ARQUIVOS DE ASMA, ALERGIA E IMUNOLOGIA

Mastocytosis: the safety of different COVID-19 vaccines

Mastocitose: segurança de diferentes vacinas contra a COVID-19

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ABSTRACT

The COVID-19 pandemic has forced the development of vaccines to fight SARS-CoV-2. After vaccination began, reports of adverse reactions, including anaphylaxis, emerged. This raised concerns about the safety of COVID-19 vaccines in patients diagnosed with mastocytosis. The authors share their experience in administering different COVID-19 vaccines to patients diagnosed with mastocytosis.

Keywords: COVID-19, COVID-19 vaccines, mastocytosis, vaccine hypersensitivity, premedication.

RESUMO

A pandemia por COVID-19 obrigou ao rápido desenvolvimento de vacinas para combate ao SARS-CoV-2. Após o início da vacinação começaram a surgir relatos de reações adversas às vacinas, incluindo reações anafiláticas, surgindo dúvidas sobre a segurança das vacinas em doentes com mastocitose. Os autores apresentam a sua experiência em relação à administração de diferentes vacinas contra a COVID-19 em doentes com diagnóstico de mastocitose.

Descritores: COVID-19, vacinas contra COVID-19, mastocitose, hipersensibilidade a vacinas, pré-medicação.

Introduction

The COVID-19 pandemic emerged intensely worldwide and forced the scientific community to develop vaccines. After the start of vaccination campaigns, reports of vaccine reactions began to appear, including anaphylaxis. Vaccine safety has been called into question, especially regarding the possibility of triggering allergic reactions.[1,2]

Mastocytosis, a disease characterized by proliferation and accumulation of mast cells,[3] can increase the frequency and severity of immediate hypersensitivity reactions, with anaphylaxis occurring in 22%-49% of these adults.[3] There is no evidence of an increased number of vaccine reactions in adults with mastocytosis,[4] with only a few reports of adverse reactions to vaccines.[5] However, the exposure of these patients to drugs or procedures capable of triggering adverse reactions raises a degree of concern as well as some questions about whether patients with mastocytosis could safely tolerate COVID-19 vaccines. The aim of this study was to evaluate the safety of COVID-19 vaccines in a series of patients with mastocytosis.

Methods

We performed a retrospective and descriptive review of patients with a diagnosis of mastocytosis referred to our Allergy and Clinical Immunology

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department to assess the risk of allergic reaction to COVID-19 vaccines. Patients were characterized according to demographic data, mast cell disorder classification and basal tryptase levels, daily medication, and comorbidities. Data were recorded on the vaccination process, premedication, vaccine type, and complications. The anonymity of all the participants of this study was guaranteed.

Results

To date, 14 adult patients diagnosed with mastocytosis have been referred to our department. All patients were stable with no uncontrolled mast cell-mediated symptoms and were selected to be vaccinated in our department. A total of 11 patients received a COVID-19 vaccine under hospital-based supervision, whereas three refused vaccination. Of the 11 vaccinated patients, 73% (n=8) were female. Regarding mastocytosis classification, 55% (n=6) of the patients had systemic mastocytosis and 45% (n=5) had cutaneous mastocytosis. Basal tryptase levels were within the reference range (<11.4 ng/mL) in 36% (n=4) of the patients and ranged from 26.8 to 51.3 ng/mL in the remaining patients (64%, n=7). Regarding allergic comorbidities, three patients had Hymenoptera venom allergy, two patients had respiratory allergy, and one patient had idiopathic hypereosinophilic syndrome. Data on the type of vaccine and the number of doses received are summarized in Table 1. A total of 25 vaccines were administered. Only 36% (n=4) of the patients has not received a booster shot yet. The type of vaccine to be administered was randomly selected according to availability and included Comirnaty® (Pfizer-BioNtech), Vaxzevria® (AstraZeneca), or Janssen® (Johnson & Johnson). Most patients received premedication with H1-antihistamine and montelukast, once daily on the 3 days before and about 1 hour before administration, combined with H2-antihistamine administration (Table 1). All patients completed a 1-hour post-vaccination observation period. There were no adverse reactions, even in cases in which the vaccination schedule was completed with different vaccines.

Table 1
Demographic data, mast cell disorder classification, type of vaccine administered, and premedication

Age (years)	Mastocytosis	Vaccines administered	Premedication
60	CM	1st, 2nd, and booster shot: Comirnaty®	Ebastine [ab], Montelukast [ab], Famotidine [b]
67	SM	1st, 2nd, and booster shot: Comirnaty®	Ebastine [ab], Montelukast [ab]
65	SM	1st and 2nd doses: Vaxzevria®	Ebastine [ab], Montelukast [ab]
42	CM	1st and 2nd doses: Comirnaty®	None
60	SM	1st dose: Janssen®; Booster shot: Comirnaty®	Hydroxyzine [ab], Montelukast [ab], Famotidine [b]
53	SM	1st dose: Janssen®	Cetirizine [ab], Montelukast [ab], Famotidine [b]
63	SM	1st dose: Janssen®; Booster shot: Comirnaty®	Ebastine [ab], Montelukast [ab], Famotidine [b]
42	CM	1st dose: Janssen®; Booster shot: Comirnaty®	Ebastine [ab], Montelukast [ab], Famotidine [b]
36	CM	1st, 2nd, and booster shot: Comirnaty®	Ebastine [ab], Montelukast [ab], Famotidine [b]
57	CM	1st, 2nd, and booster shot: Comirnaty®	Ebastine [ab], Montelukast [ab], Famotidine [b]
68	SM	1st and 2nd doses: Comirnaty®	Ebastine [ab], Montelukast [ab], Famotidine [b]

CM: cutaneous mastocytosis, SM: systemic mastocytosis. [(a)] on the 3 days before vaccine administration, [(b)] 1 hour before vaccine administration.

Discussion

COVID-19 vaccination is recommended for all patients with mastocytosis.[5] The European Competence Network on Mastocytosis (ECNM) and the American Initiative in Mast Cell Diseases (AIM) have recently recommended, based on the opinion of experts, the administration of H1-antihistamines 30 to 60 minutes before vaccination; H1-antihistamines, montelukast, and corticosteroids can be considered on a case-by-case basis.[6] According to these recommendations, patients should be vaccinated in a health care facility equipped and experienced with the treatment of anaphylaxis, and should be observed for a period of at least 30 minutes after vaccination.[6] In this study, we report the experience of our department in administering different COVID-19 vaccines in an adult population with mastocytosis. All vaccination procedures were performed safely and without complications, regardless of patient-dependent factors or vaccine-dependent factors. There already are some reports of patients with mastocytosis who have safely received the COVID-19 vaccine.[7-12] Further studies and reports are needed to settle on the best approach to vaccinate these patients.

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