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Therapeutic potentials of mesenchymal stem cells on the renal cortex of experimentally induced hypertensive albino rats: The relevant role of Nrf2

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Bone marrow-derived mesenchymal stem cells (BM-MSCs) have brought great attention to the regenerative medicine field, various experimental and clinical trials were held to investigate their therapeutic effects in different disorders. We designed a histological and immunohistochemical study to evaluate the effectiveness of MSCs therapy in withhold of end-stage renal disease (ESRD) secondary to hypertension which has become a growing and striking public health problem. 30 adult male albino rats were utilized, 20 of them were exposed to experimental induction of hypertension, then divided equally to MSCs treated group (injected with 1×106 fluorescent labeled cell i.v./rat), while the second one was left without treatment. Renal specimens were subjected to histopathological, ultrastructural and immunohistochemical examination for Nrf2 in addition to biochemical estimation of serum urea and creatinine. Our results documented that BM-derived MSCs exerts the considerable reversing effect of histopathologic and ultrastructural hypertensive nephropathy. Moreover, immunohistochemical results clearly pointed to the relevant role of the Nrf2 pathway in MSCs related renal therapeutic effects.

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