Nursing Hospitalised Rabbits

Abstract

This lecture focuses on the practical nursing of hospitalised rabbits. It takes a detailed look at housing and environment, exercise and mobility, nutrition and supportive feeding, medicating and handling, hydration, recognising pain, placing a naso-oesophageal feeding tube and monitoring using urinalysis and blood glucose levels.

Learning outcomes

- Understanding of the special requirements for nursing rabbits in practice
- Knowledge of the most effective ways of nursing hospitalised rabbits
- Confidence in successfully nursing rabbits back to health

Course Notes

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Basic Rabbit Biological information

- **Bodyweight (kg):** 1.5-10 (Netherland Dwarf – New Zealand White)
- **Rectal body temperature (ºC):** 38.5-40
- **Respiratory rate at rest (breaths/min):** 30-60
- **Heart rate at rest (beats/min):** 130-325 (New Zealand White – Netherland Dwarf)
- **Gestation length (days):** 29-35 (average 31)
- **Litter size:** 4-10
- **Age at sexual maturity (months):** Males = 5-8, Females= 4-7
- **Lifespan (years):** 6-10 (sometimes into teens)
- **Water intake per 24hr (mls):** 80-100ml/kg

Rabbits are increasingly being hospitalised for a variety of reasons and in order to make them as comfortable as possible and have the best chance of recovery they require specialised species related nursing which can be intensive and time consuming.

As a prey species rabbits react very differently to being in a hospital environment, than a cat or dog would. A rabbit’s primary aim in life is to stay alive and as such they are always on the look out for what may be a potential threat. This must always be taken into account when nursing sick rabbits. And remember that humans are also a predator to rabbits!

In the wild rabbits hide signs of pain and illness for as long as possible in order to survive; this trait is also seen in domestic rabbits. Therefore a rabbit that is showing clinical signs of illness should be assumed to be very in poor health and need immediate veterinary attention.
Housing and environment

In an ideal world rabbits would be housed in a predator free environment; not only does this include dogs and cats, but also birds of prey, ferrets and snakes. This is rarely the case and even if rabbits are housed away from cats and dogs, they are often placed in with other ‘exotic’ species, which can be just as terrifying for the rabbit.

If you are lucky enough to have a ward where there are no predators for the rabbit then nursing your rabbit patients will be much strait forward.

If you have an exotic ward where rabbits mix with potential predators then keep the rabbits as far away as possible from predators, and never place a rabbit in a lower cage with another animal above them. Rabbits don’t like noises above them and another animal in a cage above them may be construed as a predator, even if it happens to be another rabbit.

If the rabbit is particularly nervous or stressed, then a box which they can go into in their cage or a towel covering part of the cage can be used. Only cover part of the cage so that you can still observe the rabbit without having to open the cage up.

The environmental temperature should be kept between 21-23°C and no higher than 27°C. Rabbits don’t like draughts either and as crepuscular animals, rabbits do not appreciate bright lights during the day. Dim lights and ensure rabbits are not placed in direct sunlight.

If the rabbit is used to having a litter tray then one should be placed in the cage to encourage defecation and urination. Many rabbits will only ever go to the toilet in a litter tray if that is what they are used to. Ensure that non-clumping litter is used.

Exercise and mobility

Hospitalised rabbits should be given ample opportunity to exercise each day. The area will need cleaning between patients to ensure infection control.

Exercise encourages GI tract movement, so is especially important in GI stasis cases.

Physiotherapy can be performed on recumbent rabbits in order to keep muscles from going into spasm and wasting. Extreme care should be taken as the rabbit may panic.

Nutrition and supportive feeding

Rabbits have a high metabolic rate and should never be starved. They cannot vomit due to a strong cardiac sphincter and fasting will send the rabbit hypoglycaemic, into gastrointestinal stasis and cause hepatic lipidosis.

On admit ensure that the owner is asked if the rabbit drinks from a bottle or bowl, what concentrated and fresh food they are fed and make sure that you stick to this. Even if the rabbit normally drinks from a water bottle, it is also a good idea to offer the rabbit a bowl of water. A recent study suggested that if given the choice rabbits prefer bowls to water bottles. A rabbit’s diet should never be changed dramatically over a short period of time. If you don’t stock the concentrated food that the rabbit is fed then ask the owner to bring some in.
It is often worth asking how much the rabbits eat a day so you will be able to gauge if the rabbit is eating well or not. Weigh food as you give it so you can see exactly how much they are eating. Rabbits that are stressed, as often hospitalised rabbits are, will often eat less in the atmosphere of a veterinary practice. If the rabbit is used to vegetables and greens, these should be offered and fresh, good quality hay must always be available. Fresh grass and greens are good food sources to encourage anorexic rabbits to begin eating. Any rabbit that is not eating an adequate amount must be syringe fed. Rabbits quickly become hypoglycaemia and hepatic lipidosis sets in rapidly with anorexic rabbits. Supreme Recovery and Oxbow Critical Care have been specifically designed for herbivores and are usually tolerated well by rabbits. Depending upon how reduced food intake is will depend upon how much and how often the rabbit is fed. 20-50ml/kg spilt into 3 feeds throughout the day can be given. The top end of this scale would be administered to a rabbit that is completely anorexic. Syringe feeding may take half an hour per feed, but it is important not to rush the rabbit and to make sure that the rabbit is swallowing the food and not simply spitting it out. If the rabbit is difficult or impossible to syringe feed then placing a naso-oesophageal feeding tube is worth considering. The downside to a feeding tube is that you can only administer small particles through in, which is often not as useful as syringe feeding in stimulating the GI tract. Nasogastric tubes are reported to be contraindicated in rabbits as their stomach contents are so acid that this affects the tube. Therefore the tube should not be left past the cardia and should be placed in the caudal oesophagus before fixing it to the rabbits head. A 4-8F paediatric feeding tube or 6-8F dog catheter can be used. A radiograph should be taken to confirm correct placement before placing food into the tube. The use of an Elizabethan collar is only necessary if the rabbit interferes with the tube.

**Urinalysis**

Rabbit urine should always be alkaline with a pH of 7.6 – 8.8. A dipstick can be used to check the pH. If urine is collected in a litter tray, crystals designed for cats should not be used since they may be ingested by the rabbit. A plain tray, manual expression, catheterisation (which will require sedation), or cystocentesis can all be used to collect urine samples. Acidic urine is always abnormal and indicates metabolic acidosis. These rabbits are normally anorexic and may have been some time. Ketones may also be detected in the urine, indicating metabolic ketoacidosis. These rabbits carry a very poor prognosis. Aggressive syringe feeding, fluid therapy and prokinetic medication, as well as analgesia is required, which may be ongoing for several days/weeks. The pH can continue to be monitored and urine should be analysed as soon as it is passed since it will become more alkaline when left at room temperature.
**Blood glucose levels**

Frances Harcourt-Brown measured the blood glucose levels in 907 rabbits between 2007-2011. The results showed that the blood glucose levels will rise dramatically when the rabbit is placed under a physical/mental stress. Diabetes mellitus is extremely rare in rabbits.

A drop of blood can be taken from the marginal ear vein and analysed on most glucometers, under a cat or dog setting.

- <4.2mmol/l – Low and needs further investigations and nutritional support
- 4.2-8.2mmol/l – Normal
- 8.3-15mmol/l – The rabbit is stressed and likely anorexic. Will need supportive treatment
- 15.1-20mmol/l – Likely to have been anorexic for some time. Aggressive supportive treatment is required
- Above 20mmol/l – Life-threatening disease with a poor prognosis and possibly a surgical case if other clinical factors also indicate (these are normally intestinal blockages).

**Cage equipment**

What bedding you place into the rabbit’s cage will depend upon the reason for admission.

If the rabbit has been admitted for surgical treatment with no wounds, such as dental work, then lining the cage with newspaper, with a deep layer of hay on the top is the best option.

Rabbits that have had surgical procedures such as neutering, with closed wounds can be bedded on vetbed, towels or shredded paper. Ensure they still have easy access to hay.

Those rabbits with open wounds; post flystrike, draining abscesses, bite wounds etc, can again be bedded on vetbed or towels, but nothing that is likely to stick within the wound. Hay will need to be tied up so the rabbit doesn’t lie on it.

Debilitated rabbits who have restricted movement should be bedded on vetbed so urine is drawn away from the animal.

**Grooming**

Rabbits are extremely clean animals who do not like the feeling of being dirty.

Hospitalised rabbits may be too ill or painful to groom themselves, which makes them feel even worse.

Check each day to ensure they aren’t getting urine contamination/scaling or becoming clagged with faeces around their back end. A barrier cream (Sudocrem, Vaseline) can be applied to sore areas to prevent further urine scalding, and faeces should be clipped/soaked off.

Wipe the rabbit’s eyes and ears daily with warm water.

**Medicating and handling**

Handling is extremely stressful to rabbits, especially by strangers in a foreign environment when they are ill, so all handling should be kept to an absolute minimum.

Some rabbits may enjoy being stroked whilst in their cage and especially having their ears and back massaged, but if the rabbit moves away from your hand when approached then leave them alone.
Administering medications needs to be done as quickly as possible so as to cause as little stress as possible. Ensure that you have everything you need ready before getting the rabbit and if the rabbit is known to be flighty then getting another nurse to help is much better than trying to medicate the rabbit on your own and stressing both the rabbit and yourself out! It can be worth wrapping the rabbit in a towel so they can’t kick out and potentially injure themselves or the handler. Rabbit’s have extremely powerful hind limbs and can easily break their spine if lashing out to try and escape.

When picking up a rabbit if you are right handed, take the scruff of the neck in the right hand, scoop up the backside in the left and tuck under the left arm. If you are left handed reverse the method. This way the rabbit is held securely.

**Elizabethan collars**

My personal opinion with Elizabethan collars is that they should never be used on rabbits unless as a last resort. Rabbits despise them and hate having the sensation of anything placed around their neck. They inhibit the rabbit from grooming, eating and drinking and eating their caecotrophs.

If an Elizabethan collar must be used then the rabbit should be given frequent opportunities to eat without the collar on, which must be under strict supervision so they don’t interfere with their wound.

Rabbits hate feeling unclean and this can depress them even further. A rabbit wearing a buster collar should have its eyes, nose and mouth wiped frequently with damp cottonwool.

If it is possible to shorten the buster collar, without giving the rabbit access to their wound, then this should be done, so the rabbit can collect and eat its caecotrophs. If they are unable to eat their caecotrophs then hand feeding them is an option but many rabbits will only eat them straight from the anus.

**Companions**

A bonded pair of rabbits should never be separated, including if one has to be hospitalised. A bonded pair of rabbits can have an irreparable breakdown in the relationship if separated for any period of time, and often having their companion with them will give an ill rabbit support and familiar company.

However, if they are housed in the same cage it is often hard to ascertain if the ill rabbit is eating, drinking, defecating and urinating, so for this reason putting the companion in a separate kennel or splitting the kennel in two so they are both still able to see and smell each other is often the best idea.

**Hydration**

Fluids can be administered orally, intravenously, subcutaneously or by the intraosseous route. Rabbits require more fluid than other animals. 80-100ml/kg/day is maintenance to replace lost fluids arising from urination, defecation and respiratory/cutaneous losses.

Unless you are only giving a very small amount and the rabbit is very amenable, then giving fluids orally to a rabbit is often fruitless as you will rarely be able to successfully get a rabbit to orally take anywhere near the required amount of fluids that are needed.
Intravenous and intraosseous fluids can be administered at 3-4ml/kg/hr as a maintenance rate or 100ml/kg over 60 minutes at shock rate, with continuous observation of the rabbit. Subcutaneous fluids are often the least stressful method of getting fluids into rabbits but can be painful due to the amount required to be injected and have a slow or reduced update, especially in dehydrated rabbits. Ill or dehydrated rabbits or those undergoing surgery require extra fluids so anything up to 3 or 4 times this amount may be required.

Up to 20ml can be injected subcutaneously at each site, though on smaller rabbits it is best to inject smaller quantities into more sites. A clean needle should be used for each injection site and depending upon the size of the rabbit, 23g or 21g needles can be used. The total fluid volume should be administered throughout the day, spilt into 2 or 3 sessions.

Fluids should be warmed to body temperature (38°C) before being injected and never warmed in the microwave, which can create ‘hot spots’.

**Recognising pain**

Rabbits are a prey species so will try to hide signs of pain for as long as possible. They do not vocalise like dogs or cats, which mean signs of pain are often overlooked.

Rabbits may exhibit some of the following when in pain; anorexia, lethargy, bruxism, hunched posture, unusual aggression, dull expression, paying excessive attention to a specific area.

Always assume something is painful to a rabbit and ensure adequate pain relief is given and topped up regularly. Reassess the rabbit at regular intervals, which may involve observing the rabbit from a distance so it doesn’t know you are watching.

NSAID’s and opioid based analgesia can be used in rabbits.

**Keeping owners informed**

There are massive variations as to what owners are willing/able to pay to treat their rabbits. Some rabbits are treasured family members who may be insured or have owners willing to pay just about anything. Others may not be able to or willing to pay much to treat the rabbit.

Realistic estimates need to be provided on admission, since owners get very irate when faced with a large bill they were given no warning of.

Rabbits often require more intense and expensive treatment, which should be emphasised to owners. Ensure that the owners wishes and any upper limit on treatment costs is known by all those treating the rabbit, and advise owners if this limit is reached.