OPEN ACCESS Freely available online

Global Journal of Life Sciences and Biological Research

Commentary

Stem Cell Therapy Used in Veterinary Medicine

Priscilla Sylvia*

Department of Internal Medicine, University of Texas, Dallas, USA

ABOUT THE STUDY

The use of stem cells in stem-cell therapy is to treat or prevent a disease or condition. As of 2016, the only proven stem cell therapy is hematopoietic stem cell transplantation. The cells can be obtained from umbilical cord blood, but the procedure typically entails a bone-marrow transplant. Research is being done to create new stem cell sources and to use stem cells to treat diabetes, heart disease, and other diseases as well as neurodegenerative disorders. Following advancements like the ability of scientists to extract and culture embryonic stem cells, to produce stem cells by somatic cell nuclear transfer, and to apply procedures to create induced pluripotent stem cells, stem-cell treatment has come under fire. This debate frequently touches on issues with human cloning and abortion politics. Additionally, there has been controversy around attempts to promote therapies based on the donation of frozen umbilical cord blood.

Veterinary medicine

Research on horses, dogs, and cats has been done to help with the development of stem cell therapies in veterinary medicine. These therapies can target a wide range of injuries and illnesses like myocardial infarction, stroke, tendon and ligament damage, osteoarthritis, osteochondrosis, and muscular dystrophy in both large animals and people. The high frequency and severity of some injuries in racehorses have propelled veterinary medicine to the forefront of this cutting-edge regenerative approach, even though research into cell-based treatments often mirrors human medical requirements. Animal companions can act as clinically useful models that closely resemble human illness.

Sources of stem cells: Research that started with the application of adult-derived mesenchymal stem cells to treat animals with injuries or defects affecting bone, cartilage, ligaments, and/or tendons has greatly influenced stem cell therapy applications in the veterinary field as a method of tissue regeneration. Allogeneic stem cells, obtained from a genetically distinct donor within the same species, and autologous mesenchymal stem cells, derived from the patient before use in various treatments, are the two main kinds of stem cells used for treatments. Thirdly, xenogenic stem cells, or stem cells originating from many species, are mostly used in research, particularly for the treatment of humans.

Bone repair: For the most part, the distinctive and well-researched natural healing process of bone is sufficient to cure fractures and other common wounds. If left to the natural healing process alone, severe trauma-related misaligned breaks and therapies like tumor removal for bone cancer are susceptible to incorrect recovery. Mesenchymal stem cells are inserted into scaffolds made of organic and synthetic materials and implanted within the defect. Newly generated bone starts to meld with the old bone four weeks after the scaffold is put in place, and full union is attained in 32 weeks.

Ligament and tendon repair: Practicing veterinarians have had access to autologous stem cell-based therapies for treating ligament and tendon damage, osteoarthritis, osteochondrosis, and sub-chondral bone cysts in horses since 2003 in the US and since 2006 in the UK. Veterinarians in the US have had access to autologous stem cell-based therapies for canine tendon, ligament, and arthritic injuries since 2005. Autologous adipose-derived stem cells have been used to treat more than 3,000 privately owned horses and pets. Double-blind clinical trials for horses with tendon injury and dogs with hip and elbow osteoarthritis have demonstrated the effectiveness of these treatments.

Muscle repairs: Dogs who had myocardial infarctions had their heart's repair improved with the use of stem cells. Before being injected into the heart, stem cells from adipose and bone marrow were extracted and trained to become cardiac cells. Four weeks following the application of the stem cells, it was discovered that the heart's contractility had improved and the damaged region had decreased. In a different trial, stem cells are "planted"

Correspondence to: Priscilla Sylvia, Department of Internal Medicine, University of Texas, Dallas, USA, Email: Sylviap02@gmail.com

Received: 22-Feb-2022, Manuscript No. GJLSBR-22-20968; **Editor assigned:** 25-Feb-2022, PreQC No. GJLSBR-22-20968 (PQ); **Reviewed:** 11-Mar-2022, QC No. GJLSBR-22-20968; **Revised:** 18-Mar-2022, Manuscript No. GJLSBR-22-20968 (R); **Published:** 25-Mar-2022, DOI: 10.35248/2456-3102.22.8.003.

Citation: Sylvia P (2022) Stem Cell Therapy Used in Veterinary Medicine. Glob J Lif Sci Biol Res. 8: 003.

onto a patch composed of porous material to encourage tissue regeneration in heart lesions. The patch was successfully absorbed into the cardiac tissue and tissue regeneration occurred. This is attributed, at least in part, to increased angiogenesis and decreased inflammation. Despite being created from mesenchymal stem cells, the cardiomyocytes did not appear to be contractile. Other therapies that changed the cells' fate to become cardiac before transplanting them were more effective at developing contractile heart muscle.