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Sarah qualified as a Veterinary Nurse in 2008. She has worked in many areas of the profession, including general practice, wildlife, orthopaedics, critical care and behaviour. Sarah has worked in an oncology hospital for 3 years. She has been the senior medical oncology nurse at Fitzpatrick referrals oncology and soft tissue hospital for the last 2 years. Sarah's main role is client support and maintaining high levels of patient care and safety in all areas of chemotherapy administration. She has a special interest in quality of life and end-of-life stage care.

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Maintaining patient welfare of the chemotherapy patient

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ABSTRACT: Modern veterinary medicine now means pets are living longer, and in turn the profession is diagnosing and treating more diseases such as cancer. Receiving the diagnosis of cancer in their beloved pet is a stressful and emotional time for the owners. The Registered Veterinary Nurse (RVN) plays a role in supporting the client and pet through this emotional journey and assists in ensuring patient welfare is considered at all times during the treatment. The RVN will be suitably trained to deliver a high level of care in all areas of nursing and will consider quality of life when caring for oncology patients.

KEYWORDS: oncology; patient welfare; behaviour

Introduction

Pain, fear of humans, unfamiliar contexts and restraint are common elements of stress in veterinary patients (Notari, 2009).

The Animal Welfare Act 2006 outlines the legal responsibilities all animal keepers have to ensure animal welfare is maintained. The BVNA (2018) describes patient welfare as not only maintaining physical health but also considering mental well-being in veterinary patients. This is supported by the five freedoms:

1. Freedom from hunger and thirst, by ready access to fresh water and diet to maintain health and vigour
2. Freedom from discomfort, by providing an appropriate environment including shelter and a comfortable resting area
3. Freedom from pain, injury or disease, by prevention or rapid diagnosis and treatment

4. Freedom to express normal behaviour, by providing sufficient space, proper facilities and company of animals of their own kind
5. Freedom from fear and distress, by ensuring conditions and treatment which avoid mental suffering

The veterinary nurse plays a vital role in both patient care and client support and acts as a voice for patients when receiving treatment, to ensure the patient's welfare needs are always considered.

The initial consultation

A thorough consultation ensures an accurate collection of history and a full examination is performed. The RVN's presence in the consultation allows them to build a strong bond with both client and patient, ensuring consistency throughout all visits.

The examination room should be quiet and have comfortable bedding, a variety of treats and toys where possible (Lloyd,



2016). Removing dog leads or opening the carrier allows the patient to explore their environment. Patients often feel more at ease when allowed to wander around and habituate to the environment. The RVN can assist in the examination by performing basic vital parameters including heart rate (HR), respiratory rate (RR), and temperature (T) and body weight/body condition score. If permitted, treats can be used as positive reinforcement when the patient acts calmly.

Mills et al. (2005) suggest that tone of voice plays a role in reducing anxiety in canine patients, further suggesting a high-pitched tone encourages movement and a positive tone conveys approval.

Where possible, the patient should be placed on an anti-slip surface at a suitable height to allow for secure restraint. If the patient feels safe, they are less likely to try to escape, which will allow for a thorough examination (Aspinall, 2014).

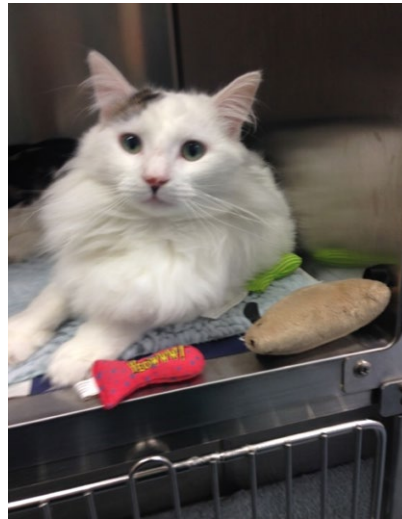
The RVN should ask detailed questions during the consultation to gain an insight into what is needed to ensure the patient is comfortable during their stay. By understanding what litter type the patient prefers or bowl texture (plastic, stainless steel) they use, the RVN can mimic the patient's home environment, helping them feel more at ease.

In both human and veterinary oncology, blood testing is an important aspect of treating cancer patients. Confident and strong skills in blood sampling are essential and allow the RVN to play a role in monitoring patient health status and chemotherapy side effects on many body systems, including the immune system.

RVNs should consider handling techniques and clinical conditions when performing procedures such as phlebotomy to ensure the patient is calm throughout. They should have built a strong relationship with the patient, allowing them to understand their individual tolerance levels to restraint and handling.

Reducing stress in canine and feline patients

Fear and anxiety are normal responses to real or perceived threats (Corridan, 2009). A strong understanding of canine/feline behaviour will allow the RVN to



identify signs of stress and anxiety in the oncology patient. This skill is essential to ensure they are monitoring patient welfare throughout treatment and to ensure the patient is maintaining a good quality of life. Treatment should be abandoned or the chemotherapy protocol reconsidered if the patient shows unacceptable levels of stress during their visit.

The time spent in the waiting area should be kept to a minimum, preventing the patient from being around other animals. The owner and patient may develop anxiety when waiting in anticipation for their appointment.

Where possible, a separate cat waiting area should be available and species-specific pheromone diffusers in place.

Aspinall (2014) outlines the importance of the RVN's ability to read body language on approach of the patient to prevent aggression. For example, when approaching a feline patient, frightened or aggressive cats may lower their body posture, flatten their ears or hiss as a warning.

All treatment options should be discussed and the patient's demeanour and behaviour in the environment should be considered prior to deciding on an appropriate treatment plan. This means the

chemotherapy protocol can be tailored to each patient, ensuring that patient welfare is maintained at all times. Patient stress levels should be monitored throughout each visit and the RVN should be confident to communicate with both the veterinary surgeon and owner if the patient's welfare is at risk and the treatment plan should be re-evaluated. Although a 25-week CHOP multi-drug protocol (C-Cyclophosphamide H-doxorubicin O-vincristine and P-prednisolone) may be the most common treatment for canine lymphoma (Cancer, 2016), other less-intense/-invasive treatments should be considered in patients that display signs of stress/aggression in the veterinary practice.

RVNs should have a good understanding of signs of fear or aggression in both feline and canine patients. Figure 1 outlines signs of fear and aggression in these patients. Extreme signs of fear are easier to identify, such as cowering, leaning away and signs of aggression to include growling, scratching and biting.

More subtle signs that could be missed by inexperienced staff are yawning, panting, refusing treats and salivating (Lloyd, 2016).

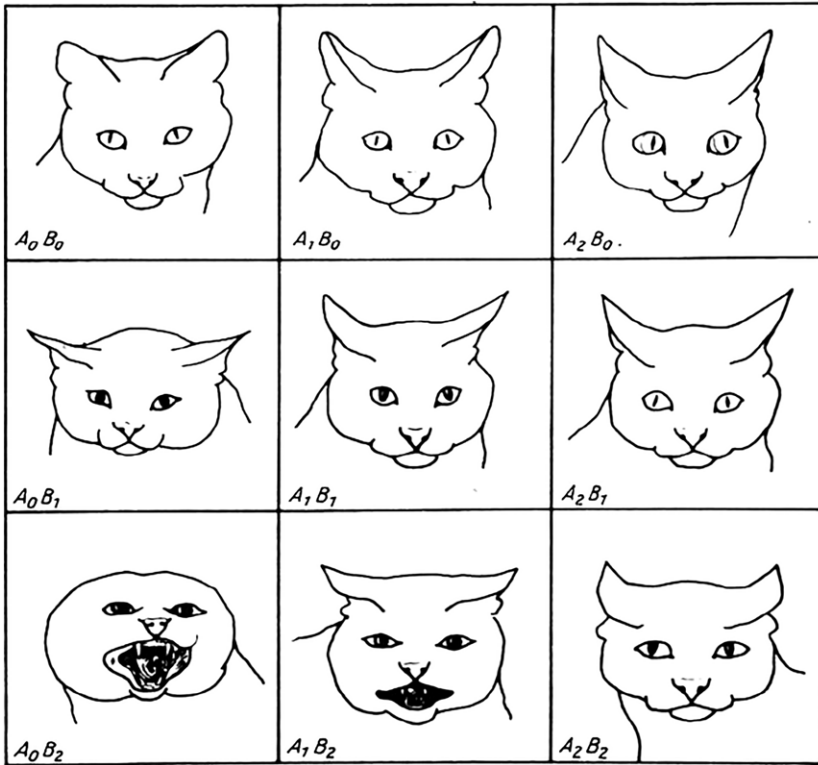
Visual guides are available to recognise common body language in both species. They outline species-specific body postures such as ear position, eye shape and other signs of aggression to enable the RVN to interpret behaviour throughout their stay. The canine aggression ladder is a useful tool to understand the canine responses to a stressful stimulus. This ladder demonstrates the gestures a dog will express in response to perceived stress or threat (see Figures 2 and 3).

Stress versus pain

The ability to distinguish signs of stress and pain allows the RVN to play a key role in pain management. This facilitates stress reduction and maintains a good quality of life throughout treatment. Pain scoring

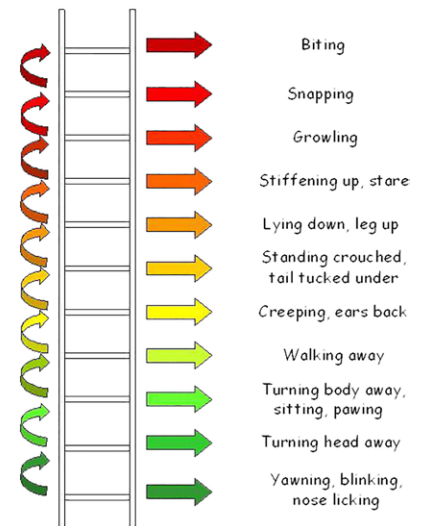
Feline	Canine
Hypersalivation	Hypersalivation
Hiding	Shaking
Shaking	Laying down
Tail twitching	crouching
Lip licking	Rolling over
Hunched body language	yawning
Laying down	Lip smacking
Large pupils	Tuck tail between legs
Marking – urinating on furniture	Marking – urinating on furniture
Passing urine or faeces during handling/approach	Passing urine or faeces during handling/approach

•  Figure 1. Signs of fear and aggression.



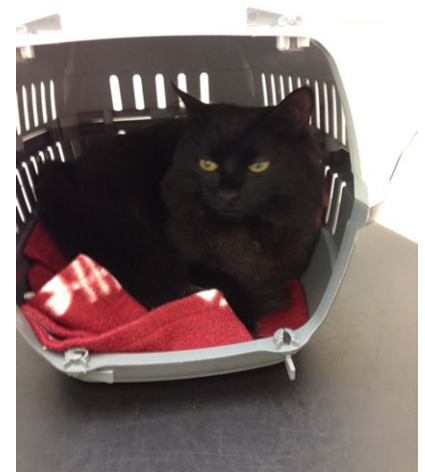
• **Figure 2.** Example of feline facial expression.

The Canine Ladder of Aggression



© Frieda Stappeler 2004 How a dog reacts to stress or threat

• **Figure 3.** BSAVA aggression ladder.



towel pre-sprayed with pheromones, such as Pet Remedy, can help to calm them prior to handling. It is recommended all equipment is pre-prepared prior to removing the patient from the basket.

Small, quiet clippers should be used where possible to minimise stress. The patient should be encouraged to come out of the carrier on their own or the box should be dismantled rather than scruffing them (Lloyd, 2016). Wrapping the patient in a towel can help reduce limb movement and make them feel more secure. Gentle head tapping is a common technique used as a distraction, alongside a soft voice for reassurance.

The “less is more” approach should be the first approach used when handling a patient. Some patients may become anxious if handled forcefully and a more gentle approach could be beneficial. Experienced handlers that are familiar with feline behaviour should be



an analgesia plan to be considered. Analgesia trials can be useful to eliminate the possible causes of particular behaviours. If pain is suspected, analgesia will reduce discomfort and the described change in behaviour should reduce or disappear. Multimodal analgesia should be considered, in patients with cancers in painful locations such as osteosarcoma. Osteosarcoma patients benefit from a pain management plan including opioids, anti-inflammatory medication and bisphosphonate infusions.

Nurses should understand the patient’s limitations and ensure capable staff members assist in the restraint of nervous patients.

The correct restraint equipment should be used where necessary, but treatment should be re-evaluated if the patient shows signs of distress. Some patients may require specific restraint techniques to gain venous access safely and successfully.

Feline-specific handling techniques

A quiet room away from canine patients should be chosen when handling feline patients. Covering the cat carrier with a

charts are valuable tools to use in oncology patients to adapt analgesia plans to maintain comfort levels.

Pain scoring charts can be adapted or simplified and provided to owners, allowing them to monitor their pet’s behaviour in their home environment, helping provide adequate pain relief during palliative care. Figure 4 demonstrates a simple to use feline pain scoring system.

If pain is suspected, the RVN should alert the veterinary surgeon to allow

SHORT FORM OF THE GLASGOW COMPOSITE PAIN SCALE

Dog's name _____
 Hospital Number _____ Date / / Time _____
 Surgery Yes/No (delete as appropriate) _____
 Procedure or Condition _____

In the sections below please circle the appropriate score in each list and sum these to give the total score

A. Look at dog in Kennel

Is the dog?

(i)		(ii)	
Quiet	0	Ignoring any wound or painful area	0
Crying or whimpering	1	Looking at wound or painful area	1
Groaning	2	Licking wound or painful area	2
Screaming	3	Rubbing wound or painful area	3
		Chewing wound or painful area	4

In the case of spinal, pelvic or multiple limb fractures, or where assistance is required to aid locomotion do not carry out section B and proceed to C. Please tick if this is the case then proceed to C.

B. Put lead on dog and lead out of the kennel.

<i>When the dog rises/walks is it?</i>		<i>Does it?</i>	
(iii)		(iv)	
Normal	0	Do nothing	0
Lame	1	Look round	1
Slow or reluctant	2	Flinch	2
Stiff	3	Growl or guard area	3
It refuses to move	4	Snap	4
		Cry	5

C. If it has a wound or painful area including abdomen, apply gentle pressure 2 inches round the site.

D. Overall

<i>Is the dog?</i>		<i>Is the dog?</i>	
(v)		(vi)	
Happy and content or happy and bouncy	0	Comfortable	0
Quiet	1	Unsettled	1
Indifferent or non-responsive to surroundings	2	Restless	2
Nervous or anxious or fearful	3	Hunched or tense	3
Depressed or non-responsive to stimulation	4	Rigid	4

Total Score ((iii)+(iv)+(v)+(vi)) = _____

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Glasgow Feline Composite Measure Pain Scale: CMPS- Feline

Choose the most appropriate expression from each section and total the scores to calculate the pain score for the cat. If more than one expression applies choose the higher score

LOOK AT THE CAT IN ITS CAGE:

Is it?

Question 1

Silent / purring / meowing	0
Crying / growling / groaning	1

Question 2


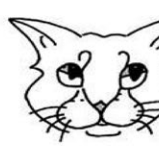
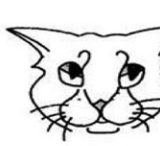
Relaxed	0
Licking lips	1
Restless/cowering at back of cage	2
Tense/crouched	3
Rigid/hunched	4

Question 3

Ignoring any wound or painful area	0
Attention to wound	1

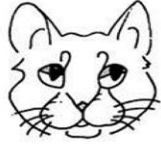
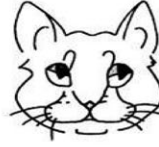
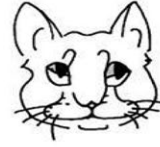
Question 4

a) Look at the following caricatures. Circle the drawing which best depicts the cat's ear position?tt

0
1
2

b) Look at the shape of the muzzle in the following caricatures. Circle the drawing which appears most like that of the cat?

0
1
2

• **Figure 4.** Example of canine and feline Glasgow pain-scoring charts.

considered when dealing with fractious cats. Numbing sprays such as Ethicalm (Invicta) are very useful in sensitive patients, to pre-numb the skin prior to venepuncture.

Blood sampling could be performed simultaneously alongside intravenous cannula placement to reduce handling and minimize needle sticks.

Canine-specific handling

A quiet room should always be used where possible to reduce stress and distraction. Restraint equipment such as a muzzle should be used when necessary, but restraint should be abandoned if the patient shows signs of distress. If a muzzle is used, desensitization may be necessary prior to use.

Training canine patients to use the scales or sit for blood sampling can greatly reduce stress in some working breeds such as border collies or German shepherds. This will make each visit predictable and, in turn, the patient will be calmer.

Large dogs are often strong and benefit from sitting in a cornered area to prevent them moving backwards. If a dog feels



safe, it will generally be less inclined to escape (Aspinall, 2014).

Although small dogs are placed on a table for blood sampling, it may be beneficial to consider restraining them on the floor to reduce stress levels, as they may have a negative association with standing on a table due to previous vet visits.

The saphenous vein could be considered in patients reluctant to have forelimbs used. This can often be performed with

the patient standing. As with feline patients, a blood sample could be taken at the same time as intravenous cannula placement.

In both species, it is important to always consider concurrent medical conditions when handling them. Oncology patients can be elderly and may have other geriatric conditions such as arthritis. This may affect the patient's ability to sit comfortably in a particular position or restraint may be uncomfortable.

Treats can be used both as distraction and positive reinforcement for good behaviour. Some patients may have a particular treat preference. This should be considered when offering food to oncology patients. The RVN can often collect this information during admission. It is important to provide a variety of different treats in treatment rooms for both species and "special treat" items for patients that may need extra encouragement, such as hotdogs or cheese.

A patient's reluctance to eat in hospital may be a good indication of stress levels and shows a level of distrust in their environment (Killner, 2008). This is a good measuring tool to monitor the patient's

progress during each visit. If they have a positive experience during their first few visits, they are more likely to become more at ease and begin to engage and even take treats at later visits.

Husbandry considerations

Veterinary nurses play a key role in ensuring the correct husbandry is maintained throughout the patient's hospitalisation. Species-specific housing is an important part of stress reduction, as inadequate husbandry can be a contributing factor to increased stress. Casey (2007) outlines the benefits of providing cats with suitable hides or covering the kennel with a towel to allow them to perform natural hide behaviours, reducing stress levels.

In many patients, chemotherapy may be used following surgical removal of tumours. Long-term stress can have detrimental effects on patient recovery and wound healing. Glaser and Gouin (2011) reviewed the physiological effects of stress on wound healing in laboratory rats. The study concludes that on-going stress had a negative effect on healing by increasing stress-hormone release, therefore slowing wound healing. Stress levels also increase the risk of susceptibility to infection, a key consideration for oncology patients.

All patients should have thick, soft bedding to prevent ulcers and discomfort, especially in elderly/arthritis patients. Feline patients often benefit from a higher level or box to hide in. Covering the door with a towel often helps them feel more at ease. All resources should be easily accessible such as food, litter and bedding. Consider the location of the litter tray; it should be away from

the food/water bowls and in a corner to make them feel safe when toileting. Canine patients should go for regular toilet breaks, ideally every 2 hours to provide them with exercise and the ability to pass urine/faeces.

Chemotherapy administration

Safe chemotherapy administration is no doubt one of the most important roles of the oncology nurse. The RVN should maintain high safety standards and reduce the risks of staff exposure to cytotoxic drugs and extravasation during administration.

The patient should spend time acclimatising to the treatment rooms used for chemotherapy administration. The room should be quiet, with little traffic, have minimal furniture and be a comfortable area for drug administration.

Where possible, as with housing, canine and feline chemotherapy should be

administered in separate locations. Thick, padded bedding should be placed on the floor for dogs and adequate soft bedding should be provided on a higher surface for cats.

Pheromone diffusers can be placed in treatment areas to assist in further reducing anxiety.

Studies show that veterinary patients can benefit from listening to soothing music. Kogan (2012) concluded that playing classical music in the wards increased the time dogs spent sleeping and reduced the frequency of vocalisation, showing that it can help to reduce stress in some patients. Other studies (Snowden et al., 2015; Mills & Taylor, 2007) suggest that feline patients found species-specific music more appealing than music made for humans.

The RVN should consider patient welfare at all times during treatment and consider distraction techniques for excitable or wriggly patients. Toys that are only produced during treatment such as squeaky toys or balls may help toy driven breeds. Tasty food in a food ball or Kong toys are good tools to be used as positive distractions during treatment.

Where possible, oral chemotherapy should be administered in food items to help reduce stress. Canine patients may benefit from food rolled into balls or hot dogs to allow for easy oral administration. Feline patients could tolerate medication in soft lapable foods such as pâté. Pill poppers are useful tools in feline patients reluctant to eat while in hospital and allow for safe chemotherapy administration, which must always remain a priority.

End-of-life stage care

The RVN naturally supports both the client and their beloved pet during end-of-life stage care. An easy-to-read palliative care hand out is a useful tool to provide clients that have made the difficult decision to



withdraw care and could be given to clients to provide support in the home environment. Regular communication should be offered to ensure they understand they have a support network available during the hardest part of their journey.

Regular contact with the owner will allow the nurse to ensure the patient remains comfortable at home and the nursing care plan is adapted according to the patient's individual needs.

Quality-of-life scales are useful tools designed to assess quality of life in terminally ill patients. Dr Villalobo's quality-of-life scale provides an easy-to-use guideline for owners to monitor their pet at home. It uses the 5 Hs and 2 Ms (Hurt, Hunger, Hydration, Hygiene, Happiness, Mobility and More) and a scoring system 1–10 to track the patient's life at home. This allows the owner to come to terms with deterioration and helps both the owner and VS work together to provide adequate care.

Euthanasia is often an emotional and very difficult time for the patient's family. A euthanasia protocol will encourage all staff members to perform euthanasia in a smooth and empathetic manner. All equipment should be pre-prepared and a quiet, discrete room should be chosen. Comfortable bedding should be provided and adequate seating for the family. Where possible, a room with a rear exit would be best so the owners can leave through the front of the building and the patient can be discretely removed. The euthanasia procedure must be explained prior to the event and body aftercare should be outlined so the owners have an understanding of what will happen.

An intravenous catheter should be placed; however, if the patient is anxious or nervous, a sedative should be considered prior to euthanasia to allow for a smooth procedure. This is beyond the scope of this article.

Conclusion

When pets are diagnosed with cancer, it can be a frightening and sad time for the family. These cases may not always end with a

positive outcome, but the oncology RVN can offer support, advice and guidance to the clients throughout treatment.

The nurse should provide regular client contact from the beginning to the end-of-life stage care, consistently bridging the gap between vet and client. They should have the empathy and compassion to enable them to assess their client's emotional status and be aware of other factors which may influence client behaviour and decisions.

The ability to communicate with the vet on the client's behalf allows the nursing team to develop a strong, trusting relationship with the client. This ensures the client feels confident that they can reach out in the event they need medical advice or emotional support.

Although nursing oncology patients can be emotionally challenging, it is also extremely rewarding. The oncology nurse is an integral part of the oncology team and ensures that patient welfare is maintained for both the patient and client at all times.

Disclosure statement

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