Association of Avian Veterinarians Australasian Committee Ltd.
Annual Conference Proceedings Auckland New Zealand 2017. 25: 58-62.

Palliative Care and Chronic Pain Management

Melinda Cowan

Avian and Exotic Department
Small Animal Specialist Hospital
Level 1/1 Richardson Place
North Ryde NSW 2113

The life span of many avian species can be lengthy in captivity. With this longevity can come a myriad of diseases and disorders, particularly degenerative conditions seen with ageing. The value of individual animals in research, breeding programs or as pets may be significant. Extension of the animal's life is often desired in these instances, despite afflictions with debilitating or terminal disease. The welfare of these patients is critical and the role of the veterinarian is to maximise quality of life, minimise suffering and guide decisions regarding euthanasia. In avian species, common diseases requiring welfare management or palliative care include osteoarthritis, other chronic musculoskeletal disease and various neoplasias. The importance of palliative care, options for the management of chronic disorders and the human experience is discussed.

Palliative care

Palliative and hospice care is rapidly developing in veterinary medicine. This evolving field comes with considerable challenge given the inability of patients to make their own decisions, the spectrum of the human-animal bond and the availability of euthanasia. There can also be difficulties in balancing the needs of the client with that of the pet. While the literature is limited for palliative care in veterinary medicine, a number of protocols, quality of life measurements and targets for the management of symptoms have been formulated (Downing, 2011; Downing et al., 2011; Shearer, 2011; Villalobos, 2011; Cooney, 2016; Goldberg, 2016). Their application to avian medicine is still emerging and the aim of this manuscript is to suggest useful guidelines for the management of palliative patients. Table 1 provides framework for the clinician to make decisions regarding palliative care.

Palliative care begins with serious illness or injury that cannot be treated or when treatments have been declined or failed. Palliative care is also required when problems begin to develop with advancing age. In human patients, earlier intervention with palliative treatments results in longer lifespan with increased quality of the remaining time (Temel et al., 2010). The initiation of hospice care has also been shown to reduce the impact of grief on family members (Herbert et al., 2011). The decision to provide palliative care for pets, rather than only offering euthanasia should be based on a number of factors.

Client factors

Clients will have different needs, beliefs and goals for the pet. The human-animal bond is a spectrum that varies considerably. What each pet means for an owner can be different and this is crucial information in determining the best plan. The owner may have previous experiences with death in pets or humans (both positive or negative) that can impact their beliefs about euthanasia or palliative therapies. Cultural and religious factors of the client can also impact on decisions. Palliative care can require significant time and financial investment to achieve adequate quality of life for ailing pets. The ability of the client to provide the required care can be compromised by finances, work schedules, other pets and family commitments. The needs of the pet are also likely to evolve and become progressively more intensive over time.

Patient factors

Management of avian patients can be far more complicated than other animals. They are often resistant to handling, taking medications or engaging in physical therapies. While many can be trained to accept these interventions, the often limited time frame and urgency of treatments can make this difficult. The potential stress of palliative therapies must be assessed for each patient and damaging the human-animal bond or causing repetitive stressful events with a therapy is counterproductive. Quality of life assessment is performed for the patient (Table 2) to help form decisions regarding euthanasia and level of palliative care requirement (Villalobos, 2011). The ability to manage the symptoms effectively must also be considered. Respiratory distress and unmanageable

Table 1 - Step-wise Strategy for Palliative Care (Adapted from Shearer, 2011)

Aspects of Palliation Plan	Factors to be Considered
Evaluation of client factors	• Relationship with the pet • Cost of palliative care • Compliance • Commitment
Evaluation of patient factors	• Acceptance of treatments • Quality of life assessment • Ability to manage symptoms
Education about the disease process	• Discuss current impacts of the diagnosis on the patient • Identify symptoms and discuss their management • Discuss likely problems and symptoms that will develop with disease progression • Discuss death and euthanasia
Development of personalised plan	• Provide treatment options and financial estimates • Organise after hours care options - if 24-hour care not available, contact local ER facilities • Create an appropriate home environment • Prepare for death and make a plan for after death arrangements
Application of palliative techniques	• Detail medication dose, directions and side effects • Demonstrate medication administration • Demonstrate any interventional techniques (e.g. physiotherapy, bandages) • Provide written medication and technique instructions
Emotional support during care, before and after the death of the pet	• Provide details for a social worker, bereavement counsellors or psychologist

severe pain are considered top priorities in palliative care (Villalobos, 2011). Either must be able to be relived or there is no quality of life for the pet.

Quality of life assessment

There are a number of pain and quality-of-life assessment scales formulated for dogs and cats (Villalobos, 2011). These can be adapted to our avian patients and provide a framework for deciding the best course of action and for monitoring purposes if palliative care is chosen.

Education about the disease process

Clients may be unaware as to the degree of discomfort that their pet is experiencing or of the many different pathways a disease can take as it progresses. Each current symptom should be identified and plans for management discussed. Clients should be informed of the potential different developments and outcomes for the diagnosed conditions. Owners should be taught to recognise key indicators of pain and symptoms that will impact on quality of life (dyspnea, dehydration, anaemia, constipation) (Shearer, 2011). This is particularly important for palliative avian patients, since symptoms of disease and discomfort are often poorly expressed. Clients may also be unaware of the level of care required to provide comfort for their pet or understand that their needs will increase over time.

Death and euthanasia

The grief experienced by a client after the death of their pet can be severe (Shana, 2011). Determining a clear end-of-life plan can be very helpful for clients. Discussing a plan for how euthanasia may proceed and making prior decisions for the care of the pet's remains can be significantly less stressful when the moment arises. Euthanasia in the home environment may be difficult for veterinary practices to accommodate but it is an area of need, especially in avian medicine. Some clients have a preference for a natural death of their pet. This type of death can cause undue suffering and clients may need to be directed away from this pathway. In many instances where natural death can be without suffering, veterinarians may

Table 2. Adapted from Villalobos (2011)

.

HHHHHMM QOL Scale			
Parameter	**Criteria**	**Score (0-10)***	**Options for improvement**
Hurt	Ability to control pain Ability to breathe without impairment		• Evaluation of pain control options • Potential respiratory treatments – oxygen, coelomocentesis, bronchodilators, nebulising
Hunger	Appetite and ability to eat		• Different food options • Hand-feeding • Oesophagostomy tube
Hydration	Hydration status and ability to stay hydrated		• Improve taste of drinking water • Offer water in multiple and various containers • Feed high water content food items • Hand-feed water • Subcutaneous fluid administration
Hygiene	Ability to remain clean and free from pressure sores		• Bandages • Padded or bandaged perches • Hammock, platforms • Diapers or pants • Incontinence/training pads • Supported bathing, grooming • Access to bathing
Happiness	Response and interaction with the environment, other pets and the owner		• Identify behaviours indicating anxiety, depression, boredom or fear • Continue familiar routines in familiar surroundings • Move the enclosure to a more appropriate area (closer or further from human activity) • Toys, foraging, positive training interactions, food treats, exposure to direct sunlight, access to bathing
Mobility	The ability to move unassisted and perform normal basic functions (preening, eating, drinking, defecating) Seizure activity and impacts on normal functions		• Evaluation of pain control options • Acupuncture, physiotherapy, laser therapy • Padded or bandaged perches • Hammock, platforms, ladders, ramps • Diapers or pants • Incontinence/training pads • Supported bathing, grooming
More good days than bad	The ratio of good days to bad days, including the quality of the human-pet bond		• Evaluation of all palliative options Considerations for euthanasia
Total points =			A total of >35 points is an acceptable quality of life for pets to maintain a good palliative care program

*** 0 = worst, 10 = best**

play a role in an assisted death.

Chronic pain management

Alleviating pain is a crucial aspect of palliative care. A multidisciplinary approach and multimodal pharmacological treatments are the mainstay of chronic pain management in the medicine of all species (Downing, 2011). Improved pain control, lower doses of individual drugs and potential reduction in side effects can be achieved with this approach (Downing, 2011). Treatment of pain should target all aspects of the pain pathway, including local nociception; spinal modulation and transmission; and cortical interpretation and perception (Table 3). Behaviours that are suggestive of pain in birds include decreased social interaction, increased aggression and excessive grooming or chewing at the site of pain (Paul-Murphy, 2009). Despite these guidelines, the detection of pain in birds can be challenging for the clinician and owner. It must be assumed that conditions are painful as if they would be in mammals.

Knowledge of the pharmacokinetics and pharmacodynamics for many analgesics is a constantly evolving aspect in avian medicine. This makes analgesic selections difficult in avian patients, although by far the greatest difficultly is often the administration of medications. If oral medications are not taken readily or hidden in food, the stress of handling for administration often significantly impacts on quality of life and the human-animal bond. Investigations into drug delivery modes that allow extended release of drugs will be an important step in overcoming this problem. Long-acting NSAIDs, such as robenacoxib could have potential use in avian medicine while long-acting opioids already show some promise although further research is required (Guzman et al., 2017).

Other options that are already used frequently in human medicine include impregnated parenteral implants, infusion devices and injectable medications complexed with a variety of colloids and microparticles (Agrawal et al., 2012). Sustained release meloxicam has been trialed by subcutaneous administration in Hispaniolan amazon parrots, although in the small cohort the pharmacokinetics were highly variable. Anti-fungal infused subcutaneous implants have been trialed in birds with poor success (Souza et al., 2017), although the technology should not be discounted.

Example of chronic pain management: osteoarthritis

Osteoarthritis is common in avian species and may be a consequence of aging or secondary to joint trauma, conformational deformities, septic arthropathies or associations with metabolic bone disease. Many birds can maintain good quality of life and even achieve greater length of life with early palliative interventions.

Table 3. Pain and Analgesic Options (Downing, 2011)

Pain Pathway	Location	Action	Drugs
1. Transduction	Site of inflammation/ injury	Chemical signal changed to electrical activity by nociceptors	Local anaesthetics NSAIDS
2. Transmission	Peripheral nervous system	Peripheral nervous system to spinal cord via fast (A-delta) and slow (C) fibres	Local anaesthetics
3. Modulation	Spinal cord	Spinal cord to CNS via neurotransmitters	Opioids NSAID α2-agonists Local anaesthetics Tricyclic anti-depressants NMDA antagonists (ketamine) Gabapentin
4. Perception	CNS	Received signal is interpreted by the cortical	General anaesthesia Opioids α2-agonists Tricyclic anti-depressants NMDA antagonists (ketamine) Gabapentin

1. Rule out active infectious process and diagnose any co-morbidities
2. Determine current quality of life and formulate palliative care plan
3. Analgesia
    - NSAIDS - Advise 3-6 monthly monitoring of biochemical parameters
    - Tramadol
    - Gabapentin
4. Other therapies
    - Pentosan polysulfate
    - Fatty acid supplementation
    - Laser therapy
    - Acupuncture
    - Weight loss (if appropriate)
    - Consider arthrodesis in single affected joints
5. Environmental modifications
    - Controlled environmental temperature
    - Food and water made easy to access
    - Perches are easy to grip and disperse pressure
        - Bandage material covering
        - Synthetic grass covering
        - Resting sites (platforms, hammocks, wide perches)

This scenario highlights the importance of a holistic approach for successful palliative care. Multi-modal analgesia and various modalities can be employed to achieve good quality of life for avian patients. Constructing a plan that is dynamic and regularly evaluated can allow the clinician to significantly improve the remaining time for the pet and the client. Palliative care is a rapidly growing field in companion animal medicine and guidelines for the management of avian patients have been formulated in this manuscript using the existing framework. Despite recent advances in analgesia in avian species, there is still a considerable absence of options for management of chronic pain and a focus of further research is recommended in this area.

References

Agrawal M, Limachiya M, Sapariya A, Patel G (2012). A review on parenteral controlled drug delivery symptoms. *International Journal of Pharmaceutical Sciences and Research.* **3**(10): 3657-3669.

Cooney KA (2016). The emerging world of animal hospice: (2) Management strategies. I*n Practice* **38**(6): 307-309.

Downing R (2011). Pain management for veterinary palliative care and hospice patients. *Veterinary Clinics of North America: Small Animal Practice*. **41:** 531-550.

Downing R, Adams VH, McClenaghan AP (2011). Comfort, hygiene, and safety in veterinary palliative care and hospice. *Veterinary Clinics of North America: Small Animal Practice*. **41**: 619-634.

Downing R (2011). The role of physical medicine and rehabilitation for patients in palliative and hospice care. *Veterinary Clinics of North America: Small Animal Practice*. **41**: 591-608

Goldberg KJ (2016). Veterinary hospice and palliative care: a comprehensive review of the literature. *Veterinary Record***. 178**: 369-374.

Guzman DS, Court MH, Zhu Z, Summa N, Paul-Murphy JR (2017a). Pharmacokinetics of sustained release formulation of meloxicam after subcutaneous administration in Hispaniolan Amazon parrots (*Amazona ventralis*). *Journal of Avian Medicine and Surgery*. **31** (3): 219-224.

Guzman DS, Knych HK, Olsen GH, Paul-Murphy JR (2017b). Pharmacokinetics of a sustained release formulation of buprenorphine after intramuscular and subcutaneous administration to American Kestrels (*Falco sparverius*). *Journal of Avian Medicine and Surgery*. **31**(2):102-107.

Herbert R, Prigerson H, Schultz R, Arnold RM (2006). Preparing caregivers for the death of a loved one: a theoretical framework and suggestions for future research. *Journal of Palliative Medicine*. **9**(5): 1164-1169.

Paul-Murphy J (2009). Pain management for the pet bird. In: Gaynor, JS and Muir, WS. *Handbook of Veterinary Pain Management*.St Louis, MO Elsevier. pp. 467–480.

Shana AA (2011). Veterinarian's role in helping pet owners with decision making. *Veterinary Clinics of North America: Small Animal Practice*. **41**: 635-646.

Shearer TS (2011). Pet Hospice and palliative care protocols. *Veterinary Clinics of North America: Small Animal Practice*. **41**: 507-518

Souza MJ, Redig P, Cox SK (2017). Plasma Concentrations of Itraconazole, Voriconazole, and Terbinafine When Delivered by an Impregnated, Subcutaneous Implant in JapaneseQuail (*Coturnix japonica*). J*ournal of Avian Medicine and Surgery*. **31**(2):117-122.

Temel J, Greer JA, Muzikansky A, Gallagher ER, Admane S, Jackson VA, Dahlin CM, Blinderman, CD, Jacobsen J, Pirl WF, Billings A, Lynch TJ (2010). Early palliative care for patients with metastatic non-small-cell lung cancer. *New England Journal of Medicine*. **363**(8): 733-734.

Villalobos AE (2011). Quality-of-life assessment techniques for veterinarians. *Veterinary Clinics of North America: Small Animal Practice*. **41**(3): 519-529.