RHEUMATOLOGY ADVANCES IN PRACTICE

Letter to the Editor (Other)

Adapted treatment of ANCA-associated vasculitis during the COVID-19 pandemic

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Key message

- Adapted management of ANCA-associated vasculitis during the coronavirus disease 2019 pandemic does not eliminate infective complications.

DEAR EDITOR, The ANCA-associated vasculitides (AAV) are multisystem diseases presenting with wide-ranging symptoms and, frequently, a long prodrome of malaise before diagnosis [1]. We observed that patterns of presentation with AAV altered during the coronavirus disease 2019 (COVID-19) pandemic, and consideration of the infection risk led us to change our treatment of the disease. We report the outcomes of patients with AAV with kidney involvement at a tertiary renal unit in the UK, covering a population of 1.6 million. We observed only one *de novo* presentation of AAV during the first lockdown in March–June 2020, followed by 11 cases in the latter part of the year (nine MPO-ANCA and two PR3-ANCA), including five during the second lockdown from November to December 2020.

In 2020, 14 patients (six female) were diagnosed with AAV, with a median age of 74 [interquartile range (IQR) 65–77] years. Patient demographics and biochemical parameters were similar to those presenting over the preceding 3 years (Table 1). The median creatinine at presentation was 351 [217–571] µmol/l, CRP 20 [9–31] mmol/l and BVAS 14 [12–17]. At diagnosis, five patients required dialysis.

Concerns about the risk of COVID-19 in immunosuppressed patients led us to diverge from established treatment recommendations. Oral immunosuppression was used as induction therapy in three patients who presented during periods of high local prevalence of COVID-19. Of these, one patient tested positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) after commencing methylprednisolone but before additional immunosuppression. This patient had a high renal risk score of 11, according to Brix *et al.* [2], and no evidence of extra-renal disease. The concern of infective complications alongside the histologically confirmed chronicity of renal disease led to the choice of oral induction immunosuppression with AZA, which was initiated 14 days after their positive swab. Oral induction therapy was used in a further two patients who were deemed at higher risk of severe COVID-19 owing to increased age. The aim of oral induction treatment was to reduce exposure to health-care environments and allow flexibility to discontinue treatment quickly if required. Of these three patients, two achieved clinical remission (one remains on dialysis and one has renal recovery; both received AZA) and one died of SARS-CoV-2 infection (who received oral CYC and had been showing early signs of renal recovery). The 11 remaining patients received CSs with i.v. CYC ($n = 7$) or rituximab ($n = 4$) according to established guidelines.

Of the patients diagnosed with AAV in 2020, three contracted SARS-CoV-2 (days 0, 42 and 48 after diagnosis). One patient tested positive after commencing CSs but before additional immunosuppression. They had a mild clinical course without requirement for oxygen therapy and made a full recovery. However, two patients died of the virus: one received standard induction therapy with i.v. CYC and one received adapted induction with oral CYC. In contrast, only two of the 50 patients diagnosed with AAV between 2017 and 2019 developed COVID-19. Both made a full recovery, although one required hospitalization and received oxygen, dexamethasone and remdesivir. The vulnerability of our cohort to COVID-19 might reflect their age and co-morbidities [3], the need for aggressive immunosuppression and their inability to shield while attending health-care settings for investigation and treatment.

The reduction in AAV diagnoses during the first wave was not replicated in the second lockdown, with five *de novo* presentations. Interestingly, three of these patients had minimal symptoms attributable to AAV and were diagnosed following investigations for acute kidney injury detected on routine blood tests, a practice minimized during the first wave [4]. The differences between waves might reflect the greater emphasis placed on maintaining routine care as the pandemic progressed [5]. Educational settings remained open and roads were busier during the second wave [6], suggesting a different behaviour pattern, and health-care services were more prepared to provide routine services.

Our observations highlight two key points. First, they emphasize how the pandemic has affected care for individuals with diseases other than COVID-19. Maintaining functional medical services and encouraging patients to access these is imperative. Second, they emphasize the vulnerability of patients with AAV to COVID-19 and the associated challenges with respect to treatment decisions. Although the concern of severe COVID-19 led us to adapt induction treatment in higher-risk patients, there are case studies of patients with COVID-19 receiving i.v. CYC and rituximab shortly after negative swabs without reported complications [7]. Furthermore, given

TABLE 1 Demographic and biochemical parameters of patients diagnosed with ANCA-associated vasculitis in 2017–2019 and in 2020

Parameter	Incident AAV cases 2017–2019 (n = 50)	Incident AAV cases 2020 (n = 50)	P-value
Age, years	71 [61–81]	74 [65–77]	0.87
Male sex	30 (60)	8 (57)	0.85
White ethnicity	49 (98)	14 (100)	0.59
ANCA subtype			
MPO	32 (64)	12 (86)	0.21
PR3	18 (36)	2 (14)	
Charlson co-morbidity index	1 [0–2]	0 [0–1]	0.45
Creatinine at presentation, μmol/l	275 [222–392]	351 [217–571]	0.31
CRP at presentation, mmol/l	46 [24–93]	20 [9–31]	0.06
BVAS	16 [14–19]	14 [12–17]	0.13
Dialysis requirement at diagnosis	16 (32)	5 (36)	0.79
Renal recovery at 3 months	9 (56)	2 (40)	0.70
Renal risk score			
Low	13 (26)	3 (21)	
Medium	28 (56)	8 (57)	0.92
High	9 (18)	3 (21)	
Initial induction treatment			
CYC and CS	38 (76)	8 (57) (1 oral)	
Rituximab and CS	12 (14)	4 (29)	–
AZA and CS	–	2 (14)	
Plasma exchange	22 (44)	1[a] (7)	
Positive SARS-CoV-2 PCR	2	3	–
COVID-19-related mortality	0	2	–

Values are expressed as the number (percentage) for categorical variables and the median [interquartile range] for continuous variables. Renal risk score is calculated according to Brix *et al.* [2]. *P*-values represent results from the χ^2 test. [a]The patient receiving plasma exchange in 2020 had dual positivity with anti-GBM antibodies. AAV: ANCA-associated vasculitis; COVID-19: coronavirus disease 2019; SARS-CoV-2: severe acute respiratory syndrome coronavirus 2.

that AAV activity is associated with severe infections, treating the underlying disease process is crucial [8]. We suggest that although adapted treatment does not eliminate the risk of adverse COVID-19 outcomes, the flexibility for treatment cessation and reduced hospital contact at times of high local prevalence might be beneficial in selected AAV patients with less severe disease or a reduced chance of renal recovery. Understanding the effectiveness of COVID-19 vaccination in patients with AAV will help to inform treatment decisions in any future waves.

Data availability statement

There are no new data associated with this article.

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