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Colonic complications following human bone marrow transplantation

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ABSTRACT

Background: Human bone marrow transplantation (BMT) becomes an accepted treatment of leukemia, aplastic anemia, immunodeficiency syndromes, and hematologic malignancies. Colorectal surgeons must know how to determine and manage the main colonic complications.

Objective: To review the clinical features, clinical and pathological staging of graft vs host disease (GVHD), and treatment of patients suffering with colonic complications of human bone marrow transplantation.

Patients and methods: We have reviewed the records of all patients that received an allogeneic bone marrow transplant and were evaluated at our Colon and Rectal Surgery department due to gastrointestinal symptoms, between January 2007 and January 2012. The study was carried out in patients who developed colonic complications, all of them with clinical, histopathological or laboratory diagnosis.

Results: The study group was constituted by 77 patients, 43 male and 34 female patients. We identified colonic complications in 30 patients (38.9%); five patients developed intestinal toxicity due to pretransplant chemotherapy (6.4%); graft vs. host disease was present in 16 patients (20%); 13 patients (16.8%) developed acute colonic GVHD, and 3 (3.8%) chronic GVHD. Infection was identified in 9 patients (11.6%).

Conclusions: The three principal colonic complications are the chemotherapy toxicity, GVHD, and superinfection; the onset of symptoms could help to suspect the type of complication (0–20 day chemotherapy toxicity, 20 and more GVHD), and infection could appear in any time of transplantation.

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Complicações do cólon após transplante de medula óssea humana

Palavras-chave:
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RESUMO

Experiência: O transplante de medula óssea humana (MOH) passou a ser um tratamento adotado para leucemia, anemia aplástica, síndromes de imunodeficiência e neoplasias hematológicas. Cirurgiões colorretais devem saber como determinar e tratar as principais complicações do cólon.
Objetivo: Revisar as características clínicas, estadiamentos clínico e patológico da doença do enxerto versus hospedeiro (DEVH) e o tratamento de pacientes padecendo com as complicações colônicas do transplante de medula óssea humana.
Pacientes e Métodos: Revisamos os registros de todos os pacientes que receberam um transplante de medula óssea alogênica e foram avaliados em nosso Departamento de Cirurgia do Cólon e Reto em função de sintomas gastrointestinais, entre janeiro de 2007 e janeiro de 2012. O estudo teve por base os pacientes que desenvolveram complicações do cólon, todos com diagnóstico clínico, histopatológico ou laboratorial.
Resultados: O grupo de estudo foi constituído por 77 pacientes, sendo 43 homens e 34 mulheres. Identificamos complicações do cólon em 30 pacientes (38,9%); cinco pacientes exibiam toxicidade intestinal por quimioterapia antes do transplante (6,4%); DEVH estava presente em 16 pacientes (20%), 13 pacientes (16,8%) foram acometidos por DEVH colônica aguda três pacientes (3,8%) DEVH crônica. Infecção foi detectada em 9 pacientes (11,6%).
Conclusões: As três principais complicações do cólon são: toxicidade por quimioterapia, DEVH e superinfecção. O surgimento dos sintomas poderia ajudar a levantar suspeitas sobre o tipo de complicação (0–20 dias, toxicidade por quimioterapia; 20 ou mais dias, DEVH). Infecções podem ocorrer em qualquer momento do transplante.

Introduction

During the 1980s the human bone marrow transplantation (BMT) became from experimental therapy for end-stage patients to its current place as an accepted treatment of leukemia, aplastic anemia, immunodeficiency syndromes, and hematologic malignancies.[1–5] The long-term disease-free survival for untransfused patients with severe aplastic anemia is up to 80% and for patients with acute nonlymphoblastic leukemia transplanted in first remission it approaches 60%,[1,2] therefore the number of allogeneic bone marrow transplantations performed worldwide increases exponentially.[6,7]

BMT may cause intestinal damage by three mechanisms: toxicity from pretransplant chemoradiation, graft-versus-host disease (GVHD), and infection in the immunosuppressed host. The main late complication of allogeneic bone marrow transplant is the GVHD.[3–5] Intestine, skin, lungs,[8] liver and lymphoid organs are the main target organs in GVHD.[4] About 30–50% of allogeneic marrow recipients will develop intestinal GVHD,[2,9–12] with a fatal outcome in up to 15%.[11] Gastrointestinal tract involvement is frequently the most severe and difficult to treat.[4]

Allogeneic bone marrow transplantation is now widely practiced, and therefore, specialist evaluations for a multidisciplinary team are now demanding; gastroenterologists and colorectal surgeons must know how to determine and manage these main colonic complications. The aim of this study is review the clinical, laboratorial, endoscopic and pathological features, and treatment of patients suffering with colonic complications of human bone marrow transplantation.

Patients and methods

We have reviewed the records of all patients that received an allogeneic bone marrow transplant and were evaluated at our Colon and Rectal Surgery department due to gastrointestinal symptoms, between January 2007 and January 2012. The study was conducted only in patients who developed colonic complications, all of them with clinical, histopathological or laboratory diagnosis.

All patients were studied and admitted by the Hematology department and Bone Marrow Transplant Clinic due to variable hematological diseases; they were evaluated by histocompatibility typing to select a suitable marrow donor using peripheral blood leukocytes to define the loci of the human leukocyte antigen (HLA) complex, and received a preparative regimen for transplantation with busulfan (16 mg per kilogram) q.i.d, over a 4 day period, plus cyclophosphamide (120 mg per kilogram) single dose, over a 2 day period, (BUCY 2 regimen) to eradicate malignant cells as well as prevent rejection of the donor marrow. The patients were placed in laminar air-flow isolation room, and all of them received prophylactic therapy with methotrexate and cyclosporine to modulate acute GVHD. A day after the preparative regimen that the patients underwent for marrow infusions was “day zero” from