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Anaphylaxis in The Emergency Department Unit: Before and during COVID-19

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To the Editor,

After the declaration of coronavirus disease 2019 (COVID-19) as a global health emergency, healthcare systems have faced unprecedented challenges worldwide¹. During the same period emergency departments have reported a significant drop in the average number of daily accident and emergency (A&E) visits and admissions².

We undertook a retrospective audit (registration number: 10952) and enrolled patients attending our Emergency Department Unit (EDU) to investigate how this pandemic has affected the lives of patients experiencing systemic allergic reactions requiring A&E admission³. We compared adult patients attending with clinical findings of a systemic allergic reaction and mast cell tryptase elevation in the first half of 2019 from January until the end June with the same period in 2020. This period was chosen as the first cases of COVID-19 in the UK were diagnosed in January 2020⁴.

Demographics, severity of reaction according to the Brown classification being mild, moderate or severe⁵, existence of a possible trigger for anaphylaxis according to the EDU discharge letter, tryptase values during the acute reaction, management and follow-up strategies in the EDU have been evaluated.

There was a significant reduction from 62 to 10 in the number of patients attending EDU with systemic allergic reactions between 2019 and 2020 respectively (Table 1). There were no differences in age or gender between the two groups. The majority of patients in 2019 (52%) experienced mild symptoms and presented with skin and/or mucosal involvement. In 2020, 80% of attendances were with moderate reactions affecting multiple systems. The difference between these two rates was significant suggesting a reduction in the number of EDU attendances of patients with likely milder spontaneous reactions.

Existence of an obvious allergic trigger was lower in 2019 at 54%. However in 2020 according to EDU discharge letters, 8 of the 10 patients had exposure to a possible culprit trigger shortly before the reaction. Among the reactions occurring in 2020, 60% were likely drug related and followed administration of amoxicillin in four cases. Nitrofurantoin and ibuprofen were identified in single cases. Suspected food triggers in 2020 were walnut and celery each associated with a single case. Adrenaline was used in 80% of cases in 2020 and patients have all been referred to the Allergy Service.

Unlike some other countries outdoor physical activities were encouraged in the UK and increased alcohol intake has been recorded during the lockdown.⁶ Although these are considered as potential cofactors for anaphylaxis, no typical cofactor induced reaction was noted according to discharge summaries.

In summary, we believe that despite its limitations such as being an observational, retrospective, monocentric study which has possibly left out certain number of cases with normal tryptase value, this small cohort has helped us to understand what is happening in real life to patients with systemic reactions during the pandemic.

As speculated in previous reviews written about COVID-19 and anaphylaxis, a significant decrease in the number of episodes has been observed. This may be related to the closure of restaurants, reducing the number of food related anaphylaxis³. It is possible that media reports raising concerns about ibuprofen and ACE inhibitors, reduced their use and consequently drug related skin or mucosal problems. Conversely, we may also deduce from the reduction in the number of patients and the increase in the severity of reactions a fear of virus exposure and reluctance to attend emergency services unless absolutely necessary. Therefore we believe that we must continue discussing ways to increase accessibility to healthcare, to provide better prevention strategies, and to work to reduce unfavourable outcomes of this pandemic on patients with allergic conditions.

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The authors declare that they have no relevant conflicts of interest.

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Table 1. Comparison of two groups

	Pre-COVID (2019)	During COVID (2020)	<i>p</i> value
Number of adult patients attended A&E (n)	87545	64230	<0.0001
Number of adult patients attended A&E with symptoms of systemic allergic reaction and elevated tryptase value (n)	62	10	
Age (mean, <i>SD</i> , in years)	51 ± 17	45 ± 18	0.7
% female	45	40	0.7

Mast cell tryptase value (mean, <i>SD</i> , in µg/l)	19.1±8	20.8±12	0.1
Brown Classification (%)			
• Mild	52	10	0.007
• Moderate	40	80	
• Severe	8	10	
Possible culprit trigger (%)			
• Food	9	20	0.2
• Drug	40	60	
• Venom	5	0	
• Not indicated	46	20	
Adrenaline usage in EDU (%)	50	80	0.09
Referral to Allergy Service (%)	60	100	0.03

Data are summarized as number, percentage or mean ± standard deviation (*SD*).

Continuous variables were analysed using Student's t-test and "N-1" Chi-squared test. Comparisons of the qualitative data were performed with Chi-square test.