Correspondence to: 'Characteristics associated with hospitalisation for COVID-19 in people with rheumatic disease: data from the COVID-19 Global Rheumatology Alliance physician-reported registry' by Gianfrancesco *et al*

The recently published Global Rheumatology Alliance (GRA) physician-reported registry provides important information on COVID-19 disease morbidity patterns including characteristics associated with hospitalisation for patients with inflammatory rheumatic diseases (IRDs). Key findings reported include higher odds of hospitalisation with glucocorticoid exposure and comparatively decreased odds with anti-tumour necrosis factor biological disease modifying anti-rheumatic drugs (bDMARDs).[1] Although this registry data are exceptionally valuable, the lack of a denominator IRD population at risk has meant it is unable to provide information on the true rate of COVID-19 disease incidence in IRDs. COVID-19 data published from New York and northeast Italy suggests incidence rates in IRD which are no different from the general population.[2 3] Furthermore, GRA and EULAR reported hospitalisation rates of 46% and 49% for COVID-19 infection in IRDs,[1 4] which is at variance with the 16% from a recent New York case-series[2] suggests a potential reporting bias in registry data towards hospitalisation. The data for COVID-19 infection in IRDs therefore remain limited and requires further validation.

To address these limitations and eliminate potential reporting bias, we contacted all 7500 patients comprising 4524 with IRDs and 2976 with non-inflammatory rheumatic diseases (nIRDs) attending Trinity College Dublin aligned academic rheumatology centres, collecting data up to the end of the first pandemic wave in Ireland on 3 June 2020. Cross-referencing with test-centre positive PCR results and mortality data were performed to ensure complete collation of cases.

We identified 78 cases of PCR or physician diagnosed COVID-19, of whom 68 were community acquired (table 1) and 10 hospital acquired. No significant differences were seen in cumulative incidence/100 000 of COVID-19 between IRD (1083), nIRD (940), or incidence rates for metropolitan Dublin (887).[5] Hospitalisation rates for community acquired COVID-19 in IRD (15%), equivalent to national figures (13%) were observed.[5] Hospitalisation was more likely to occur in those receiving glucocorticosteroids ($p<0.01$) or those diagnosed with type 2 diabetes ($p<0.05$). In subgroup analysis of patients with IRD with community acquired infection (n=40), subsequent hospitalisation was statistically less likely in patients receiving long-term bDMARD therapies ($p<0.05$, table 2). This significance was lost when hospital acquired cases were included in the analysis.

Unintentional reporting bias of hospitalised COVID-19 cases to IRD registries may lead to overestimates of morbidity

Table 1 Baseline data between IRDs and nIRDs in community acquired COVID-19 (n=68)

Parameter	IRD	nIRD
COVID-19 positive (n, %)	40 (58.9)	28 (41.2)
Age in years (mean, SD)	51.8 (16.5)	56.46 (13.6)
Female (n, %)	31 (77.5)	20 (71.4)
CVS disease (n, %)	4 (10)	10* (35.7)
BMI>30 (n, %)	11 (27.5)	8 (28.6)
T2DM (n, %)	3 (7.5)	1 (3.6)
GC (n, %)	2 (5)	1 (3.6)
Incidence (per 100 000)	884	940
Diagnosis	RA 14	Costochondritis 1
	SLE 4	Fracture 9
	Sjogren's 2	Fibromyalgia 6
	JIA 2	Gout 1
	HUVS 1	EDS 1
	uCTD 5	OA 8
	PMR 1	Functional 1
	AS 4	Mechanical 1

*P<0.05

AS, ankylosing spondylitis; BMI, body mass index; CVS, cardiovascular disease; EDS, Ehlers Danlos syndrome; GC, glucocorticosteriods; HUVS, hypocomplementemic urticarial vasculitis syndrome; IRD, inflammatory rheumatic disease; JIA, juvenile idiopathic arthritis; nIRD, non-inflammatory rheumatic disease; OA, osteoarthritis; PMR, polymyalgia rheumatica; PsA, psoriatic arthritis; RA, rheumatoid arthritis; SLE, systemic lupus erythematosus; T2DM, type 2 diabetes mellitus; uCTD, undifferentiated connective tissue disease.

Table 2 Associations with hospitalisation following community acquired COVID-19

	IRD only (n=40)		All patients (n=68)	
Parameter	Non-hospitalisation	Hospitalisation	Non-hospitalisation	Hospitalisation
COVID-19 positive (n, %)	34 (85)	6 (15)	53 (77.9)	15 (22.1)
Age in years (mean, SD)	48.7 (15)	68.9* (15.1)	49.6 (13.8)	68.1*(12.2)
Female (n, %)	26 (76.5)	5 (83.3)	41 (77.4)	10 (66.7)
CVS disease (n, %)	2 (5.9%)	2 (33.3)	6 (11.3%)	8*(53.3)
BMI>30 (n, %)	8 (23.5)	3 (50)	13 (24.5)	6 (40)
T2DM (n, %)	1 (2.9)	2† (33.3)	1 (1.9)	3† (20)
csDMARD (n, %)	15 (44.1)	5 (83.3)	N/A	
HCQ (n, %)	7 (20.6)	2 (33.3)	N/A	
bDMARD (n, %)	16 (47.1)	0† (0)	N/A	
tsDMARD (n, %)	0 (0)	0 (0)	N/A	
GC (n, %)	0 (0)	2† (33.3)	0 (0)	3* (20)

*P≤0.01.

†P<0.05.

bDMARD, biological disease modifying antirheumatic drug; csDMARD, conventional synthetic disease modifying antirheumatic drug; CVS, cardiovascular disease; GC, glucocorticosteriods; HCQ, hydroxychloroquine; IRD, inflammatory rheumatic disease; T2DM, type 2 diabetes mellitus; tsDMARD, targeted synthetic disease modifying antirheumatic drug.

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while masking critically important information on the role of bDMARD therapies in preventing hospitalisation. Subanalysis of existing datasets excluding hospital acquired cases, may more rapidly identify existing individual drugs therapies, which are urgently required to improve health outcomes. Our data support recent reports that both incidence and hospitalisation rates for COVID-19 in patients with IRD are no different from the general population. Although our dataset is small, these results suggest that treatment with immunosuppressive anticytokine therapies does not lead to poorer clinical outcomes and may in fact be protective through a potential role in preventing hyper-inflammatory syndrome.[6]

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Contributors All authors obtained authorship and contributed to the data collection and analysis.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

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To cite Flood RM, Conway R, Kirby C, *et al*. *Ann Rheum Dis* Epub ahead of print: [*please include* Day Month Year]. doi:10.1136/annrheumdis-2020-218733

Received 28 July 2020
Accepted 2 August 2020

Ann Rheum Dis 2020;**0**:1–2. doi:10.1136/annrheumdis-2020-218733

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