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Background and aims: Gastrointestinal (GI) graft-versus-host disease (GVHD) is a complication relatively common within the first 100 days following allogenic hematopoietic stem cell transplantation (HSCT) but there are not specific clinical manifestations. The diagnosis of GI GVHD is based upon histologic findings in endoscopic mucosal biopsy specimens. Nevertheless the endoscopic findings varied greatly and the intestinal lesions (such as for i.e. mucosal erytema, congestion, aphthous ulcerations) can be patchy or even absent in early phases of the disease. Indeed at white light endoscopy (WLE) GI GVHD may elude detection and a normal endoscopic appearance of the mucosa does not necessarily imply normal histology. The narrow band imaging (NBI) system is a simple tool that allows detection the subepithelial microvascular architecture and mucosal microsurface structure in various pathological conditions enhancing the ability of the endoscopist to detect bowel mucosal disorders and to obtain targeted biopsy specimens. We explored the role of NBI colonscopy in the diagnosis of GI GVHD.

Materials and methods: 45 patients received allogenic HSCT at Bone Marrow Transplant Centre of Pesaro, Italy.15 patients (33%) with unexplained diarrhoea at risk for acute GI GVHD were identified to perform colonscopy with multiple biopsies of the ileum, right colon and rectosigmoid colon. The examinations were performed using NBI system (Olympus CF H180AI, Exera II). All biopsies were evaluated for GVHD by an experienced GI pathologist. The median time from transplantation was 35 days.

Results: The diagnosis of intestinal GVHD was histologically confirmed in 6/15 patients (40%). 2 patients have shown endoscopic findings characterized by extensive mucosal hyperemia, granularity, hemorragic spots, patchy erosions and multiple shallow ulcers. NBI system identified minute changes of the mucosal surface as pattern thinning, and subepithelial vessels abnormalities with microvascular network irregularities in 4 patients (3 males, 1 females, age range 19-62 years, mean age 38.2) in whom WLE was normal.

Conclusions: Colonscopy with NBI can improve diagnosis of intestinal GVHD while performing endoscopy. NBI system is a simply technique that could help identify real time areas of mucosal and vascular abnormalities in the routine endoscopic practice when colon appears normal at WLE, potentially reducing the need for blind biopsies and platelet transfusion. This initial, single centre experience demonstrates that macroscopic features are not strongly dependent on the degree of the histologic lesion. Although at present histological assessment remains the gold standard for diagnosis of acute GI GVHD, further evaluation in prospective clinical trials may be need to establish the correlation between endoscopic and histological findings.