

Get in the Know About Chemo

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Session Objectives

- Chemo 101
- Goals of chemotherapy in #vetmed
- Pharmacokinetics tech-nicalities
- Animal Health v. Human Health
- Safety 1st
- Patient management
- Troubleshooting
- Client education
- Bridging the Gap

CHEMOTHERAPY

Treatment of Disease

- Cancer
- Autoimmune

Causes Cell Death

- Tumor
- Immunesuppression
- GI effects



Goals of Chemotherapy

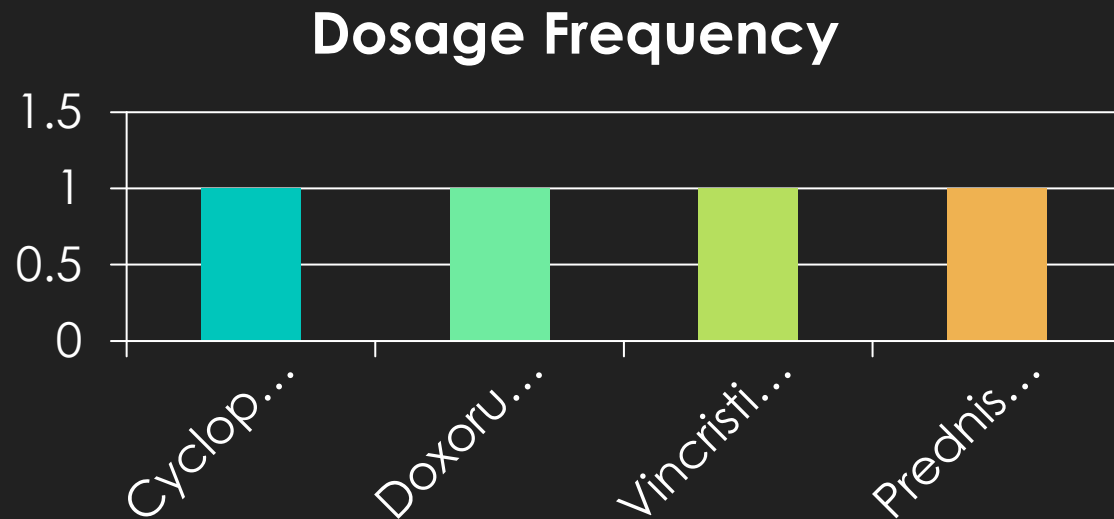
- Remission: No detectable cancer, improves comfort.
- Palliation: Reduce symptoms like pain or poor appetite.
- Quality of Life: Lower doses, shared decision-making with owners.

Chemotherapy Basics

- Cytotoxic drugs target rapidly dividing cells
- Side effects:
 - Bone marrow suppression, GI upset, alopecia
- Key terms:
 - Remission, Myelosuppression, Nadir, Extravasation

Key Drugs – Part I

○ Cyclophosphamide, Doxorubicin, Vincristine, Prednisone(solone)



Part I

Drug	Use	Major Risk	Monitoring
Carboplatin	Carcinomas, sarcomas	Myelosuppression	CBC, renal
Doxorubicin	Lymphoma, sarcomas	Cardiotoxicity	ECG, CBC
Vincristine	Lymphoma, TVT	Neuropathy	CBC
Cyclophosphamide	Lymphoma	Hemorrhagic cystitis	Urinalysis

Myelosuppression

White blood cells / Leukopenia

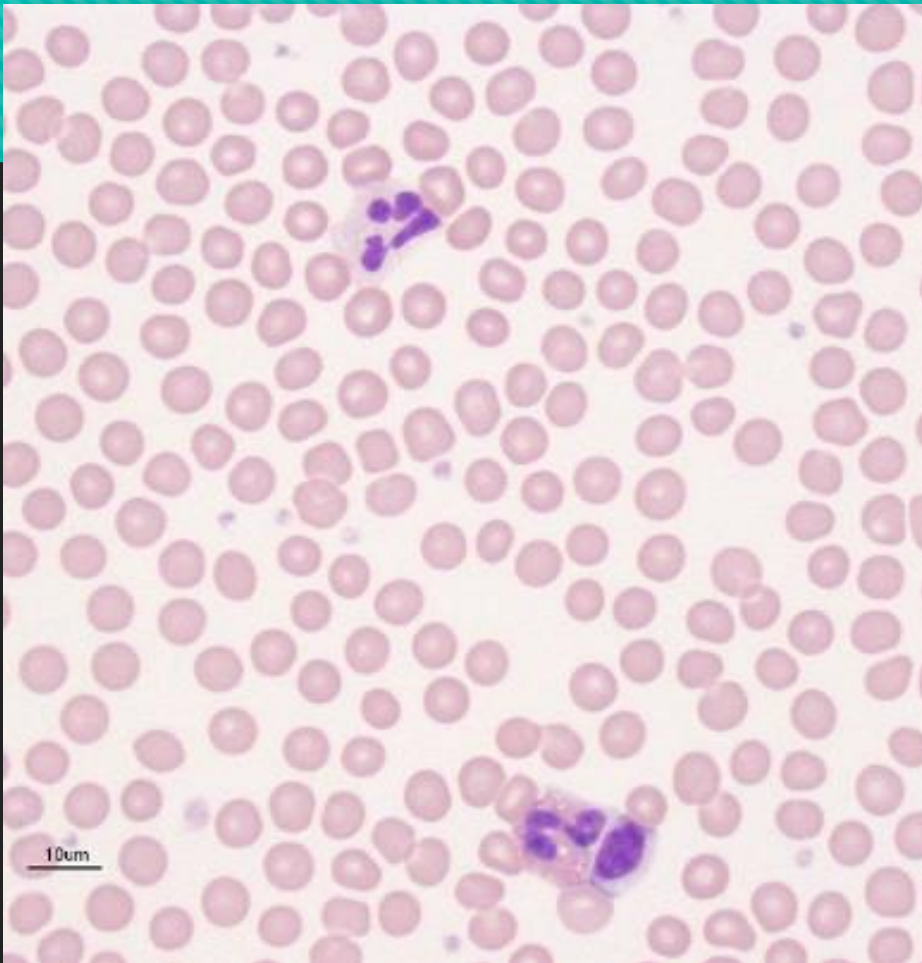
- Nadir (low point) occurs 5-10 days after most chemo
- Severe neutropenia can result in sepsis
- Do not administer chemo if total WBC count is $<3,000/\mu\text{L}$

Red blood cells / Anemia

- Anemia occurs as a side effect
 - usually after prolonged chemo use

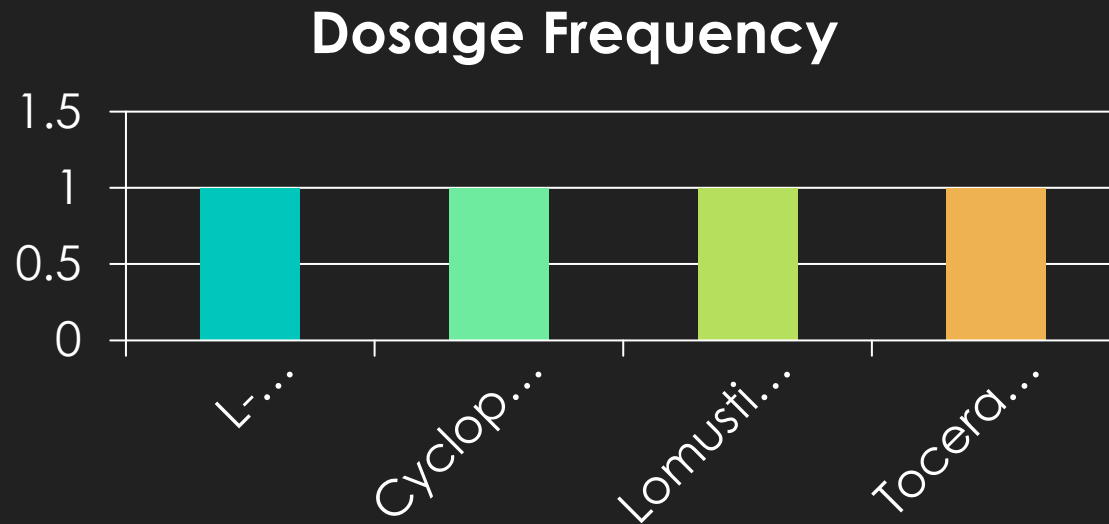
Platelets / Thrombocytopenia

- Nadir occurs 1-2 weeks after chemo administration
- Do not administer chemo if platelet count is $<100,000/\mu\text{L}$



Key Drugs – Part II

- L-asparaginase, Cyclophosphamide, Lomustine, Toceranib.



Part II

Drug	Use	Major Risk	Monitoring
L-asparaginase	Lymphoma, leukemia	Hypersensitivity, pancreatitis	Observe for allergic reactions
Cyclophosphamide	Lymphoma, sarcomas	Sterile hemorrhagic cystitis	Urinalysis, hydration protocols
Lomustine	Lymphoma, mast cell tumors, CNS neoplasia	Hepatotoxicity	Liver enzymes, use hepatoprotectants
Toceranib	Mast cell tumors, targeted therapy	GI upset, renal changes	CBC, renal function, GI monitoring

Pharmacokinetics

- Absorption: IV preferred for accuracy; some oral agents exist
- Distribution: Drugs spread systemically; some cross BBB
- Metabolism: Liver function critical for safety
- Excretion: Urinary/fecal elimination requires handling precautions
- Timing: Monitor CBC before and during nadir (7-10 days post-tx)

Absorption → Distribution → Metabolism → Excretion

Animal vs Human Oncology

- Human:
 - Aggressive dosing, hospitalization, transfusions.
- Animal:
 - Comfort-focused, lower doses, CHOP protocol adapted.
- Ethical priority:
 - Preserve daily comfort over cure.

Safety 1st

- Prepare drugs in biological safety cabinets.
- Confirm vein patency; manage extravasation promptly
- Use PPE:
 - Nitrile gloves, impermeable gown, eye/face protection.



Personal **Protective** Equipment

Excretion

Chemotherapy	Urine	Bile/ Feces	Time Frame	
Carboplatin	Yes	Yes	21 days	-in saliva-
Chlorambucil*	Yes	Yes	2 days	
Cyclophosphamide	Yes	Yes	4 days	
Doxorubicin	Yes	Yes	21 days	
L-asparaginase*	No	No	3 days	
Lomustine*	Yes	Yes	2 days	
Mechlorethamine*	Yes	Yes	7 days	
Mitoxantrone*	Yes	Yes	7 days	
Toceranib	Yes	Yes	3 days	
Vinblastine	Yes	Yes	7 days	
Vincristine	Yes	Yes	3 days	

Pet Parent Safety

Excretion

- Wear gloves
- Limit exposure
- Clean up protocol

Side Effects

- GI signs
- Lethargy
- Fever

Risk

- Immunocompromised
- Pregnant or trying
- Children

Daily Management

- Monitor CBC, appetite, hydration, energy levels.
- Supportive care:
 - Antiemetics, appetite stimulants, fluids.
- Act on early warning signs:
 - Fever, lethargy may indicate neutropenia.

Troubleshooting

- GI upset:
 - Bland diet, antiemetics.
- Myelosuppression:
 - Antibiotics, hospitalization if severe.
- Home hazards:
 - Gloves for pill handling, double-flush toilets.

Client Education

- Quality-of-life focus
- Encourage symptom diary; provide emotional support
- Home safety:
 - Gloves, secure meds, waste precautions

Bridging Practice & Specialty

- CrVTs' Roles:
 - GP:
 - Detect cancer early, explain referrals
 - Specialty:
 - Handle drug prep, advanced monitoring
 - Communication ensures continuity and client confidence.

Summary

- Technicians balance science and empathy.
- Ensure safe chemo care and client education
- Goal:
 - Pets live longer AND well

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