Caring for patients that have limited mobility can be a challenge and a time-consuming job. However, good nursing care is an important factor in the recovery process, and in some situations is the difference between survival/recovery and failure/euthanasia. There are several aspects of nursing care that are unique to neurological patients; they include soft bedding, respiratory care, bladder management, nutritional support, and physical therapy/mobility therapy.

There are several types of bedding that can be used for immobile animals, and the ideal choice in bedding will need to be determined based on the animal’s current physical status, its ability to remain sternal, and the size of the patient. For animals (small or large) that are able to sit sternal without support and show ability to weight-shift, a grate or sling bed that allows urine to pass through can be used. This is less ideal for large animals, where the lack of padding can lead to pressure sores when they are not able to shift their weight. For these cases, large, thick padded beds (a waterproof foam mattress or inflatable airbed) or a water bed that has the ability to be heated, is more ideal. If a patient is allowed to rest on a pressure point for prolonged periods of time, there will be problems with circulation to that area and decubital ulcers will develop. These can occur in both large and small dogs, and preventing these lesions is a lot easier than managing them once they have developed. In addition to appropriate bedding, recumbent animals should be turned q 4–6 hours, they should have massaging of the limbs and areas around pressure points several times daily, and they should be placed with support in a normal standing position several times daily. It is important to consider the stability of the patient when moving it (is it sedated with less muscle guarding of an unstable spinal area, has it recently had surgery and therefore has specific movement restrictions?).

In addition to preventing decubital ulcers, it is important to turn recumbent animals to prevent consolidation of the lung on the “down” side. Nebulization with moist oxygen and coupling of the entire lung fields can be performed to support the airways as well. Animals that are tetraparetic or recumbent due to neuromuscular disease are at particularly increased risk of hypoventilation and should have respiratory effort and mucous membrane color monitored regularly. Blood gases should be performed on any recumbent patient suspected of hypoventilation and oxygen therapy supplied as needed (via nasal oxygen, oxygen mask, or oxygen chamber/cage). Aspiration pneumonia is a very high-risk complication with neurological patients. They are often not able to cope and recover from this illness as well as mobile animals, and thus prevention of aspiration pneumonia is essential in the recumbent patient. In particular, animals that are not able to maintain sternal recumbency on their own, or who have been diagnosed with megaesophagus, require special care to prevent aspiration.

Feeding these patients will require physical assistance to keep them sternal during feeding and for at least 15 minutes after feeding. Animals with megaesophagus should have their chests above their hip level to allow gravity to assist getting the food down through the esophagus into the stomach. Regurgitation or difficulty swallowing should immediately be reported to a veterinarian. In some cases, complete intravenous nutrition or the use of a feeding tube may be a safer option for nutritional support. It is important that recumbent dogs get the daily required nutrients that are needed for healing despite the extra effort this may require.

Though animals will reflexively defecate when the rectal area is stimulated (internally or externally), the control of urination is more complex and often problematic in recumbent patients. This is due to several factors, including the patient’s own reluctance to void voluntarily while lying down or on a substrate it is not familiar with. Sometimes there is leakage from lower-motor neuron injury to the bladder, and other times there is resistance to voiding from upper-motor neuron injury. Bladder infections, sepsis, and bladder wall damage/rupture can result from inadequate urination. It is better to assume that a recumbent animal is unable to urinate on its own until proven otherwise. These patients should have manual bladder expression 3–4 times daily. Medications may be helpful in facilitating manual expression by helping to relax spastic sphincters (diazepam, 0.5mg/kg 20–25 minutes prior to expression attempts). If it is still difficult or painful to the patient to have manual expression, an indwelling urinary catheter can be placed. It is important that the urine output be monitored for assessment of hydration, blockages of the urinary tubing system, and evidence of trauma (hematuria), which can predispose to infection. Changes in odor can also indicate infection, and urine cultures should assist in determining appropriate antibiotic use. When an indwelling catheter is in place, it should be kept clean and off of the ground, where nosocomial infections may ascend the catheter apparatus. You can wipe the external catheter line with dilute chlorhexidine twice daily and use crates or diapers to
protect the collection bag from bacteria-laden surfaces. Patients that do not have urinary catheters may have urinary accidents or leakage. Left untended, this results in urine scald wounds to the skin and urinary tract infections. All patients should be kept clean and dry and be monitored for any signs of skin irritation.

Physical therapy is a dynamic process that begins with the veterinary in-hospital team and will continue with the owner once the patient is discharged. There are several techniques that can be used, from simple muscle massage to underwater treadmills. In the immediate postoperative period there are several treatments that can be performed with the patient in lateral recumbency.

- Massage of immobile limbs is important to keep good circulation to the muscle and skin, alleviate muscle cramping, and provide sensory input to the spinal cord.
- Passive range-of-motion exercises can be used in recumbent patients and help maintain flexibility and tone.
- Cryotherapy (the use of cold packs, 5–10 minutes q 6–8 hours) can alleviate pain and reduce hemorrhage and inflammation.
- Heat therapy (warm compresses, 5–10 minutes q 6–8 hours) can be used for pain relief, increased circulation, and reduction of inflammation or fluid buildup (seroma) at affected sites.

Standing the patient several times daily is also important for muscle tone, circulation, and respiratory system health. During these times, isotonic muscle activity is occurring. Placement of limbs in correct physiological position helps stretch the muscles and tendons appropriately to prevent contracture. Slings can be used to support the full body, hind end only, or thoracic end only as needed. The use of slings will also allow dynamic movements such as walking, which help muscle tone and “memory.” Water is another means of allowing an animal to stand with support (the buoyancy of the water helps take the weight off the patient’s limbs and allows movement of swimming or walking if the tank is equipped with an underwater treadmill) with little stress on the joints of the patient. Patients in any water tank should be adequately supported to prevent aspiration of water or stress associated with fear of drowning.

Further rehabilitation can be done with home care programs, outpatient appointments with a trained veterinary rehabilitator/physical therapist, or in-patient care at a rehabilitation facility. These programs can be important in returning full mobility to neurological patients and preventing disuse atrophy and contractures over time.

References