Clinical Applications of Stem Cells to Articular and Spinal Cord Injury in 9 Dogs

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Purpose: Stem cells are undifferentiated or blank cells that have the potential to develop into many different cell types that carry out different functions. It is known that these stem cells affect to target organs by homing effect. The purpose of this study is to evaluate the effect of stem cells for the articular and spinal cord injury in 9 dogs.
Materials and Methods: Among the dogs which were presented to Seoul National University Hospital for Animals, canine autologous adipose tissue-derived mesenchymal stem cells (MSCs) were injected intravenously for articular injury in 4 dogs and spinal cord injury in 5 dogs. The serial physical and radiographical examinations were performed, and changes of symptoms were evaluated after intravenously injection of autologous adipose tissue-derived mesenchymal stem cells. And the dogs that were injected stem cells were compared with dogs with similar state that were not injected stem cells.
Results: At 60 days after first stem cells injection, the weight bearing grade was more improved in dogs with articular injury which were injected stem cells than dogs with articular injury which were not injected stem cells. And spinal cord injury grade in dogs which were injected stem cells was more improved than spinal cord injury grade in dogs were not injected.
Conclusion: These results suggest that applications of stem cells to articular injury in dogs injected stem cells improved the degree of weight bearing grade. And spinal cord injury in dogs injected stem cells were lowered the degree of spinal cord injury. Shortening of re-ambulation time was also identified. But, the application cases were not enough. And additional study will be needed later.

Key words: Canine autologous adipose tissue-derived mesenchymal stem cells, articular injury, spinal cord injury, Dog

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