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Hematopoietic stem cell transplantation

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During the past 25 years, hematopoietic stem cell transplantation (HSCT) has been accepted as routine treatment for many patients with hematologic malignancies. Hematopoiesis is the process by which all cellular elements of the blood develop. This highly complex and tightly regulated biological function is characterized by the stimulation of the pluripotent hematopoietic stem cell by various glycoproteins known as hematopoietic growth factors (HGFs). Recent laboratory and clinical observations on the biology of transplantation have challenged many of the fundamental beliefs and practices established over the past quarter century. Stem cell transplants are most often used to help people with leukemia and lymphoma. They may also be used for neuroblastoma and multiple myeloma. HSCT can be described according to the relationship between the patient and the donor and by the anatomic source of stem cells. Syngenic donors represent the best source of stem cells; unlike the use of allogenic donors, there is no risk of graft versus host disease (GVHD) and unlike the use of autologous marrow, there is no risk of the stem cells been contaminated with tumor cells. The procedure of HSCT includes diagnostic tests, initial chemotherapy, granulocyte colony-stimulating factors, Hickman catheter insertion, conditioning treatment, stem cell infusion, and supportive medication. The high doses of cancer treatment that one has before a stem cell transplant can cause problems such as bleeding and an increased risk of infection. Recent research found that novel stem cell line avoids risk of introducing transplanted tumours. Sleep deprivation affects stem cells and may reduce transplant efficiency.

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FLT3 mutations and their effect on overall survival

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Acute myeloid leukaemia (AML) is a disease of heterogenic nature. Almost one third AML patients have normal karyotype and fall in a standard risk group. Substantial proportion of AML cases possess normal karyotype and categorized by the presence of prognostic markers such as FLT3-ITD,(Internal Tandem Duplication) and TKD (Point Mutation), NPM1 and CEBPA. Tyrosine kinases mutations triggers constitutive tyrosine phosphorylation, enhance cell proliferation and development of hematologic malignancies. The clinical and prognostic relevance of the ITD mutations are reported by various authors. The association of FLT3 mutations with outcome is very important. In order to investigate the role of those mutations on overall survival present study was conducted. This was an observational cross sectional study performed at National Institute of Blood Diseases and Bone Marrow Transplantation (NIBD), from May 2010 to October 2015. About100 AML patients diagnosed on the basis of WHO classification of myeloid neoplasms 2008 were included in the study. Polymerase Chain Reaction was used to detect FLT3 mutation from peripheral blood samples. We performed Polymerase Chain Reaction and Gel Electrophoresis. The data was analysed with SPSS version 20 and independent samples t-test was performed at significance level (0.05).

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