IV Chemotherapy - Bladder Cancer Studies at a Glance (as of 09/12/20):

R = retrospective; P = prospective; Clinical Benefit %= RR%+SD% = Response rate (% of dogs acheving complete or partial remission)+Stable disease rate (tumor is neither growing or shrinking); PFI = Progression Free Interval(median time from treatment to progressive disease), MST = median survival time (from the time treatment began to death)

Study Protocol (linked to study)	# of Dogs	Trial type	Clinical Benefit %: RR%+SD%	PFI (days)	PFI Range (days)	MST (days)	MST Range (days)	Comments/Results	Ref
Piroxicam (post Vinblastine failure)	20	P	15%+45%= 60%	N/A	N/A	531	N/A	Vinblastine was administered every 2 weeks without Piroxicam. 20 of the original 27 dogs in the Vinblastine Alone group elected to treat with Piroxicam given orally once per day once the Vinblastine failed. Response rates pertain to the Piroxicam given after Vinblastine failed.	Knapp 2016
Vinblastine/Piroxicam	24	P	58%+33%= 92%	199	21-593	299	21-637	Vinblastine was administered every 2 weeks plus Piroxicam was given orally once per day. 21% of dogs experienced gastrointestinal toxicity with only 4% at grades 3-4. 29% of dogs experienced hematologic toxicity with 13% at grades 3-4.	Knapp 2016
Vinblastine Alone	27	P	22%+70%= 93%	143	1-1,015	407	13-1132	Vinblastine was administered every 2 weeks without Piroxicam. 19% of dogs experienced gastrointestinal toxicity at low grade levels (1-2). 48% of dogs experienced hematologic toxicity with 15% at grades 3-4.	Knapp 2016
Vinblastine	28	P	36%+50%= 86%	122	28-399	147	28-476	Vinblastine was administered every 2 weeks. Mean number of treatments were 8. Dosage reductions were performed because of neutropenia in 16 dogs (57%) and grade 3 GI toxicosis in 1 dog (4%). Of the 28 dogs, 11 (39.3%) had grade 3 or 4 neutropenia during the course of their treatment	Knapp 2011
Vinblastine/Toceranib (Palladia)	10	P	20%+30%= 50%	N/A	N/A	N/A	N/A	Vinblastine was administered every 2 weeks and Toceranib(Palladia) was given orally on Monday, Wednesday and Friday for 16 weeks. NSAID's were continued on off days from Toceranib. Omeprazole was given daily. Most common adverse event was gastrointestinal and were all at grade 1 or 2. Second most common adverse event was hematologic with most events at grades 1-2 except for two instances of neutropenia at grades 3-4 and a grade 4 elevation of ALT.	Rippy 2016
Piroxicam with Mitoxantrone	26	P	8%+69%= 77%	106	21 to 383	248	N/A	Mitoxantrone was administered every 3 weeks concurrently with piroxicam daily. 7 dogs (27%) had dose reductions because of adverse events. Neutropenia was noted in 40% of the dogs.	Allstadt 2015
Mitoxantrone and Piroxicam	48	P	35%+46%= 81%	194	0 to 460	350	10 to 675	75% of the dogs were noted to exhibit clinical improvement based on a subjective measurement. Toxicity noted with this protocol included GI irritation in 18% of dogs, neutropenia in 10%, and renal failure unattributable to other causes in 6% of dogs with complete follow-up. GI irritation was attributed to Piroxicam alone as it had the same GI toxicit as the Piroxicam alone study.	Henry 2003
Intravenous Carboplatin	15	R	13%+60%= 73%	N/A	N/A	N/A	N/A	No previous treatments for the study participants. Various NSAIDS were also used orally in conjunction with 3 treatment cycles of Carboplatin. Total of 44 treatments were given to the study population. Anemia was experienced in 41% of the treatments, neutropenia in 50%, thrombocytopenia in 14%, lethargy and anorexia in 23%, diarrhea in 18% of the treatments.	Culp 2015

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Study Protocol (linked to study)	# of Dogs	Trial type	Clinical Benefit %: RR%+SD%	PFI (days)	PFI Range (days)	MST (days)	MST Range (days)	Comments/Results	Ref
Intraarterial Carboplatin	11	R	36%+64%= 100%	N/A	N/A	N/A	N/A	No previous treatments for the study participants. Carboplatin and Meloxicam (NSAID) were both given intraarterially for 2 treatment cycles. There were 2 (9%) procedural complications and 3 post procedural events such as mild lameness in 9% and 1 ischemic event leading to blindness. Neutropenia was experienced in 36% of the treatments and diarrhea in 9% of the treatments.	Culp 2015
Carboplatin/Piroxicam	29	P	38%+45%= 83%	N/A	N/A	161	N/A	4.0 average doses of carboplatin every three weeks with daily oral Piroxicam were given.Gastrointestinal toxicity observed in 74% of dogs ranging from mild to severe, hematologic toxicity observed in 35% of dogs, also ranging from mild to severe.	Knapp 2005
Piroxicam with Carboplatin	24	P	13%+54%= 67%	74	13 to 548	263	N/A	Carboplatin was administered every 3 weeks concurrently with piroxicam daily. 3 (13%) dogs had dose reductions due to adverse events. Gastrointestinal toxicosis was noted in 26% of the carboplatin-treated dogs. study	Allstadt 2015
Cisplatin followed by Piroxicam	8	P	0%+50%= 50%	84	42 to 151	309	140 to 518	Once the dogs experienced progressive disease, Piroxicam was given while Cisplatin was discontinued. The MST data is based on this combination protocol. Renal toxicity was reported in 50% of the dogs. Hematologic toxicity occurred in 36%. Gastrointestinal toxicity occurred in 38%.	Knapp 2000
Cisplatin/Piroxicam	14	P	71%+14%= 86%	124	46 to 259	246	46 to 810	Renal toxicity of cisplatin/piroxicam was reported in 86% of the dogs. Hematologic toxicity occurred in 36%. Gastrointestinal toxicity occurred between 50% and 65% but were generally mild.	Knapp 2000
Cisplatin	15	P	13%+53%= 67%	87	N/A	338	N/A	Cisplatin was given every 3 weeks. 93% experienced gastrointestinal side effects with 40% at grade 3 or grade 4 levels. Hematologic toxicity occurred 60% with 20% at Grade 3 or 4. Renal toxicity in 33%.	Knapp 2012
Cisplatin/Firocoxib	14	P	57%+21%= 79%	186	N/A	179	N/A	Cisplatin was given every 3 weeks along with Firocoxib given orally once per day. 66% experienced gastrointestinal side effects with 58% at grade 3 or grade 4 levels. Hematologic toxicity occurred 36% with 0% at Grade 3 or 4. Renal toxicity in 45%.	Knapp 2012
Gemcitabine/Piroxicam (Abstract Only)	38	P	26%+50%= 76%	N/A	N/A	230	N/A	Median of 8 weekly treatments were given with a range of 1 to 38 treatments per dog in this study. 68% had gastrointestinal toxicity (Grade 1-3) and 26% had neutropenia toxicity (Grade 1-3). All dogs had improvement in clinical signs.	Marconato 2011
Doxorubicin/Piroxicam (Abstract Only)	23	R	9%+61%= 70%	103	N/A	168	N/A	3.5 average doses of doxorubicin every three weeks with daily oral Piroxicam were given. Gastrointestinal toxicity were generally mild.	Robat 2013