) any clinical outcome including but not limited to mortality, admission to intensive care unit and clinical improvement. Data on efficacy and safety of immunomodulatory agents utilized therapeutically in SARS-CoV-2 infection at any stage were extracted. The risk of bias was assessed using validated tools.

Results: Of 60372 records, 401 articles were eligible for inclusion. Studies were at variable risk of bias. Randomised controlled trials (RCTs) were available for the following drugs: hydroxychloroquine (N=12), glucocorticoids (N=6), tocilizumab (N= 4), convalescent plasma (N=4), interferon beta (N=2), IVIg (N=2) and N=1 each for anakinra, baricitinib, colchicine, leflunomide, ruxolitinib, interferon kappa, and vilobelimab. For glucocorticoids, dexamethasone reduced mortality only in patients requiring respiratory support; while methylprednisolone reduced mortality in patients aged 60 years or over. Data from RCTs on tocilizumab are conflicting and definite conclusions cannot be drawn at this point in time, but recent studies suggest possible benefit in patients requiring respiratory support. Hydroxychloroquine was not beneficial at any disease stage, one RCT with anakinra was negative, one RCT with baricitinib+remdesivir was positive, and individual trials testing some other compounds provided interesting, albeit preliminary, results.

Conclusion: Although there is emerging evidence about immunomodulatory therapies for the management of COVID-19, conclusive data is scarce with some conflicting data. Since glucocorticoids seem to improve survival in some subsets of patients, RCTs comparing glucocorticoids alone versus glucocorticoids plus anti-cytokine/immunomodulatory treatment are warranted. This SLR informed the initiative to formulate EULAR points to consider on pathophysiology and use of immunomodulatory therapies in COVID-19.

Figure 1. Forest plots showing the risk ratio (RR) and 95% confidence interval for mortality in randomized controlled trials divided by intervention. The latest follow-up available is reported in the timing column.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.3367

OP0288

MACHINE LEARNING ALGORITHMS TO PREDICT COVID-19 ACUTE RESPIRATORY DISTRESS SYNDROME IN PATIENTS WITH RHEUMATIC DISEASES: RESULTS FROM THE GLOBAL RHEUMATOLOGY ALLIANCE PROVIDER REGISTRY

Z. Izadi^{1,2}, M. Gianfrancesco², K. Hyrich^{3,4}, A. Strangfeld⁵, L. Gossec^{6,7}, L. Carmona⁸, E. Mateus^{9,10}, S. Lawson-Tovey^{4,11}, L. Trupin², S. Rush², G. Schmajuk^{2,12}, L. Jacobsohn², P. Katz², S. Al Emadi¹³, L. Wise¹⁴, E. Gilbert¹⁵, M. Valenzuela-Almada¹⁶, A. Duarte-Garcia¹⁵, J. Sparks¹⁷, T. Hsu¹⁷, K. D'Silva¹⁸, N. Serling-Boyd¹⁹, S. Bhana²⁰, W. Costello²¹, R. Grainger²², J. Hausmann^{23,24}, J. Liew²⁵, E. Sirotich^{26,27}, P. Sufka²⁸, Z. Wallace¹⁸, P. Machado^{29,30,31}, P. Robinson^{32,33}, J. Yazdany². ¹University of California, San Francisco, Department of Epidemiology and Biostatistics, San Francisco, United States of America; ²University of California, San Francisco, Division of Rheumatology, Department of Medicine, San Francisco, United States of America; ³The University of Manchester, Centre for Epidemiology Versus Arthritis, Manchester, United Kingdom; ⁴Manchester Academic Health Science Centre, National Institute of Health Research Manchester Biomedical Research Centre, Manchester University NHS Foundation Trust, Manchester, United Kingdom; ⁵German Rheumatism Research Center (DRFZ Berlin), Epidemiology and Health Care Research, Berlin, Germany; ⁶Sorbonne Université, INSERM, Institut Pierre Louis d'Epidémiologie et de Santé Publique, Paris, France; ⁷University Hospitals Pitié Salpêtrière - Charles Foix, Rheumatology, Paris, France; ⁸Instituto de Salud Musculoesquelética (InMusc), Department of Rheumatology, Madrid, Spain; ⁹Portuguese League Against Rheumatic Diseases (LPCDR), Rheumatology, Lisbon, Portugal; ¹⁰European League Against Rheumatism (EULAR) Standing Committee of People with Arthritis/Rheumatism in Europe (PARE), Rheumatology, Kilchberg, Switzerland; ¹¹University of Manchester, Centre for Genetics and Genomics Versus Arthritis, Centre for Musculoskeletal Research, Manchester, United Kingdom; ¹²San Francisco VA Healthcare System, Department of Rheumatology, San Francisco, United States of America; ¹³Hamad Medical Corporation, Rheumatology Department, Doha, Qatar; ¹⁴University of Southern California, Division of Rheumatology, Department of Internal Medicine, Los Angeles, United States of America; ¹⁵Mayo Clinic, Department of Rheumatology, Rochester, United