

Dr. Vimla Virmani Award
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“BONE MARROW MODULATION FOR SPINAL CORD REGENERATION” – A NEW TREATMENT STRATEGY

ABSTRACT

Traumatic spinal cord injury is a significant cause of morbidity and mortality even today. It is estimated that in India itself about 20,000 fresh spinal cord injury patients are added on every year. Restoration of function by promoting spinal cord regeneration is an enormously challenging problem.

Spinal cord injury research is a new and promising field with the recent understanding of neuronal network re-establishment. In the present study, monoplegia was induced in male Wistar rats by performing a hemitranssection of the spinal cord at the level of 12th Thoracic vertebra. Animals were subsequently treated with neurotransmitter's combination and bone marrow cells for twenty one days. GABA and 5 HT receptors were down regulated in the spinal cord of the injured rats and the treatment reversed the parameters to near control values. Nuclear staining and reward seeking locomotor test support spinal cord regeneration. Our results suggest the role of neurotransmitter's combination with the bone marrow cells as a successful treatment for re-establishing the connections and functional recovery of spinal cord injury.