P0794 EFFECTS OF HUMAN AMION-DERIVED MESENCHYMAL STEM CELLS (hAMSC) TRANSMISSION AND CM GEL ENEMA IN A426 MEDIUM ENEMA IN RATS WITH TRINITROBENZENE SULFONIC ACID-INDUCED COLITIS

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Introduction: Mesenchymal stem cells (MSCs) have been reported to be a valuable cell source in regenerative medicine, and bone marrow represents a major source of MSCs. Recently, it has been shown that MSC can be easily obtained from human amnion, which is generally discarded after delivery, and a large amount of cells can be obtained. We have previously reported that intravenous administration of human amnion-derived MSCs (hAMSCs) provided significant improvement in rats with colitis induced by dextran sulfate sodium or g-irradiation. In addition, conditioned medium (CM) obtained from MSCs contains a variety of humoral factors to improve damaged tissues. In this study, we investigated the effects of hAMSCs and CM in rats with 2,4,6-trinitrobenzene sulfonic acid (TNBS)-induced colitis.

Aims & Methods: hAMSCs were isolated and expanded by digestion with collagenase, followed by culturing in uncoated plastic dishes. CM was collected by culturing subconfluent hAMSCs with serum-free MEMA for 48 hrs. hAMSCs were prepared by mixing CM with 2% carbonyl cellulose. On day 0, 200 µl of TNBS (15 mg/rat) in 30% ethanol was intrarectally administered to the ten-week-old male Sprague-Dawley (SD) rats. One million hAMSCs were intravenously administered 3 hrs after TNBS treatment, and rats were sacrificed on day 7 for histological examination and quantitative PCR. In another experiment, 400 µl of CM gel was intrarectally administered 3 hrs after TNBS treatment, and day 1 and day 2.

Results: hAMSC transplantation and CM gel enema significantly improved the endoscopic score, and tended to improve the histological score. Quantitative PCR demonstrated that the expression levels of TNF-α, CXCL1 and CCL2 tended to be decreased by hAMSC transplantation and CM gel enema. Infiltrations of CD68-positive macrophages and myeloperoxidase-positive neutrophils were significantly decreased by hAMSC transplantation and CM gel enema.

Conclusion: Transplantation of hAMSCs and CM gel enema provided significant improvement in rats with colitis induced by TNBS. hAMSCs or CM from hAMSCs may be new therapeutic strategies for inflammatory bowel disease.

Disclosure of Interest: All authors have declared no conflicts of interest.

References

P0795 TERTIARY LYMPHOID ORGANS IN GUT MUCOSA OF NEWBORN MICE: IMPLICATIONS FOR IMMUNOREGULATION

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Introduction: There is recent evidence of increased naïve and central memory T lymphocytes (T N and T CM) mucosal infiltration of the inflamed gut in IBD patients allowed classification in two different groups: HEV- and HEV+. A high density of PNAd+ HEV-like vessels was associated with increased numbers of T N and T CM cells in the inflamed gut mucosa (median 87% (IQR 82–93%) of total T cell population), compared with the inflamed mucosa of patients from the HEV- group (58% (IQR 38–81%)). The number of colonic follicles was higher in HEV+ patients (median 0.54 mm−2 (IQR 0.28–0.84)) compared when HEV- patients (median 0.23 mm−2 (IQR 0.08–0.45)) p = 0.031) and controls (0.31 mm−2 (IQR 0.23–0.45) p = 0.023).

Conclusion: For the first time, evidence has been delivered of extra-follicular HEV-like vessels and TLOs, strongly associated with T N and T CM cell mucosal infiltration, in a subgroup of newly diagnosed IBD patients. Different T cell migration phenotypes based on TLO formation in the early phase of IBD might allow risk-stratification of patients and enable more effective, individualized treatment.

Disclosure of Interest: All authors have declared no conflicts of interest.

Results: A statistically significant higher number of extra-follicular PNAd+ vessels were found in the inflamed colon of patients with ulcerative colitis (median density of 3.05 PNAd+ vessels/mm−2 (IQR 0.6–3.99)) and ileum of patients with Crohn’s disease (median density of 1.40 PNAd+ vessels/mm−2 (IQR 0.4–3.49)) compared with healthy control subjects (median density of 0.34 PNAd+ vessels/mm−2 (IQR 0.0–0.0) p = 0.033) and ileum: 0 PNAd+ vessels/mm−2 (IQR 0.0–0.50, p = 0.033)). The heterogeneity of extra-follicular PNAd+ vessels in IBD patients allowed classification in two different groups: HEV+ and HEV−. A high density of PNAd+ HEV-like vessels was associated with increased numbers of T N and T CM cells in the inflamed gut mucosa (median 0.54 mm−2 (IQR 0.28–0.84)) compared when HEV+ patients (median 0.23 mm−2 (IQR 0.08–0.45)) p = 0.031) and controls (0.31 mm−2 (IQR 0.23–0.45) p = 0.023).

References