Platelet rich plasma scaffold

Cell therapy using mesenchymal stromal cells (MSCs) offers new perspectives in the treatment of traumatic brain injury (TBI). The aim of a study of Bonilla Horcajo et al. was to assess the impact of platelet-rich plasma scaffolds (PRPS) as support of MSCs in a delayed phase after severe TBI in rats.

TBI was produced by weight-drop impact to the right cerebral hemisphere. Two months after TBI, four experimental groups were established; saline, PRPS, MSCs in saline, or MSCs in PRPS was transplanted into the area of brain lesion through a small hole. All groups were evaluated in the course of the following 12 months after therapy and the animals were then humanely killed.

The results showed that a greater functional improvement was obtained after the administration of MSCs in PRPS compared with the other experimental groups.

PRPS enhanced the benefit of cell therapy with MSCs to treat chronic brain damage in rats that suffered a severe TBI. The present findings suggest that the use of intralesional MSCs supported in PRPS may be a strategy of tissue engineering for patients with established neurological severe dysfunction after a TBI [1)].

1)
Bonilla Horcajo C, Zurita Castillo M, Vaquero Crespo J. Platelet-rich plasma-derived scaffolds increase the benefit of delayed mesenchymal stromal cell therapy after severe traumatic brain injury. Cytotherapy. 2018 Jan 3. pii: S1465-3249(17)30776-4. doi: 10.1016/j.jcyt.2017.11.012. [Epub ahead of print] PubMed PMID: 29306567.