Fibrin glue directly applied on damaged bladder mucosa during cystoscopy is highly effective to treat severe, refractory, haemorrhagic cystitis after allogeneic transplant.

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Abstract:

Background: Hemorrhagic Cystitis (HC) occurring after hematopoietic stem cell transplant (HSCT) significantly affects quality life of patients, prolongs hospitalization and in some cases can become a life-threatening complication. Its management has not been established. Fibrin Glue (FG) is a hemostatic agent derived from human plasma with proven efficacy in repairing damaged tissues. Study design and methods: This study included patients who met the following criteria: grade >=3 HC not responding to hyperhydration, bladder irrigation, antiviral treatments and transfusion support. FG was obtained using Vivostat system, an automatic method for processing and applying FG. During conventional cystoscopy and maintaining bladder distension by a CO2 insufflator, FG was accurately sprayed through a specific applicator on bleeding mucosa. FG polymerized on contact and set over several days. The response to the treatment was defined complete (CR) for disappearance of hematuria, partial (PR) for at least one grade regression of HC and no response (NR). Results: From Jan 06 to Oct 09, 626 patients undergoing an autologous (n = 428) or allogeneic (n = 198) HSCT were registered at the RTN. No autologous HSCT recipients developed HC of severe grade, whereas 18 of 198 patients (9%) undergoing an allogeneic HSCT met the criteria to enter the study. These 18 patients (6 M, 12 F) with a median age of 32.5 years (range, 18-53) had been submitted to a HSCT from HLA identical sib. (n = 4), unrelated CB (n = 4), MUD (n

= 2) or related haploidentical donor (n = 8) for different hematological malignancies. All patients, deeply immunosuppressed with positive BKV viruria >7x10⁶ copies/ml, developed a very severe HC, refractory to all current treatments including antiviral therapy. At time of FG application, HC persisted for a median of 16 days (range, 7-65) and was grade 3 and 4 in 14 and 4 patients, respectively. The number of FG applications was 1 in 15 patients, 2 in 2 and 3 in 1 patient for a median of 11 mL (range, 6.3-16.2) of glue. The treatment was successful in 16 out of 18 patients (89%). All 14 patients with grade 3 HC responded and the response was complete in 12 (86%) and partial in 2 (14%), while of the 4 patients with grade 4 HC: 1 achieved CR, 1 PR and 2 NR. No patient died of HC. Conclusions: FG therapy is a feasible, safe, easy repeatable, not invasive, small time consuming, lightly expensive and highly effective procedure in treating severe, refractory posttransplant HC.