

UPDATE IN RADIOLOGY

Neurologic emergencies in HIV-negative immunosuppressed patients[☆]



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PALABRAS CLAVE

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Abstract HIV-negative immunosuppressed patients comprise a heterogeneous group including transplant patients, patients undergoing treatment with immunosuppressors, uremic patients, alcoholics, undernourished patients, diabetics, patients on dialysis, elderly patients, and those diagnosed with severe or neoplastic processes. Epileptic seizures, focal neurologic signs, and meningoencephalitis are neurologic syndromes that require urgent action. In most of these situations, neuroimaging tests are necessary, but the findings can be different from those observed in immunocompetent patients in function of the inflammatory response. Infectious disease is the first diagnostic suspicion, and the identification of an opportunistic pathogen should be oriented in function of the type and degree of immunosuppression. Other neurologic emergencies include ischemic stroke, cerebral hemorrhage, neoplastic processes, and pharmacological neurotoxicity. This article reviews the role of neuroimaging in HIV-negative immunodepressed patients with a neurologic complication that requires urgent management. © 2016 SERAM. Published by Elsevier España, S.L.U. All rights reserved.

Urgencias neurológicas en el paciente inmunosuprimido no VIH

Resumen Los pacientes inmunodeprimidos no VIH (ID-no-VIH) constituyen un grupo heterogéneo que incluye a pacientes trasplantados, en tratamiento inmunosupresor, urémicos, alcohólicos, desnutridos, diabéticos, dializados, de edad avanzada o diagnosticados de un proceso grave o neoplásico. Las crisis epilépticas, el síndrome neurológico focal o la meningoencefalitis son síndromes neurológicos que requieren una actuación urgente. En la mayoría

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de estas situaciones es necesaria la realización de una prueba de neuroimagen, pero los hallazgos pueden ser diferentes a los observados en el paciente inmunocompetente en función de la respuesta inflamatoria. La enfermedad infecciosa constituye la primera sospecha diagnóstica, y la identificación del patógeno oportunista debe orientarse en función del tipo y grado de inmunosupresión. Otras urgencias neurológicas son: el ictus isquémico, la hemorragia cerebral, los procesos neoplásicos o la neurotoxicidad farmacológica. En este artículo se revisa el papel de la neuroimagen en pacientes ID-no-VIH con una complicación neurológica de manejo urgente.

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Introduction

The group of immunosuppressed patients excluding patients with AIDS diagnosis due to HIV infection (IS-non-HIV) today is made up of a very heterogeneous group when it comes to the cause of the immunologic deficiency. Thus, it includes patients that have received a transplant (both of a solid organ and bone marrow or hematopoietic stem cells), patients on immunosuppressive treatment, diabetics or uremic and/or dialyzed patients. Also individuals with immune abnormalities, without strictly showing immune suppression, such as alcoholic, malnourished, elderly patients or those diagnosed with serious diseases such as hepatopathy or neoplastic processes can be considered too.

Due to this heterogeneity, it is difficult to establish the frequency of neurologic complications based on the data from the reference here. This information is more referenced in the population of patients who received a transplant—ranging between 8 and 48 per cent.^{1–4}

The appearance of neurologic clinical manifestations in an HIV-negative immunosuppressed patient can be a trait of the existence of a severe condition. Also, signs and symptoms can be subtle and equivocal when it comes to immunocompetent patients, which complicates and delays diagnosis.^{2,5,6} Most times these patients will need to undergo imaging tests.^{7,8} In this article, we will review the role of imaging tests in the clinical management of HIV-negative immunosuppressed patients with neurologic clinical manifestations that leading to medical emergencies.

Neurological syndromes and emergencies

The neurologic syndromes that require urgent assistance in HIV-negative immunosuppressed patients can be grouped into: epileptic crises, focal neurologic syndrome or meningoencephalitis.² Epileptic crises can be caused by infectious diseases whether focal (abscess) or diffuse (meningoencephalitis).⁵ Neoplasms can also be included as causes of the crises, certain metabolic disorders or certain drugs.^{6,7,9} Non-convulsive epileptic seizures are not a special case since they are representative of a neurologic emergency with a variable clinical response, and they can be the unrecognized cause of a patient's mental alteration with

a fluctuating level of alertness. In these cases, diagnostic confirmation is achieved through electroencephalographic study.

The focal neurologic syndrome is secondary to a localized cerebral condition and it can be due to both abscesses and brain tumors. Clinical presentations are variable and depend on the location of the lesion.

Meningitis is an infection of the central nervous system (CNS) affecting the meninges. The clinical triad characteristic of this entity—fever, rigidity of the back of the neck and mental state alteration is only present in two thirds of the patients, and the sensitivity of some of these clinical findings can be very low, close to 70 per cent¹⁰ and even lower in the subpopulation of HIV-negative immunosuppressed patients due to lower inflammatory responses. Imaging studies are not indicated in the initial diagnosis of meningitis, since only half of the cases will show late enhancement of the subarachnoid space.¹¹

In the presence of encephalic condition due to an infectious process (encephalitis) a state of mental confusion is identified, as well as mental lethargy or coma.⁵ In these cases, an imaging study is indicated to establish the diagnosis of encephalitis (or abscess) and rule out any associated complications such as the presence of hydrocephaly or hemorrhages.⁵ The term meningoencephalitis is used when in the presence of findings of both meningitis and encephalitis.

Infectious complications

In general, the appearance of neurologic signs and symptoms in a HIV-negative immunosuppressed patient should not arouse suspicion of infectious pathology, especially in the presence of epileptic seizures, neurologic deficits, headaches, mental state alterations or a combination of these symptoms.²

Nevertheless, non-infectious entities should not be forgotten since they can also be present and cause urgent neurologic complications. This group includes vascular (ischemic or hemorrhagic) pathologies, encephalopathies, drug toxicities, tumor pathologies, etc. In some subpopulation of HIV-negative immunosuppressed patients, such as those recipients of a heart transplantation, these non-infectious complications are the predominant ones.¹

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