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Mesenchymal stem cell as a cure for brain damage induced by chronic *Toxocara canis* infection in an experimental mouse model**Fatma Hamed Shalan¹, Ayman Abd El-Moenem Elbadry², Amara Fathy Afifi¹, Engy Victor Nassief Beshay¹, Samar Ahmed El-Refai¹, Hala Gabr Metwaly³, Eman Ahmedy⁴, Eman Abd El-Fattah Badr⁵, Dalia Refaat Al-Sharaky⁶ and Gehan Salah Sadek¹**¹Parasitology Department, Faculty of Medicine, Menoufia University, Egypt²Parasitology Department, Faculty of Medicine, Cairo University, Egypt³Clinical Pathology Department, Faculty of Medicine, Cairo University, Egypt⁴Clinical Pathology Department, Faculty of Medicine, Menoufia University, Egypt⁵Biochemistry Department, Faculty of Medicine, Menoufia University, Egypt⁶Pathology Department, Faculty of Medicine, Menoufia University, Egypt

Neurotoxocarasis is a serious condition linked to the reduced cognitive function in children and some neurodegenerative diseases. Unfortunately, the available drugs for its treatment are with variable results. Mesenchymal stem cells (MSCs) have been used in experimental and clinical trials and it gave promising therapeutic results. Therefore, this study was designed using forty *T. canis*-infected albino mice (1000 eggs/mouse, orally) and a control group (GI) of ten healthy mice. The infected groups were GII: infected non-treated (control group), GIII: albendazole-treated (100 mg/kg/d once orally for 5 successive days), GIV: MSCs-treated (3 x 10⁶ MSCs in 0.1 mL of PBS via the tail vein) and GV: albendazole + MSCs-treated. Treatment was commenced 6 weeks p.i. and the experiment was terminated four weeks after treatment. The brain tissue of each mouse was subjected for histopathological, immunohistochemical studies (caspase-3, TGF- β), detection of *T. canis* DNA by real-time PCR and gene expression the biomarkers of brain damage (S100B, GFAP) by RT-PCR. Moreover, homing of iron oxide-labelled MSCs in brain tissues was assessed by Prussian blue stain. The brain tissues of GII showed numerous *T. canis* larvae, significant congestion, thickening of arterioles, inflammatory infiltrate and gliosis associated with marked immunohistochemical expression of TGF- β and caspase-3 as well as marked S100B and GFAP gene expression. Significant improvements of the previous parameters and *T. canis* DNA were recorded in all the treated groups. However, the best results were obtained with combined albendazole + MSCs therapy. Thus, MSCs could be considered in the treatment of chronic neurotoxocarasis.

Biography

Fatma shalan has completed her bachelor of medicine with excellent grade in 2006 from Faculty of Medicine, Menoufia University. She has completed her M.Sc. in Medical Parasitology in 2012. Her thesis was about the relationship between IL-6 and some parasitic infections in hepatic patients in Menoufia governorate. This abstract is representative of her M.D. thesis.

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