Early Detection of Osteoarthritis in Dogs Could Open Doors for a Cure

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Osteoarthritis is commonly diagnosed in the late and irreversible stages, when treatment can only be expected to decrease pain and slow progression of disease. Because osteoarthritis is a widespread problem in dogs, horses and humans, doctors and veterinarians need a precise way to diagnose the disease early and accurately. Now, University of Missouri researchers are investigating potential biomarkers in dogs for early diagnosis of osteoarthritis, which could help identify patients at increased risk of developing osteoarthritis.

"By developing methods for earlier diagnosis of osteoarthritis, prevention or even curative treatment strategies to manage the disease become more realistic," said James Cook, professor of veterinary medicine and surgery, and the William & Kathryn Allen Distinguished Professor in Orthopedic Surgery. "Biomarkers could detect the disease before pain and swelling occurs, and owners could take preventative measures, such as modifying activities or diet, helping their pets lose weight and strengthen their joints, to reduce the likelihood of their dogs developing osteoarthritis."

In the study, researchers examined potential biomarkers in synovial fluid. Synovial fluid, which is fluid that lubricates the joints, is known to have sensitive and rapid responses to joint injury. Taking samples from dogs, researchers found that synovial fluid quantity and quality were altered in injured stifle joints (the joint in the hind limbs of dogs that is the equivalent joint to the human knee).

"At the MU Comparative Orthopaedic Laboratory, we are particularly interested in identification and validation of biomarkers that can detect early stages of osteoarthritis to provide accurate diagnostic and prognostic information prior to the onset of clinical disease for people and for pets," Cook said. "Our team, led by Drs. Kuroki, Stoker and Garner, is making tremendous progress in developing simple tests on blood, urine and synovial fluid that show great promise for helping us diagnose impending osteoarthritis before it is too late to help the patient in the most effective manner."

Osteoarthritis causes degradation of articular cartilage, leading to pain, inflammation and loss of motion in the joint. Veterinarians predict that 20 percent of middle-aged dogs and 90 percent of older dogs have osteoarthritis in one or more joints and the percentages are even higher for the human population.

Source: University of Missouri