STEM CELL TRANSPLANTATION IN CHILDHOOD ACUTE MYELOPROLIFERATIVE SYNDROMES.

Anca Colita[1], Luminita Dumitrache[1], Alina Tanase[1], Zsofia Varady[1] Ana Maria Bica[1], Cristina Zaharia[1], Letitia Radu[1], Mirela Asan[1], Anca Gheorghe[1], Catalin Serban[1], Alexandra Marculescu[1], Carmen Calugaroiu[1], Ileana Constantinescu[1], Ana Moise[1], Monica Dutescu[2], Aurora Dragomiristeanu[3], Ligia Barbarii[4], Carmen Constantinescu[1], Constantin Arion[1]

1 Fundeni Clinical Institute, Bucharest
2National Institute of Hematology and Blood Transfusion
3 Romanian Natinal Voluntary Stem cell Donor Registry, Bucharest
4 "Mina Minovici" Institute, Bucharest

Background. Stem cell transplantation (SCT) represents a standard therapeutical indication for high risk acute myeloblastic leukemia (AML) in first complete remission (CR), for all AML patients in 2nd CR and the only potential curative option for patients with juvenile myelo-monocitic leukemia (JMML).
Aim. To evaluate the indications and results of SCT in children with acute myeloproliferative syndromes treated in Pediatric BMT Department, Fundeni Clinical Institute, Bucharest.
Patients and methods. We present a retrospective analysis of children with acute myeloproliferative syndromes and SCT followed in Pediatric BMT Department, Fundeni Clinical Institute between 2001-2015. Transplant indication has been established according to EBMT (Europeean Group for Bone and Marrow Transplantation) recommendations. All AML patients received standard myeloablative conditioning with busulfan and cyclophospamide (Bu-Cy) and patients with JMML received busulfan-cyclo-phospahmide-melphalan (Bu-Cy-Mel). Graft versus host disease (GVHD) prophylaxis consisted in ciclosporine (CSA) and methotrexate (MTX) for sibling donors, CSA + MTX and antithymocytic globulin (ATG) for unrelated donors. All patients received antibacterial, antifungal, antiviral prophylaxis according to the internal protocols. Posttransplant evaluations included hematological, biochemical tests, viral DNA, donor chimerism with STR (short tandem repeats) on days +30, +60, +90. The IBMTR score has been used for acute GVHD staging and HIH score for chronic GVHD.
Results. We present a consecutive series of 14 children with acute myeloproliferative syndromes treated in Fundeni Clinical Institute, age range 10 moths – 15 years, male/female: 1. Transplant indications were: AML, 1st CR- 5 cases, AML, 2nd CR- 4 cases, JMML- 4 cases, myelodisplastic syndrome – refractory anemia with blast excess in transformation (AREB-t)- 1 case. The procedure has been performed using sibling donors in11/14 cases and from registry donors in 3/14 cases. In 12/14 cases there were 10/10 HLA matching and in 2/14 cases there were 9/10. The stem cell source used was peripheral blood (10/14), bone marrow (3/14) and bone marrow + cord blood (1/14). All patients engrafted after 12-20 days, without severe infectious complications during the first 30 days after transplant. The chimerism analysis showed complete donor chimerism in 13/14 cases on day +30. The follow-up showed 4 severe viral complications in 4 cases (CMV, BKV, HHV6), GVHD in 6 cases. Eight patients are in complete remission and very good clinical condition after long term follow-up: 6 months – 14 years. We registered 6 deaths: relapse after 2 years: 1 case, severe GVHD: 3 cases, CMV encephalitis: 1 case, aspiration pneumonia (infant): 1 case.

Discussions /Conclusions. SCT represents a therapeutical option for children with acute myeloproliferative syndromes associated with a better chance for cure compared with standard chemotherapy. The main complications associated with unfavorable prognosis are severe GVHD and viral infections.