NURSING CARE OF THE RECUMBENT PATIENT

A recumbent patient is one that is lying down and unable to rise on its own. Obviously this may be a permanent condition, but hopefully in the majority of our cases it is temporary.

Recumbency can arise due to a wide variety of causes, hopefully while we are treating the cause, proper management will prevent further complications and life threatening problems.

Commonly encountered conditions that lead to recumbency include:

• Trauma
• Iatrogenic
• Neurological
• Behavioural
• Weakness

Regardless of the initial cause of recumbency, these cases share common requirements for their day to day care.

Areas that need to be addressed and covered in care plans include:

Cardiovascular support    Blood sampling
Bedding                    Respiratory
Urinary management         Faecal management
Eye Care                   Oral Care
Nutrition                  Analgesia
Hydration                  Physiotherapy

Respiratory Care

Recumbent patients need regular monitoring and intervention to ensure they are adequately ventilating themselves. Most patients voluntarily lay in lateral recumbency, long periods of time spent in this position means the dependant lung has increased pressure contents of the chest, as well as pressure from abdominal contents. This pressure will decrease the amount
that this lung is able to inflate and thus reduce availability functional lung fields and gas exchange abilities. Continued pressure leads to atelectasis (temporary collapse of the lung).

If the patient is in sternal recumbency, both lungs are able to expand fully, but leaving an immobile patient in one position for long periods of time may lead to pressure sores (decubital ulcers). A sensible compromise is to alternate the position of the patient every couple of hours, and record on the chart what position and when these changes are due.

The patient is moved from left lateral, to sternal, to right lateral, to sternal, to left lateral recumbency. Turning a patient straight from left to right lateral recumbency runs the risk of both lungs being compromised at the same time.

Regular monitoring of the respiratory function will assess whether gas exchange is effective in the lungs of the patient. The gold standard is measurement of arterial blood gases, but useful information can be gathered from recording and spotting trends in respiratory rate and effort, heart rate, and oxygen saturation.

Concerns regarding a patient’s ability to maintain blood oxygen levels will lead to the need for oxygen supplementation. The means of supplementation will be dictated by the patient’s size, temperament, anticipated duration, and skills and equipment available. Mucous secretions of the airways need consideration, recumbency may contribute to accumulation of mucous due to decreased clearance and small airway collapse. Nebulisation can be performed every 4 hours, either in an oxygen cage, or by trying to use a hand held mask. Coupage used regularly can help to loosen secretions, which are hopefully then coughed up by the patient.

**Bedding**

The surface the patient lies on is obviously going to have a large impact on comfort levels, but also on the likelihood of developing complications such as decubital ulcers. Ulcers commonly form over bony prominences such as the elbow, the hip and even the sternum. They develop as a result of pressure compromising blood supply to the tissues, shearing forces acting on the tissues, and moisture. They occur most commonly in large breed dogs, but also chondrodystrophic breeds (e.g. Dachshunds) where they may be seen on the lateral aspect of the hock. Prevention of decubital ulcers is a lot easier than trying to treat them once they have occurred, they can often take 6 weeks or more to heal. Treatment of decubital ulcers relies on reducing infection and contamination of the site, applying appropriate contact dressing layers, reducing the pressure of the area by using donut bandages and carefully positioned bedding.

Bedding we provide has to:

- Be comfortable!
- Provide support
- Wick moisture
- Aid in thermoregulation
Hydration Status and Fluid Balance

The fluid therapy plan needs to be considered as a flexible, ongoing situation, and will need adapting as the patients' status changes. The best way to monitor a patient's needs is by repeated physical examination - we should be able to assess the effect of the fluid therapy, and compare the actual effect to our desired effect. Remember that the animal's normal homeostasis may be impaired, so we need to monitor carefully to prevent overdosage or imbalances. The physical exam should check hydration and perfusion parameters, as well as checking for any complications of fluid therapy; such as oedema, phlebitis, extravasation of fluid.

- **Hydration Parameters**: Moisture of mucous membranes, skin turgor, retraction of the globe.
- **Body Weight**: sudden changes in body weight are usually due to changes in body water. When correcting dehydration, increasing bodyweight would be encouraging.
- **Urine Output**: Urine output can be measured by weighing wet bedding, catching urine in patients that can stand, or by indwelling urinary catheters. A urine output of 0.5ml-2.0ml/kg/hour is one of the goals of fluid resuscitation of hypoperfused animals.
- **Central Venous Blood Pressure**: Can be measured if a central line is in place with the tip in the cranial vena cava, this gives us an idea of pre-load; the amount of blood returning to the heart to be pumped. CVP is a more useful assessment of overall vascular filling than arterial blood pressure.
- **Blood Testing**: When a patient is on IVF it is important to regularly check the PCV/TP and Electrolytes ideally every 12-24 hours depending on the critical nature of the patient. This will help to ensure that the balance of fluids and electrolytes is monitored closely. Hypokalaemia is a risk in patients on chronic fluid therapy, and measuring electrolytes can guide us regarding the requirement for supplementation.

Fluid Balance

When administering maintenance fluids to hospital inpatients, the best way to monitor volume status is by keeping track of the volumes of fluid going into a patient, compared with those coming out.

- **Fluids in** are easily measured; as well as volumes of intravenous fluids administered, measure any water drank, and record food eaten.
- **Fluids out** are less easy to measure. Urine output is easily measured if a urinary catheter is in place, otherwise weigh bedding, use non-absorbent cat litter, or catch urine with kidney dishes etc. When weighing cage liners, assume 1g is equal to 1ml of fluid. Any vomit or diarrhoea must be estimated.
- **Calculating**: measure every 6 hours, fluids in should be approximately 10% more than fluid out (some fluid is lost by sweating or evaporation from the respiratory tract).

If the fluid out is larger than the fluid in, we need to increase the fluid rate. If the fluid in is much larger than the fluid out we need to think why: if the patient is still dehydrated, this
would be normal, so does the patient still show signs of dehydration? Otherwise why is the patient absorbing extra fluid- exudates, oliguric renal failure, overhydration?

Signs of overhydration; if we administer too much fluid we can overload the body, and especially the interstitial space. Excessive fluid in the interstitial space may show itself as:

- Peripheral oedema- feet, legs, axilla, face etc.
- Chemosis
- Pulmonary oedema
- Cerebral oedema

**Urinary Management**

Prolonged distension of the bladder needs to be avoided, as well as causing discomfort and distress; it can lead increased risk of urinary tract infection, and detrusor muscle damage. Broadly speaking recumbent patients will fall into 3 categories when it comes to urination; those that can void the bladder if supported, those that are having the bladder manually expressed, and those that have an indwelling urinary catheter. Which method is suitable for the individual patient will be determined by the clinical team and noted on the treatment plan.

Animals that are capable of voluntarily voiding the bladder will have to be observed closely for behavioural signs that they are ready to urinate, or the bladder should be palpated regularly.

Where an indwelling urinary catheter is placed, a closed collection system MUST be used. Leaving an open urinary catheter to drip urine runs the risk of urine scald to the skin and ascending infection.

An indwelling catheter connected to a closed collection system is also preferred to allow accurate measurement of urine output. Closed collection systems can either be commercially available, or an emptied intravenous fluid bag can be used (saline or Hartmanns, NOT glucose containing fluids), connected via a sterile giving set. The collection bag is placed below the patient to allow urine to drain by gravity, but avoid placing on the floor to reduce the risk of bacterial contamination. Closed systems should be ‘broken’ as infrequently as possible. If the bag needs to be emptied, or catheter disconnected, it should be done as aseptically as possible as this is the time of greatest risk for introduction of bacteria into the system. The external catheter should be wiped with dilute chlorhexidine every 4-6 hours to help prevent ascending infection.

Commercial collection bags have the advantage of having a built in measurement scale, and can usually be emptied via a tap at the bottom of the bag, this avoids disconnecting and connecting the system, as this is when there is greatest risk of contamination being introduced to the system. Some collecting bags also have an anti-reflux chamber to avoid backward flow from the bag to the bladder.
Hospital Acquired Infections (HAI)

Critical patients are at the highest risk of developing HAIs, due to the combination of indwelling devices (IV catheters, chest drains, tracheostomy tubes, feeding tubes, urinary catheters etc) and immune-compromise, so correct protocols are essential to minimise this risk.

Aseptic technique should be used, wearing gloves, when handling devices. Stomas should be cleaned and dressed daily, and the site checked for signs of inflammation and swelling.

With giving sets and closed urinary collection systems the minimum of disconnections and connections should be made to minimise the risk of introducing contamination into the line.