عنوان مقاله:

Myelin enhancement of Multiple sclerosis model with gold nanoparticles into the corpus callosum

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خلاصه مقاله:

Objective(s): With no substantial cost, we injected L-arginine into the rat's corpus callosum (CC) to create animal model of multiple sclerosis (MS) and investigated the pre-injection effect of gold nanoparticles (GNPs). Materials and Methods: Adult male Wistar rat (250-300 g) was surgically cannulated at the CC, and after recovery it was injected L-arginine (3-200 µg/rat, intra-CC) once daily for 3 to 5 consecutive days. GNPs (0.001-0.01 µg/rat, intra-CC) were injected alone or prior to the L-arginine using the same procedure. Control group solely received saline (1 µL/rat, intra-CC). Brain was studied with luxol fast blue. Weight change was also analyzed via the analysis of variance (ANOVA). Results: L-arginine significantly induced ($p< 0.05$) a reduction in the fiber density while the neurons increased ($p< 0.05$). Single GNPs reduced ($p< 0.05$) the fiber and neuron densities; however, pre-injection of NPs caused myelinated fibers and uniform density of neurons. Conclusion: The L-arginine may trigger demyelination by pro-inflammatory nitric oxide (NO), and the GNPs may improve this effect.

کلمات کلیدی:

Corpus callosum, Demyelination, Gold Nanoparticle, L-arginine, Multiple Sclerosis, Nitric oxide, Rat

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