Introduction: Bone marrow transplantation (BMT) has been known as the most effective treatment modality for a wide variety of hematologic, oncologic and metabolic disorders. A major obstacle to long-term success of BMT is its association with a serious side effect called acute graft-versus-host disease (GVHD). Despite using immunosuppressive drugs, the incidence of acute GVHD is high. The goal of present study is to investigate acute GVHD in BALB/c mice after the injection of human peripheral blood leukocytes.

Method: Immunosuppression was carried out by thymectomizing young mice and exposing to 8 Gy gamma ray. Human leukocytes were then injected and mice were studied after six days.

Result: Clinical signs of acute GVHD were seen in mice. These included humpback, curling hairs, dermatitis, diarrhea, hemorrhage, erythroderma and desquamation. Histological hyperplasia and infiltration of inflammatory cells were distinctive in spleen.

Conclusion: Initial manifestation of acute GVHD which was observed in mice and presence of reacting giant cells as well as hyperplasia showed the role of transferred leukocytes and interaction of cytokines in GVHD. Hence, we are probably able to inhibit GVHD by administering new anti-cytokine drugs.