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INFLUENCE OF ATRIAL NATRIURETIC PEPTIDE ON MIGRATION OF MESENCHYMAL STEM CELLS, GAINED FROM PERIRENAL RAT FAT

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Enhancing the migration potential of mesenchymal stem cells (MSCs) helps to increase the efficiency of stem cell therapy in regenerative medicine. Atrial natriuretic peptide (ANP) can be a biological active molecule that affects cellular motility, cytoskeleton and migration of MSCs. To study the role ANP in cell migration we isolated MSCsfrom rat perirenal fat and showed their adipogenic and osteogenic differentiation to confirm multipotent status of cells. Migration of MSC was studied by «wound healing» method using live cell microscopy. We have demonstrated that the addition of 10 nM ANP to the nutrient medium leds to acceleration of experimental wound healing: wound area at ANP treated MSCs was reduced to 5.2 ± 2.5 % relative to the initial values, while for the control cells (no ANP treatment) showed the result as 25.4 ± 11.8 %. The data obtained indicate thatANP increases motility of MSCs and can enhance their migration potential.

K e y w o r d s: stemcells, migration, atrial natriuretic peptide, life cell microscopy, wound-healingmethod