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Original article

Therapeutic plasma exchange in rheumatic
diseases: a university hospital experienceJuan Pablo Córdoba^a, Carolina Larrarte^a, Cristina Estrada^a,
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ARTICLE INFO

Article history:

Received 26 February 2016

Accepted 8 November 2016

Available online xxx

Keywords:

Plasma exchange

Rheumatic diseases

Vasculitis

Systemic lupus erythematosus

Catastrophic antiphospholipid
syndrome

ABSTRACT

Introduction: Each day, evidence accumulates related to the use of therapeutic plasma exchange (TPE) in patients with rheumatic diseases. San Ignacio University Hospital has recorded all of the TPE sessions performed by the institution's apheresis group.

Objective: To describe the TPE experience of patients with rheumatologic diseases in a hospital setting.

Methods: Descriptive, observational, retrospective analysis. This study included analyses of the TPE sessions that were performed in patients with rheumatic diseases from November 2009 to November 2013.

Results: The apheresis group performed 136 sessions in 27 patients. The mean patient age was 43 years (SD 18.5), and 59.3% of the patients were female. Regarding the diagnosis, the most frequent ones were: ANCA-associated vasculitis followed by systemic lupus erythematosus and catastrophic antiphospholipid syndrome. The average number of sessions per patient was 5 (SD 1.8), and the average plasma exchange per patient was 1.3 plasma volume replacement units. The most used replacement solution was frozen fresh plasma (FFP; 63.2% of the sessions). Of all the sessions, 4.4% presented complications, and the majority of the complications were related to vascular access. Fifteen patients required renal replacement therapy (RRT) secondary to the same cause that created the need for TPE, 3 patients required RRT due to causes other than the TPE diagnostic intervention and 1 patient had undergone chronic dialysis.

Conclusions: TPE is a therapeutic alternative that is needed for the management of patients with rheumatic diseases with renal involvement and those who are refractory to conventional management. Our clinical results were in agreement with the global literature.

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E-mail: daniel.fernandez@javeriana.edu.co (D.G. Fernández-Ávila).<http://dx.doi.org/10.1016/j.rbre.2017.01.003>2255-5021/© 2017 Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Troca plasmática terapêutica em doenças reumáticas: a experiência de um hospital universitário

R E S U M O

Palavras-chave:

Troca plasmática
Doenças reumáticas
Vasculite
Lúpus eritematoso sistêmico
Síndrome antifosfolipídica
catastrófica

Introdução: Diariamente acumulam-se evidências relacionadas com a utilização da troca plasmática terapêutica (TPT) em pacientes com doenças reumáticas. O Hospital Universitário San Ignacio registrou todas as sessões de TPT realizadas pelo grupo de aférese desta instituição.

Objetivo: Descrever a experiência do Hospital Universitário San Ignacio na TPT em pacientes com doenças reumatológicas.

Métodos: Trata-se de uma análise observacional, retrospectiva, descritiva. Este estudo incluiu análises das sessões de TPT realizadas em pacientes com doenças reumáticas de novembro de 2009 a novembro de 2013.

Resultados: O grupo de aférese realizou 136 sessões em 27 pacientes. A idade média dos pacientes foi de 43 anos (DP 18,5) e 59,3% dos pacientes eram do sexo feminino. Quanto ao diagnóstico, os mais frequentes foram: vasculite associada ao ANCA seguida de lúpus eritematoso sistêmico e síndrome antifosfolipídica catastrófica. A quantidade média de sessões por paciente foi de 5 (DP 1,8) e a média de troca plasmática por paciente foi de 1,3 unidades de substituição do volume de plasma. A solução de substituição mais utilizada foi o plasma fresco congelado (PFC, 63,2% das sessões). De todas as sessões, 4,4% apresentaram complicações, a maioria delas relacionadas com o acesso vascular. Quinze pacientes necessitaram de terapia de substituição renal (TSR) secundária à mesma causa que levou à necessidade de TPT; três pacientes necessitaram de TSR em decorrência de outras causas além da intervenção diagnóstica de TPT e um paciente tinha sido submetido a diálise crônica.

Conclusões: A TPT é uma alternativa terapêutica que é necessária para o manejo de pacientes com doenças reumáticas com envolvimento renal e daqueles que são refratários ao tratamento convencional. Os resultados clínicos do presente estudo estão de acordo com o que é encontrado na literatura global.

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Introduction

Therapeutic plasma exchange (TPE) is an extra-body therapy that involves the separation of the plasma from the blood-forming elements to eliminate circulating antibodies, immune complexes, cytokines and other inflammatory intermediaries.^{1,2} The volume of plasma drawn is simultaneously replaced with another solution, such as albumin or fresh frozen plasma.^{3,4}

TPE generates alterations in substances that may have roles in the pathophysiology of the disease. For example, TPE depletes plasma proteins, including antibodies, coagulating factors, complement components, vasoactive peptides, cytokines, hormones, minerals and other substances.^{5,6}

In 1960, Schwab and Fahey performed the first TPE in a patient with macroglobulinemia.¹ The introduction of plasma exchange into clinical practice for patients with renal and immunologic disease was performed by Lockwood et al. in 1975 in a patient with Goodpasture's syndrome. TPE associated with immunosuppressant therapy resulted in an improvement in renal function and the resolution of the patient's alveolar hemorrhage.⁷ Since then, the number of indications for this procedure has increased, with these indications initially based on anecdotal cases or non-controlled studies. The

progression of medical knowledge and the understanding of the pathophysiology of several diseases support the role of TPE as a part of the treatment of several clinical entities. The current clinical evidence supports the use of this type of therapy in several diseases, including rheumatic diseases.

Apheresis is intended to physically remove immune complexes or humoral factors. Apheresis is considered to be a treatment alternative when medical therapy has been insufficient in controlling disease activity or in some cases as a supplement to conventional therapy intended to optimize the results. However, apheresis is a temporary measure and requires subsequent medical management or repeated apheresis sessions.⁸

The utility of apheresis has been repeatedly demonstrated in patients with essential mixed cryoglobulinemia, ANCA-associated vasculitis, Goodpasture's syndrome, catastrophic antiphospholipid syndrome and other conditions.⁹

In 1960, apheresis for rheumatoid arthritis was performed. Subsequently, several studies related to TPE and leukapheresis were published, and it was reported that TPE was not effective against this disease, whereas leukapheresis was associated with a temporary response. Since 1980, other blood purification techniques have been used, including protein A column immunoadsorption for *Staphylococcus aureus*. These columns have a high affinity for the Fc portion of immunoglobulin

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