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Teaching Garden at New Bolton Center

Chronic Pain – A Veterinary Frontier

Many of Ryan Veterinary Hospital's post-surgical patients wear patches on their rumps, sticky plasters that slowly release painkillers into the animal's bloodstream through the skin. The animals appear to be calm and comfortable. They don't fret, pant or whine. "We manage acute pain, such as post-operative pain, very well," says **Dr. Dorothy Brown**, assistant professor of surgery. "But we are not so adept at managing chronic pain in our patients." Veterinary medicine is paying increased attention to the management of chronic pain as animals are living longer, just like people. And they have the same kinds of ailments such as arthritis, disk disease, cancer and other ailments.

"Owners ask veterinarians to treat chronic pain in their pets," says Brown. "We have a limited number of drugs at our disposal and we are just learning how to manage chronic pain in pets." Painkillers can generally be divided into two categories, opiates and nonsteroidals. "In essence, painkillers either come from the poppy or tree bark," says Brown. "The products on the market are all derivatives of these ancient ingredients. People have manipulated the properties of the poppy and aspirin and have developed a multitude of products. Some are helpful to our patients, others are lethal because animals metabolize these substances differently."

To manage pain in animals is difficult. They can't verbally communicate that they are in pain or where they hurt. Often signs that an animal is in pain are subtle and it takes a very observant owner to pick up these frequently slight behavior changes. And sometimes a slowing down is assumed to be due to advancing age and not pain. It is the owner who assumes, by the pet's changed behavior, that it is in pain. The veterinarian then has to decide what kind of pain it is – acute or chronic and how severe it is. "We have to rely on the owners for information," says Brown. "They have to tell us about behavioral changes and from that we have to decide what we are dealing with. It is difficult, particularly in chronic pain cases. The owner's idea of severe may be different from the veterinarian's notion of severe. We don't have behavior based chronic pain scales for dogs or other pets."

Such pain scales exist in human medicine and they are used with great frequency. Many hospitals regard pain as the fifth vital sign,

similar to blood pressure, pulse, temperature and respiratory rate, and have institutionalized pain assessment. This is particularly important with patients who do not communicate well. In human medicine it is known that chronic pain is frequently undertreated; this may be due to patients' reluctance to seek medical help, to resignation of living with pain, or to physicians' hesitation to prescribe a stronger medication.

"We don't know whether chronic pain is undertreated in veterinary medicine," says Brown. "We have to rely on the owner to tell us whether the animal is more comfortable after being given pain medication. We don't know whether we have maximum pain relief because the animal can't tell us and we have no behavior based pain scales for animals."

Dr. Brown is exploring the development of such pain scales for dogs. She is conducting a study of dogs with bone cancer. This disease also occurs in humans and the stages of pain severity as the disease progresses to the end-stage are known. The cancer presents the same histologic picture, whether the tumor sample comes from a human or a dog. It affects the same population – primarily large males, and can have a similar age of onset in both species.

Brown is treating her canine patients with an experimental pain killer and the owners report on their animal's response to the drug, whether they perceive the pain as being relieved and to what extent. Brown has devel-

oped several questionnaires with the help of Dr. John Farrar from Penn's School of Medicine. Owners complete it by answering questions about the dog's behavior and the amount of pain they feel the animal is experiencing prior to and after administration of the drug. Brown hopes that this year-long study will yield better information on chronic pain in canines and point to a way to manage it. It may also aid in the development of chronic pain scales.

"There is no specific marker for pain that we know," Brown says. "Certain values, such as cortisol, go up when an animal is in pain. But they also go up when an animal is stressed. If you anesthetize two animals, spay one, do nothing to the other, both will have the same stress markers even though the one that experienced the surgery may have pain. So we are dependent on observation. This is where behavioral pain scales come in. They would enable the veterinarian to better tailor pain killing drugs to the patient."

The study is not yet completed and it will take many months of work to evaluate the questionnaires. One thing is clear, there is a need for objective evaluation of chronic pain. "When I contacted referring veterinarians for leads on probable cases, I was overwhelmed by the response," says Brown. "There is a great need to learn more about chronic pain in pets and how to manage it. We are just at the beginning."

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In April, ground was broken for a teaching garden at New Bolton Center. The garden will contain toxic and poisonous plants and is established in cooperation with the Penn State Cooperative Extension. Penn State's Chester County master gardeners have designed and are installing the garden. This is the only garden of this type in the mid-Atlantic region

"The garden will serve as an important teaching tool," says **Dr. Robert Poppenga**, associate professor of pathobiology. "It brings together, in one spot, as many plants of veterinary concern as possible. This makes it much easier for our students to observe the plants at various stages of growth for identi-

fication purposes. It also allows the planting of some plants that are not native to the area."

"The garden will contain plants potentially poisonous to animals such as cattle and horses," says Mr. Thomas Bare, lead master gardener on this project. "We plan to eventually have growing here at least 30 species of plants that can sicken or poison these large domestic animals. The plants, some of medicinal interest, will be displayed in attractive beds so that students and other interested people can examine and identify them in a natural growing environment." Craig Rybinski, a master gardener, designed the garden and planned the construction phases.