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Evaluation of the safety and efficacy of off-line extracorporeal photopheresis treatment in pediatric patients with steroid-resistant and steroid-dependent acute and chronic graft versus host disease

Agnieszka Sobkowiak-Sobierajska, Maksymilian Deręgowski, Jacek Wachowiak

Department of Pediatric Oncology, Hematology and Transplantology, Poznań University of Medical Sciences, Poland

INTRODUCTION

Steroid-resistant and steroid-dependent graft versus host disease (GvHD) is one of the leading causes of morbidity and mortality in patients undergoing allogeneic haematopoietic cell transplantation (HSCT). Extracorporeal photopheresis (ECP) is one of the treatment options in this group of patients.

The aim of the study was to evaluate the safety and efficacy of off-line extracorporeal photopheresis treatment of pediatric patients with steroid-dependent or steroid-resistant acute and chronic GvHD.

PATIENTS AND METHODS

Retrospective analysis included 9 pediatric patients aged 2-16 (median: 7 years) treated due to steroid-resistant (SR) or steroid-dependent (SD) acute (n = 7) and chronic (n = 4) GvHD in the Department of Pediatric Oncology, Hematology and Transplantology in Poznań between November 2017 and January 2020. In 2 patients, ECP therapy was administered at first because of acute and then chronic GvHD. A total of 231 ECP procedures were performed (5-74 per child). Treatment was carried out with off-line method using Spectra Optia and UVA-PIT devices. Response to treatment was assessed after 8 and after the last ECP. A complete response (CR) to the treatment was defined as a disappearance of all clinical symptoms of GvHD, a partial response (PR) - a reduction in symptoms in at least one organ, with no progression in other organs, no response (NR) meant no change in any organ or progression in at least one organ.

RESULTS

Side effects directly related to the ECP procedure were mainly electrolyte disturbances (asymptomatic hypocalcaemia in 1/9 pts and hypomagnesaemia in 7/9 pts) and hematological disturbances (mean decrease in the platelet level by 25%). In 2/9 of patients there were episodes of infection of the central vascular line used during ECP procedures. 6/7 patients with SR acute GvHD (stage III, n = 6; stage IV, n = 1) responded after 5-8 cycles of ECP. 4/7 patients achieved CR, 2/7 PR and 1/7 NR after the last ECP treatment. In 2/7 patients, ECP treatment was discontinued due to lack of efficacy (n = 1) and leukopenia (n = 1). Among patients with SR (n = 1) and SD (n = 3) chronic GvHD, PR was observed in 2/4, and CR in 2/4 after the end of ECP therapy.

CONCLUSION

Off-line extracorporeal photopheresis is an effective and safe therapeutic option for pediatric patients with steroid-resistant and steroid-dependent acute and chronic GvHD.

CONTACT

Agnieszka Sobkowiak-Sobierajska
Department of Pediatric Oncology,
Hematology and Transplantology
Ul. Szpitalna 27/33, 60-572 Poznań,
Poland
E-mail: asobkowiak@skp.ump.edu.pl