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ADVANCE2025

Palliative Care for the Cancer Patient and
The Focus on Quality Over Quantity

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*Palliative Care for the
Cancer Patient and
The Focus on Quality
Over Quantity*



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Continuing
EDUCATION

Objectives

- To have an understanding of the difference between palliative care and hospice
- To understand the common morbidities associated with various cancers and the therapies and treatments available to mitigate them
- To understand the toxicities that can be associated with various cancer therapies and treatments available to mitigate those
- To understand options for patients who forgo/discontinue cancer therapy in the end-of-life setting

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Palliative Care vs Hospice

- Palliative care originated in late 1900s
 - WHO: 1990, "the active total care of patients whose disease is not responsive to curative treatment."
 - Palliative care starts when cancer care stops
 - This is what we generally think of today in vet med
- Modern Utilization: start early, in conjunction with cancer care
 - More living with metastatic cancer
 - Curable cancer high symptom burden and toxicity from tx
- Hospice: care, comfort and QOL in end of life setting

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Modern Utilization of Palliative Care

- "specialized, team-based care, focused on alleviating the symptoms and stress of serious illness for patients and families, which is appropriate at any age and any stage of illness"
- Early intervention --> improved outcomes (patient and families)
- Gold standard in human medicine

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Veterinary Medicine Approach

- Consistent focus on QOL
 - Major difference b/w vet med and human
- Definition shift
 - Adopt modern definition with palliative care starting from dx regardless of elected treatment
 - This is how I will approach this lecture

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Common Cancer Morbidities & Their Management

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GI ulceration

- GI disease → decreased integrity → more susceptible to perforation with and w/o treatment
- LSA, MCT (both in GI and not via degranulation), gastric carcinoma, leiomyosarcoma, GIST, etc
- NSAIDs, Steroids, chemo (cell die off)
- Signs: nausea/vomiting, pain, melena, hematemesis, pale MMs
- Common bloodwork changes anemia, hypoproteinemia elevated BUN
- Diagnosis: Exam, BW, AUS, endoscopy
- Treatment: gastroprotectants, supportive care, treat underlying cause
- Extreme cases (perforation), surgery required

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Degranulation – Mast Cell Tumors

- Contents of mast cell granules
 - Histamine: increased vascular permeability, edema, and bronchoconstriction
 - Proteases: Enzymes that break down proteins
 - Cytokines: Chemicals that regulate immune responses, such as tumor necrosis factor (TNF) alpha
 - Proteoglycans: Chemicals that help form the granules
- Darier's Sign: tumor grows then shrinks back within 12-24hrs (degranulated)
- Local signs: swelling, redness, itching, bleeding, delayed wound healing, ulceration
- Systemic signs: GI upset, GI ulceration, melena, lethargy, hypotension, pyrexia, edema, bleeding disorders, rarely anaphylaxis

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Degranulation: Prevention and Treatment

- Risk factors: high disease burden (locally and metastatic), high grade tumors, trauma
- Prevention
 - Antihistamines: diphenhydramine 2mg/kg q8-12hr
 - H2 antagonists: famotidine 1mg/kg q12hr
 - Steroids: depends on situation
 - Palliative setting – yes
 - Pre-surgery/aggressive treatment – sometimes
 - Dose: 0.5mg/kg q12hr or 1mg/kg/day
- Treatment
 - All preventatives
 - GI ulcer medications: omeprazole, sucralfate
 - Epinephrin (anaphylaxis)
 - Treat for what is going on
 - Severe cases may need blood, vasopressors, coagulation support



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GI Obstruction

- Often present similarly to perforation, sometimes both
- GI disease grows to the point of obstruction or reduces the lumen to a point where flow reduced
 - Sometimes obstruction from GI FB leads to cancer diagnosis
- Steroids → polyphagia → GI FB
 - Always warn owners
- Surgery required to dx and treat
 - do not recommend medical management once obstruction is confirmed



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Hypercalcemia

- Dogs normal Ca: total <11.5 mg/dL; iCa: <1.5 mmol/L
- Cats normal Ca: total <10.5 mg/dL; iCa: <1.4mmol/L
- **Ionized Ca more important! Better indicator of global physiologic Ca status**
- Signs acute: PU/PD, GI upset, lethargy, weakness, AKI, arrhythmias
- Signs chronic: urinary stones, lower urinary tract signs, constipation, muscle wasting, stiffness, twitching/tremors
- Causes:
 - HARDIONS
 - Hyperparathyroidism, HH (Humoral Hypercalcemia of Malignancy), Addison's disease, Renal disease, Vitamin D toxicosis, iatrogenic causes, Other (granulomatous disease), Neoplasms, and Skeletal disease.
 - Common cancer causes: **Lymphoma, Anal Sac Adenocarcinoma, SCC**, multiple myeloma, thymoma, carcinomas (thyroid, parathyroid, mammary, pulm, panc, renal), OSA
- MOA
 - PTHrp → mimics PTH → rls Ca⁺, osteolysis, interleukins and TNF- α

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Hypercalcemia of Malignancy Panel

TABLE 3 Changes in Phosphorus and Calcium Metabolic Hormones in Response to Hypercalcemia^{1,2,25}

CAUSE OF HYPERCALCEMIA	ICa	ICA	PHOSPHORUS	PTH	PTHrP
Hyperparathyroidism	Increased	Increased	Decreased-Normal	Normal-Increased	Normal ^a
Malignancy-associated, humoral hypercalcemia of malignancy	Increased	Increased	Decreased-Normal	Decreased-Normal	Normal-Increased
Osteolytic	Increased	Increased	Normal-Increased	Decreased-Normal	Normal-Increased
Acute kidney injury	Increased	Increased	Normal-Increased	Increased	Normal ^a
Hypervitaminosis D	Increased	Increased	Normal-Increased	Decreased	Normal ^a
Hypoadrenocorticism	Increased	Increased	Normal-Increased	Decreased-Normal	Normal ^a
Granulomatous	Normal-Increased	Increased	—	Decreased-Normal	Normal-Increased
Idiopathic (cats)	Increased	Increased	Normal-Increased	Decreased-Normal	Normal ^a

^aNormal range
ICa = ionized calcium; PTH = parathyroid hormone; PTHrP = parathyroid hormone-related peptide; ICA = total calcium

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Hypercalcemia Treatment

- Severity and cause matter!
- Treatment:
 - Treat underlying cause
 - Steroids and chemo for LSA
 - Excision of tumor; all other cancers usually result in correction
 - Other:
 - IVF: volume expansion, increase GFR, competitive inhibition of Ca reabsorption
 - Lasix (once re-hydrated): promotes calcium excretion
 - 1-2mg/kg q12
 - Calcitonin: inhibits osteoclasts
 - 4-6U/kg q8-12hr SQ/IM
 - Steroids: lymphocytolysis, decrease GI absorption, calcium excretion, counteracts Vit D, decrease ICA bone resorption
 - Dex: 0.1 mg/kg q12hr
 - Pred: 0.5-1mg/kg q12hr
 - Bisphosphonates: inhibits osteoclasts, inhibits dissolution of bone crystals
 - pamidronate IV, zoledronate IV, Aledronate PO
 - Zoledronate: 0.1-0.25 mg/kg IV q4 wks (do not exceed 4mg)
 - Aledronate:
 - Cats: 5-10 mg/cat PO weekly
 - Dogs: 0.5-1mg/kg PO BID


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Urinary Changes

- Tumors of the urinary tract: carcinoma (TCC) most common, but can see lymphoma, hemangiosarcoma, other sarcomas
- Stranguria, polyuria, hematuria
 - UTI, cancer, both?
- Urinary tumors --> high risk UTIs
 - >50% will develop UTI (80% in females vs ~30% males)
 - Important to check often and recheck with UCS
 - Often resistant or complicated requiring longer courses of treatment and re-treatment
 - Staph and e.coli most common
 - Cranberry supplementation (ecoli)
- Making them more comfortable
 - Antibiotics, NSAIDs, Radiation (90% improved clinical signs), Yunnan Baiyao

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Urinary Obstruction



- Urethra
 - Medical emergency
 - Stenting
 - ~98% resolve obstruction
 - Complications: recurrent obstruction, stent migration, incontinence (25-40%)
 - MST post stent: 2-3mo
- Ureteral
 - Azotemia → AUS → find hydronephrosis
 - Surprisingly can live like this for longer than one would expect
 - Partial obstructions?
 - Stenting – more complicated
 - MCT post stent ~2mo
- Occasionally if naive patient NSAIDs may be enough and should work quickly
- Can try RT and/or chemo but almost never work

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Respiratory Changes



- Airway disease, LN enlargement and/or neoplastic effusions
- Pulmonary carcinoma, tracheal, head/neck neoplasia
 - Exercise intolerance: lifestyle modification
 - Coughing: anti-inflammatory (NSAID vs steroids), antitussive
 - Hydrocodone (dogs): 0.25mg/kg PO q6-12hr PRN
 - Codeine (dogs): 1-2mg/kg PO q6-12hr PRN
 - Cerenia: 2mg/kg PO q4-8hr – mixed results
 - Obstructions: surgery, radiation, stenting
- LN compression/obstructions → often positional → treat LNs
- Pleural effusion
 - Why effusing (ideal) → workup ultrasound, fluid removal/submission, x-rays post removal, cardiology
 - Thoracocentesis: therapeutic and diagnostic
 - Treat the cause
 - Neoplastic effusions: pred 0.5 mg/kg PO BID
 - We do not do intravitary chemotherapy (high risk, little reward)

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Pain



- Most neoplasia is not overtly painful
 - Cancer impacting bone, head and neck cancer, pancreatic cancer
 - Morbidity associated pain: ulceration, infection, obstruction
- BEST: REMOVE SOURCE OF PAIN
- Bone tumors
 - AMPUTATION, radiation, zoledronate, NSAID, gabapentin, amantadine, opioids
 - Pathologic fracture → needs an amputation, will not heal
- Oral tumors → can often impact the bone, get infected/ulcerate
 - Palliative surgery and radiation, pain medications (oral difficult)
 - Antibiotics
 - Magic mouthwash (1 part oral diphenhydramine, 1 part aluminum hydroxide, 1 part lidocaine)
- Ketamine/Lidocaine Fluid Infusion Protocol (Iocolano et al 2024)
 - Palliative for refractory cancer pain
 - Ketamine 0.9mg/kg + Lidocaine 1.8mg/kg → dilute in 250mL saline cats and small dogs or 500mL dogs >15kg (7.6% clinical benefit)
 - Admin over 4-6hrs at 2.5ml/kg/hr fluid rate (q2-4 weeks)

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Steroids or NSAIDs? Which When

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Disease Indications

- Round cell tumors: steroids
 - Please do not start NSAID if round cell tumor (LSA + MCT+ HS+PC/MM) on differential list
 - Prednisone vs Prednisolone (1-2mg/kg/day)
 - cats rarely go over 5mg/daily
 - Dogs rarely go over 60mg daily
 - Dexamethasone (0.1-0.2mg/kg/day)
 - Have used with great success SQ in cats at home
 - Depomedrol → NO PLEASE
- Solid Tumors: NSAIDS
 - COX inhibition
 - Piroxicam vs other
 - Dosing: pending drug utilized
 - Still use NSAIDs in cats*

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Other Clinical Indications

- Ultimate goal = make patient feel better!
 - Ideal to choose the right drug for the right disease BUT we need to choose the right drug for the right patient
- Other chronic dz needs/already on one or the other weigh pros and cons of change
 - Immune mediated disease, arthritis, neurological disease
- Patient generally not doing well worried won't tolerate NSAID → choose steroid
- GI upset: choose steroids or change NSAID
- Renal dysfunction: steroids > NSAIDs
- Effusions: steroids
- NSAID stops working → try steroid if clinically appropriate
 - After appropriate washout (5-7d)
 - Not as good the other way around
- Sometimes neither
 - Round cell tumor with contraindication (DM, heart)
 - Weigh risks
- Always have owner discussion about risk/reward

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Common Side Effects

- Steroids:
 - PUPD, polyphagia, panting, anxiety, DM, CHF, muscle wasting, transaminitis, wound healing
 - Client education – know what to expect and ideal protocol (taper planned??)
 - Discuss serious risks: DM, CHF, dumpster diving
 - Change dosing schedule
 - Lower dose
 - Anxiety: Trazadone (canine) 5-7mg/kg q8-12hr
 - Wound healing: Vit A (8000 IU SID small dog 16000 IU SID big dogs)
 - Discontinue
- NSAIDs:
 - GI upset, GI ulceration, AKI, transaminitis
 - AKI -> admit
 - Dose or drug change
 - Discontinue
- Washout: 5-7 days

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Dogs vs Cats

- Dogs: tend to tolerate well
 - Biggest issues with acute steroid SEs
- Cats:
 - NSAIDs in cats
 - We can use but with caution and pending situation
 - Steroids
 - Don't really see the same day to day SE profile
 - See more severe SEs (DM, CHF)
 - Try not to exceed 5mg/cat/day

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Cancer Therapy Side Effects

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Surgery

- Often the best palliative option
 - Remove problem (if possible) = feel better
- Healing
 - Prior radiation > steroids > chemo
 - Incomplete margins – sewing cancer to cancer
 - VitA:
 - 8,000 IU/day small dogs
 - 16,000 IU/day big dogs
- Pain management – you do this all day every day
- Large surgeries (amputation, oral surgery) – life modification
 - Often not needed – animals much more resilient than we are

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Chemotherapy – Traditional Common SEs

- MOA toxicity
 - Rapidly dividing cells
 - GI, Bone marrow, Hair
 - Where drug concentrates/is metabolized/excreted
- Treatment
 - GI: Cerenia, metronidazole, ondansetron, metoclopramide, omeprazole
 - Myelosuppression:
 - Antibiotics (oral vs conenia)
 - Neupogen (filgrastim) – G-CSF
 - Almost never need transfusions
 - Almost never bleed (Finlay 2017)
 - 1.3% chemo induced bleed
 - 7.7% if <50k

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Chemotherapy – Traditional Cont.

- Unique:
 - Doxo cardiotoxicity (dogs) – ROS
 - DCM
 - Dose dependent
- Extravasation:
 - Doxo > Mustargen > vinc/VBL
 - Dexrazoxane (Zinecard) – IV through alt cath
 - Sodium Thiosulfate – IV through same cath if in place or SQ at chemo injection site
 - Hyaluronidase – SQ around injection site
- Sterile hemorrhagic cystitis (Dogs) – Cytosin/cyclophosphamide
 - Metronomic > pulse dose
 - Furosemide 2mg/kg
 - 30% → 10% (significant reduction) – metronomic
 - 12% → 2% (pulse dose)

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Chemotherapy - Traditional continued

- Skin side effects (Tanovea) – hair loss, skin abrasions/infections, ear infections
- Warn owners!, keep on low dose steroids, cultures, antibiotics
- Acupuncture can improve SEs
 - Multiple human studies: pain, immune regulation, nausea, inflammation
 - Multiple canine studies: pain, inflammation, nausea
 - Anecdotally also helpful in dogs and cats post chemo
- Diet
 - Do not recommend diet changes unless necessary
 - No raw food diets
 - GI friendly diets

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Chemotherapy - Targeted

- Palladia:
 - Tyrosine kinase inhibitor
 - Mostly GI SEs (D+)
 - Metro, Tylan, probiotics, Rx Clay
 - Mild leukopenias – inhibits SCF (not direct to bone marrow progenitors)
 - Proteinuria → UPC >2 dose reduction +/- telmisartan (0.5mg/kg PO SID → 1mg/kg PO SID)
 - Keep in mind baseline and stress level when sampling
- FidoCure: multiple drugs
 - Palladia can be one of FidoCure Options pending results
 - Other common drugs: Ranycin (mTOR), Trametinib (kinase inhibitor), Olaparib (PARP), Vorinostat (HDAC)
 - GI upset most common, monitor CBC, chemistry and urine closely
 - 2wks post initiation, 4-6wks thereafter

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Radiation

- Location, Location, Location
 - What is in treatment field experiences toxicity
 - Less SEs with IMRT – need CT but more controlled
- Acute (weeks): hyperfractionated
 - Skin: moist desquamation - no consensus on tx
 - E-collar, tx delay
 - Steroids, NSAID, gabapentin, antibiotics, topical therapy (SSD)
- Late (months to years): Hypofractionated
 - Fibrosis, fistulas, strictures, path fractures, vascular changes, secondary neoplasia

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Hospice Care

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Symptomatic Treatment

- GI upset
 - Cerenia, ondansetron, metoclopramide, metronidazole
 - E-tubes
- Pain
 - Gabapentin, opioids, NSAIDs, steroid
 - Ketamine (0.9 mg/kg) + lidocaine (18 mg/kg) infusions (4-hrs)
 - Target infusion rates: 0.15 mg/kg/hr ketamine and 3 mg/kg/hr lidocaine
 - 3-4 weeks typical (weekly at most)
 - Newly published Cornell AVMA 2024 Iocclano et al
- Dehydration – fluid therapy
- Respiratory changes
 - Coughing
 - Effusions

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Euthanasia

- Discuss early if possible
- Multiple options now – make more comfortable for families
 - Home
 - Primary care vet
 - Specialty hospital
 - ER – 24/7



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Owner/Family Support

- DVM/VMD Support
- Social worker/psychological resources
 - CUVS support group open to all via Zoom with Katherine Velez, LCSW
 - First Wednesday of every month 6pm-7pm
 - Information on cuv.org website under Services --> Veterinary Social Work
 - Multiple other resources on this page

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Thank You!!

Questions??

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