

Dog and Small Animals Vet

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STEM CELL TREATMENTS IN DOGS

Stem cell treatments represent a revolutionary and exciting new approach to managing many diseases and conditions in humans and animals. They have the potential to radically change the way we view medical conditions once considered untreatable or difficult to treat.

Potential uses are wide and varied, and include treatment of head and spinal cord injuries, diabetes, cancer, heart damage, arthritis, missing teeth, blindness, deafness, Parkinson's disease, infertility, non healing bone fractures and baldness (yay!).

So what are stem cells? Stem cells are a primitive type of cell that have the ability to transform into specialised cells that are found in tissues such as nervous tissue, bone, cartilage and ligament. In fact, they have the potential to transform into any tissue found in the body. The significance of this is that specific cells can be produced to repair damaged or diseased tissue, such as spinal cord, heart, bone and cartilage.

Stem cell therapy is one endeavour in which veterinary medicine is at the forefront of research. Research into veterinary applications of stem cell therapy has been conducted since 1998. Much of this research and initial treatments have involved sporting injuries in racehorses and dogs. These treatments may contribute to the development of similar treatments for serious injuries in people.

One of the big advantages of the current stem cell treatments for animals, is that the stem cells used come from the animal being treated, thus avoiding the use of embryonic stem cells and the associated complex moral arguments for and against their use.

One application of stem cell therapy that is now commercially available to Australian veterinarians is as a treatment for osteoarthritis in older dogs. This treatment can be performed in your veterinarian's own clinic.

Although relatively new in Australia, the treatment has been available in the United States for several years now. Over 3000 dogs have been treated for

osteoarthritis with no side effects and very promising results.

There are a number of steps involved in the process. Firstly, a source of stem cells is required. In early research these cells were taken from the bone marrow. Believe it or not, stem cells are now retrieved from the animal's own body fat. Fat has found to be a very rich source of stem cells, providing much larger numbers of cells than is achieved with bone marrow. Using body fat as opposed to bone marrow has the added benefits of being less painful, easier to perform and lower incidence of complications.

Once the dog is anaesthetised, a small incision is made behind the shoulder and some body fat is collected. The fat is then sent to a laboratory where the stem cells are extracted and purified, ready to be transplanted back into the animal.

The stem cells are returned to your veterinarian in a liquid, ready to be transplanted back into the patient. Again, a general anaesthetic is required. The affected joints are prepared as if surgery was going to be performed. The hair over the joint is clipped, and the skin is scrubbed with an antiseptic solution so that the chance of introducing infection into the joint is minimised.

The stem cells are then injected into the arthritic joints with the aim being to enable cartilage repair.

It is still early days with this treatment, and it will be necessary to perform large scale clinical trials to accurately determine the efficacy of this treatment. In dogs that have been treated very good results have been seen to those not responding to normal pain relief medication. The dogs had much improved mobility and reduced pain and inflammation in the affected joints that was long lasting.

If this treatment fulfils its early promise, it will mean improved function and quality of life for older pets affected by arthritis. It also means that medications which may have side effects can be avoided. Furthermore, it may well be that in the not too distant future, stem cell therapy will be used for treating more serious conditions, in our pets and in us. Exciting times ahead.

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