Mesenchymal stem cell transfer for treatment of chronic renal disease in cats

Steven Dow, DVM, PhD; Colorado State University

Chronic kidney disease remains a leading cause of death in cats. The only effective treatment option at this time is kidney transplantation, which is expensive, technically complicated, and not widely available.



Recent studies using rodent models suggest that stem cell therapy has the potential to actually improve kidney function in animals in kidney failure. However, such an approach has never been attempted in cats with naturally-occurring kidney disease. Therefore, in this study the researcher will investigate the safety and potential effectiveness of injections of stem cells as a treatment for improving kidney function for cats with kidney failure. The stem cells will be grown from bone marrow samples obtained from each cat enrolled in the study and will then be injected directly into the kidney using ultrasound to guide the injections. The study will enroll a total of 9 cats, which will be divided into 3 groups of 3 animals each. The 3 treatment groups will each receive increasing numbers of stem to determine whether injection of more cells leads to greater benefit. Kidney function will be assessed before the injection and at one and three months after the stem cell injection to determine whether the injections improve kidney function. If these studies show that the approach is safe and stimulates improved renal function, then stem cell transfer may represent a powerful new method for managing chronic kidney disease in cats.