Neuropsychological Features of Adult Mastocytosis

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KEYWORDS

• Mastocytosis • Mast cell • Kit • Depression • Anxiety • Cognitive impairment • Headache

KEY POINTS

- Mastocytosis is associated with several and disabling general and neuropsychological symptoms, including pain, headache, anxiety, depression, and cognitive impairment.
- Cognitive impairment in mastocytosis is not linked to depression.
- Anxious and depression symptoms may improve after treatments by tyrosine kinase inhibitors aiming at reducing mast cell activation.

FUTURE CONSIDERATIONS

Neurologic and psychiatric symptoms should be evaluated prospectively on large cohorts of patients. In addition, they should be evaluated in children populations, which are poorly studied in this respect.

New research is needed to better understand the pathophysiology of these manifestations. The results of this research could point out the role of mast cells in neurologic and psychiatric disorders outside mastocytosis.

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INTRODUCTION

Mastocytosis is defined as an excessive accumulation of mast cells in several organs or tissues. In most cases, the disease is indolent and does not reduce life expectancy. The disease is associated, however, with an underestimated chronic disability, presumably linked to the release of mast cell mediators by abnormal mast cells that includes flushes and the well-defined gastrointestinal symptoms, cardiovascular instability, and skin involvement, in particular pruritus and esthetic concerns. In addition, it is well recognized that in almost one-third of the patients, general symptoms, including fatigue and musculoskeletal pain, could also have a major impact on the quality of life. Although less recognized and less attributed to mediators released from abnormal mast cells, symptoms, such as headache, anxiety, mood, and cognitive impairment, are frequent and should be specifically evaluated because they may require specific therapies and are associated with significant impairment of social life and professional activities. In this review, in addition to the authors' studies on psychiatric and neurologic disorders, the major recent findings concerning neuropsychological symptoms in mastocytosis are reviewed and data supporting the hypothesis that abnormal mast cell activation and to a less extent mast cell accumulation are involved in these disorders are discussed.

EPIDEMIOLOGY

Neurologic Features

Few studies are focused on neurologic symptoms associated with mastocytosis (**Table 1**). In earlier studies of a large cohort of patients, some investigators reported frequent acute or chronic headache; more rarely, syncope and acute-onset back pain; and, in a few cases, clinical and radiological features resembling or allowing a diagnosis of multiple sclerosis.[1–3] In addition, several case reports discussed rare associations between mastocytosis and various neurologic conditions, including chorea, encephalopathy, and strokes.[4–8] From these studies, it is difficult, however, to link these neurologic manifestations with abnormal mast cell activation and they may have been more fortuitous than causal. Two recent studies, however, reported neurologic symptoms on large cohorts of adult patients with mastocytosis.[2,3] First, they investigated the occurrence of headache by sending questionnaires to 171 patients with systemic mastocytosis. They received 64 responses, and 36 patients (56.2%) complained of headache.[3] These patients displayed headaches, which were classified as migraines (37.5%) or tension-type headaches (17.2%). Second, they tried to identify which complication of the disease could have an impact on the nervous system in a retrospective study of 223 adult patients with mastocytosis.[3] The most frequent symptoms they found were headache (n = 78; 35%), followed by syncope (n = 12; 5.4%), acute back

Table 1
Main neuropsychological features in mastocytosis

Neuropsychological Features	Percentage (%)	Reference
Depression and anxiety	40–60	Moura et al,[25] 2011
Headache	35–56	Smith et al,[3] 2011
Including migraine	37.5	Smith et al,[2] 2011
Cognitive impairment	38.6	Moura et al,[32] 2012
Syncope	5	Smith et al,[2] 2011
Back pain	4	Smith et al,[2] 2011
Multiple sclerosis	1.3	Smith et al,[2] 2011