Summary

Replacement of the spinal cord tissue damaged in injury has been proposed as a method to increase the number of cells to maintain the integrity of the tissue. However, organ transplant does not seem to be a practical treatment for spinal cord injury ***(Schultz, 2005).***

Therefore, cell therapy has become an intriguing possibility in the field of transplant medicine. This is replacing the damaged cells with cells that offer different growth factors to endogenous cells or provide a differentiation potential for incorporation with the endogenous neural cells of the spinal cord. In the field of cell therapy, adult stem cells are emerging as a clear alternative. Stem cells are self-renewing cells that are capable of differentiating into a cell lineage ***(Kopen et al 1998).***

Adult stem cells have been isolated from a variety of different organs throughout the human body using a variety of techniques. Originally, adult stem cells were isolated from bone marrow . Marrow stromal cells are particularly attractive clinically because autologous transplantation can be performed in patients with SCI, especially if combined with the minimally invasive delivery techniques described before ***(BAKSHI et al., 2004).***

Considerable clinical experience has been collected in the administration of autologous BMSCs in patients suffering from hematological disorders and other malignancies ***(Fibbe and Noort, 2003).*** These studies have established the feasibility and safety of harvesting BMSCs in patients, expanding their numbers in vitro, and retransplanting them for therapeutic benefit ***(Koc et al., 2000).***