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Immediate postoperative recovery – Part 2

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ABSTRACT: The immediate postoperative period is often under-utilised as an opportunity to be proactive in terms of improving patient well-being and increase the likelihood of a successful outcome. This paper discusses several ways in which this can be addressed easily in practice. The first part dealt mainly with reducing patient morbidity and pain and improving wound healing. This part discusses the role of nutrition in improving patient recovery, and touches on behavioural concerns and ancillary rehabilitation methods, including local hypo- and hyperthermia and passive range of movement exercises.

Nutrition of the recovering patient

Resting energy requirements (RER) can be determined thus:

$$\textbf{RER (kcal)} = 30(\text{weight}_{kg}) + 70$$

Anaesthesia and recovery from surgery will increase resting energy requirement RER by approximately 1.5x to 2x because healing cells and cells of the immune system have a very high demand for calories (and amino acids).

This, coupled with the fact that the patient will have been starved prior to surgery, makes it important that individuals are encouraged to eat as soon as possible after recovery from anaesthesia. This is more important for immature or geriatric animals, which may have low glycogen stores. Wherever possible, malnourished patients should be stabilised – using supplementary feeding and tube feeding, for instance – for several days prior to surgery.

Early postoperative nutrition decreases recovery time, reduces morbidity and mortality and reduces the risk of wound breakdown and infection. The enteral route is by far the most convenient and biologically appropriate route for feeding: however, anorexia is frequently seen postoperatively and may be caused by stress, pain, infection or drugs.

If gentle coaxing with warmed food, stroking and TLC are not effective, consideration could be given to appetite stimulants, such as midazolam and mirtazepine.

If the oral route is not possible – either as a consequence of anorexia or of the nature of the surgery – then a feeding tube should be considered (oesophagostomy, pharyngostomy or gastrostomy tubes are preferred to naso-oesphageal) (Figure 1).

In rare instances, parenteral feeding may be considered; although these fluids can be very expensive and require careful monitoring.

postoperative rehabilitation

Human postoperative physiotherapy is now well established for many soft-tissue surgical interventions and most orthopaedic procedures.[1-4]

Figure 1: Oesophagostomy tube feeding in a cat recovering from mandibular fracture fixation

Post-op physiotherapy can reduce recovery times and improve overall short- and long-term function. Many forms of post-op physiotherapy can be commenced during or immediately following anaesthetic recovery.

Local hypothermia

This is most effective in the first 72 hours following surgery. Gel-packs, iced-water bottles (or even packs of frozen peas!) may be used. However, a (sterile) cloth should be placed between the wound and the ice to prevent 'cold burns'. Applying the cold pack for 10-15 minutes, four times daily (or hourly in the first few hours following surgery), helps to decrease inflammation, swelling and pain (Figure 2).

Local hyperthermia

This should be commenced once initial inflammation has subsided (24-72 hours post surgery). It can be applied using gel packs, hot water bottles or infrared lamps. Benefits include pain relief, decrease in muscle spasm and reduction of oedema.

Hypo- and hyperthermia may be used in cycles of 10-15 minutes, four times daily. Care must be taken to avoid burns – the ideal temperature of skin contact is 40-45°C and microwavable gel packs can reach >80°C.

Passive range of motion (pROM)

This entails controlled passive flexion, extension, adduction or abduction of the operated limb. This helps reduce joint effusion and keeps the joint capsule and peri-articular structures supple and reduces muscular contracture and spasm.

If a joint's range of movement (ROM) is restricted – for example, by over-enthusiastic bandaging or by poor post-op care – for longer than two to three weeks, it is unlikely to regain full ROM. Passive range of motion, commenced at – or soon after – anaesthetic recovery, helps maintain normal joint ROM. The joints are gently flexed and held in a non-forced position for 10-30 seconds, then extended. This is repeated for 10-15 cycles, four to six times daily.

Care must be taken to ensure that analgesia is adequate.

Therapeutic massage

This can reduce muscular spasm, swelling and oedema and may also reduce scar

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formation. Various techniques exist, and the interested reader is advised to seek additional information from the website at www.canine-hydrotherapy.org

Acupuncture

The use of acupuncture peri-operatively has been shown to have benefits, including analgesia, relief of bladder atony following spinal injury or surgery, reduction of α2-agonist and opioid-related vomiting, and reduction of postoperative intestinal ileus.

Several studies now exist documenting the efficacy of acupuncture. Specialist training is required and acupuncture must be performed by a suitably trained and accredited veterinary surgeon.

Electrical stimulation

Transelectrical nerve stimulation (TENS) utilises the delivery of a controlled electrical pulse or current to a particular region. TENS is often used in a similar way to acupuncture and is used extensively in the human health field for analgesia.

postoperative behavioural well-being

An important – but often overlooked – aspect of post-op care is control of the patient's environment to reduce stress. Stress can be caused by a number of factors, which essentially include fear, anxiety and conflict. This can include fear of attack from other patients, or even restriction of normal patterns of behaviour (being deprived of a regular walk, stroke or other interaction).

Negative emotional states can have a huge impact on morbidity – not least of which is contributing to anorexia or catecholamine release. Both of these can reduce healing and increase the risk of infection.

Figure 2: Local hypothermic treatment – this Sheltie is having a cold pack applied following plating of a radio-ulnar fracture

This is a highly complex and interesting facet of post-op care which, I regret, I can only touch on. The interested reader is directed to a more in-depth discussion of emotional well-being in peri-operative patients (Casey, 2010).[5]

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NEWS REVIEW

by Jean Turner

Kennel Club statistics

Registration numbers of pedigree dogs for 2012 have been published and, as in many previous years, the Labrador Retriever has the highest number with 36,487, followed by the Cocker Spaniel with 23,306 and the English Springer Spaniel, 12,792.

Top marks for London nurse

Congratulations to veterinary nurse, Sarah Flack, on achieving top marks in the recent examination for the City & Guilds Certificate in Veterinary Nursing of Exotic Species qualification.

Sarah who works at The Wylie Vet Centre in Greater London has a particular interest in wildlife rescue and rehabilitation. On awarding Sarah her prize, course administrator, Mary Fraser, commented on the high quality of all the students and how well Sarah had done.

Launch of cardiac monitoring app

Ceva Animal Health has launched an iPhone app that allows dog owners to monitor their pet's heart condition at home. Using the app – which is called Cardalis – owners can assess their dog's respiratory rate at rest, an important indicator of heart failure severity.

After downloading the free app from iTunes, owners need simply to tap the screen for each complete breath over a 30-second period. The app will then convert the breaths into a rate per minute and record as a printable graph.

Ceva recommends using the app every day for 10 days after starting or changing heart condition treatments, after which it can be used on a weekly basis. However, the frequency of monitoring will change depending on each individual case.

The application complements the recent launch of Cardalis for dogs with heart failure caused by degenerative valvular heart disease.

Weight loss winners announced

A dozen dogs and cats have lost an incredible 70kg between them as part of Royal Canin's second annual 'Weigh In Club' initiative.

The firm teamed up with vet practices across the UK and Ireland to support weight management clinics run by veterinary nurses. The initiative, which ran from March until the end of September 2012, was a huge success with 117 dogs and cats entering and reaching their weight loss targets.

From all the entrants, 12 finalists were selected to appear in an exclusive Royal Canin 2013 'Weigh In Club' winners' calendar. The overall winner was named as 12-year-old beagle, Amber, who managed to lose a substantial 12.5kg with the help of her owner, Sharon Lowrie, and veterinary nurse, Gabby Taylor, from Wilson Vet Group in Bishop Auckland.

Amber – who originally weighed an astonishing 32kg before losing 39 per cent of her body weight – wins herself a year's supply of Royal Canin food, along with £500 of gift vouchers for her owner. Veterinary nurse, Gabby Taylor, who was instrumental in her success, also wins £500 of vouchers for her efforts, as well as £1,000 of equipment vouchers for her North East-based practice.

The competition, due to be repeated in 2013, was open to all vet practices which run weight clinics and use Royal Canin products as part of weight loss programmes. For more information, call 0800 717800 or visit www.royalcanin.co.uk