

Supplementary Material

Characteristics and Outcome of Critically Ill Patients with Systemic Rheumatic Diseases Referred to the Intensive Care Unit

Mathias Schneeweiss-Gleixner, MD, PhD¹; Caroline Hillebrand, MD²; Stephanie Jaksits, MD²; Jonathan Fries, MSc³; Michael Zauner, MSc²; Gottfried Heinz, MD⁴; Gürkan Sengölge, MD⁵; Thomas Staudinger, MD⁶; Christian Zauner, MD¹; Daniel Aletaha, MD²; Klaus P. Machold, MD²; Peter Schellongowski, MD⁶; Manuel Bécède, MD^{2,7,8}

Supplemental Table 1: Distinctive reasons for ICU admission

Variable	SRD-related (n=56)	Co-existent SRD (n=136)
Shock, No. (%)	9 (16.1)	37 (27.2)
Hyperinflammatory, No. (%)	7 (12.5)	0 (0)
Hemorrhagic, No. (%)	2 (3.6)	1 (0.7)
Septic, No. (%)	0 (0)	26 (19.1)
Cardiogenic, No. (%)	0 (0)	5 (3.7)
Hypovolemic, No. (%)	0 (0)	4 (2.9)
Anaphylactic, No. (%)	0 (0)	1 (0.7)
Cardiogenic event, No. (%)	1 (1.8)	21 (15.4)
Myocardial Infarction, No. (%)	1 (1.8)	2 (1.5)
Cardiac arrest, No. (%)	0 (0)	11 (8.1)
Hypertensive crisis, No. (%)	0 (0)	6 (4.4)
Arrhythmia, No. (%)	0 (0)	1 (0.7)
Pulmonary embolism, No. (%)	0 (0)	1 (0.7)
Respiratory failure, No. (%)	32 (57.1)	59 (43.4)
Interstitial lung disease, No. (%)	10 (17.9)	0 (0)
Diffuse alveolar hemorrhage, No. (%)	10 (17.9)	0 (0)
Pneumonitis, No. (%)	12 (21.4)	0 (0)
Pneumonia, No. (%)	0 (0)	38 (27.9)
Pulmonary oedema, No. (%)	0 (0)	9 (6.6)
COPD exacerbation, No. (%)	0 (0)	8 (5.6)
Pleural effusion, No. (%)	0 (0)	3 (2.2)
Pulmonary arterial hypertension, No. (%)	0 (0)	1 (0.7)
Neurologic failure, No. (%)	5 (8.9)	15 (11.0)
Epilepsy, No. (%)	3 (5.4)	6 (4.4)
Coma, No. (%)	0 (0)	6 (4.4)
Meningitis, No. (%)	0 (0)	2 (1.5)
Stroke, No. (%)	1 (1.8)	1 (0.7)
Cerebral hemorrhage, No. (%)	1 (1.8)	0 (0)
Urgent surgery/intervention, No. (%)	5 (8.9)	2 (1.5)
Cardiac surgery, No. (%)	3 (5.4)	0 (0)
Bowl surgery, No. (%)	2 (3.6)	0 (0)
Endovascular intervention, No. (%)	0 (0)	2 (1.5)
Other, No. (%)	4 (7.1)	2 (1.5)
Acute kidney failure, No. (%)	4 (7.1)	1 (0.7)
Acute liver failure, No. (%)	0 (0)	1 (0.7)

Abbreviations: No., number of patients; %, percent

Supplemental Table 2: Immunosuppressive/immunomodulatory therapies during the ICU Stay

Variable	Years 2012-2020	Years 2012-2016	Years 2017-2020	p=
Number of Patients, No. (%)	192 (100)	95 (49.5)	97 (50.5)	
SRD-related, No. (%)	56 (29.2)	26 (27.4)	30 (30.9)	0.636
Co-existent SRD, No. (%)	136 (70.8)	69 (72.6)	67 (69.1)	0.636
Immune therapy during ICU, No. (%)	68 (35.4)	36 (37.9)	32 (33.0)	0.547
Biological, No. (%)	17 (8.9)	7 (7.4)	10 (10.3)	0.613
Immunosuppression, No. (%)	31 (16.1)	21 (22.1)	10 (10.3)	0.031
Cytotoxic agents, No. (%)	23 (12.0)	11 (11.6)	12 (12.4)	>0.999
Immunoglobulins, No. (%)	23 (12.0)	9 (9.5)	14 (14.4)	0.375
>1 therapy, No. (%)	33 (17.2)	16 (16.8)	17 (17.5)	>0.999
ICU survival, No. (%)	153 (79.7)	79 (83.2)	74 (76.3)	0.283

Abbreviations: No., number of patients; %, percent; ICU, intensive care unit; SRD, systemic rheumatic disease

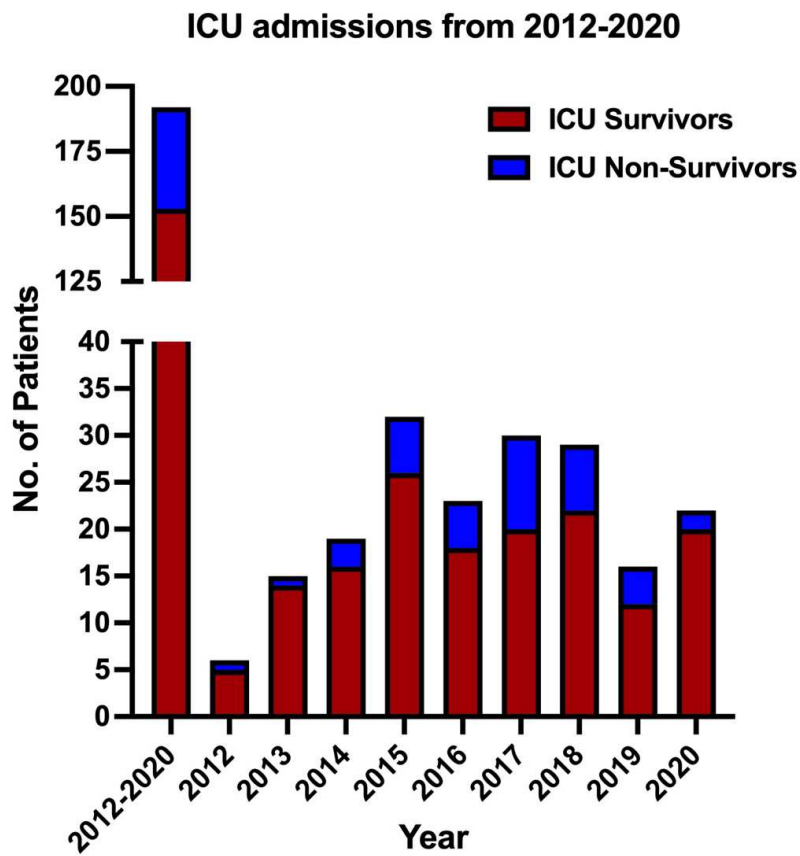
Supplemental Table 3: Comparison of SRD patients and a general ICU Population

Variable	SRD Patients (n=192)	Gen. ICU Population (n=1808)	p=
Age (years), median (IQR)	61 (45-71)	62 (49-72)	0.040
Female sex (%)	120 (62.5)	667 (36.9)	0.325
SOFA, median (IQR)	9 (6-11)	10 (7-12)	0.008
SAPSII, median (IQR)	45 (35-55)	47 (36-58)*	0.541
Reason for ICU admission			
Shock, No. (%)	46 (24.0)	444 (24.6)	0.930
Cardiogenic event, No. (%)	22 (11.5)	559 (30.9)	<0.001
Respiratory failure, No. (%)	91 (47.4)*	392 (21.7)	<0.001
Neurologic failure, No. (%)	20 (10.4)	153 (8.5)	0.346
Urgent surgery, No. (%)	7 (3.6)	59 (3.3)	0.675
Other, No. (%)	5 (2.6)	201 (11.1)	<0.001
Origin of patients			
Rheumatology ward	39 (20.3)	15 (0.8)	<0.001
Normal ward	87 (45.3)	1446 (80.0)	<0.001
ICU/emergency room	66 (34.4)	347 (19.2)	<0.001
MIV, No. (%)	116 (60.4)	1233 (68.2)	0.035
Length of MIV (days), median (IQR)	10 (4-22)	3 (0-10)	0.014
NIV only, No. (%)	46 (24.0)	139 (7.7)	<0.001
RRT, No. (%)	81 (42.2)	367 (20.3)	<0.001
ECMO, No. (%)	16 (8.4)	97 (5.3)	0.099
ECMO survival, No. (%)	8 (50.0)	28 (28.9)	0.090
ICU LOS (days), median (IQR)	10 (4-18.9)	7 (3-15)	0.006
ICU survival, No. (%)	153 (79.7)	1266 (70.0)	0.004

Abbreviations: No., number of patients; %, percent; IQR, interquartile range; SOFA, Sequential Organ Failure Assessment Score; SAPSII, Simplified Acute Physiology Score II; SRD, systemic rheumatic disease; ICU, intensive care unit; MIV, mechanical invasive ventilation; NIV, non-invasive ventilation; thp., therapy; RRT, renal replacement therapy; ECMO, extracorporeal membrane oxygenation; LOS, length of stay.

*Values available from 1568 patient

Supplemental Figures



Schneeweiss-Gleixner et al. Supplemental Figures 1: Number of ICU admissions and outcomes per year.