CAP

Advanced thymoma

Drug/Dosage:	Cyclophosphamide	500mg/m^2	IV	Day 1
	Doxorubicin	50mg/m^2	IV	Day 1
	Cisplatin	50mg/m^2	IV	Day 1

Administration: Cyclophosphamide is a bolus injection
Doxorubicin injection infused via fast running infusion 0.9% sodium chloride

Cisplatin: 1 litre 0.9% Sodium Chloride + 20mmol KCl + 10mmol $MgS0_4$ IV over 2 hours
Mannitol 20% 100ml IV over 15 minutes
Cisplatin in 1 litre 0.9% Sodium Chloride IV over 2 hours
1 litre 0.9% Sodium Chloride + 20mmol KCl + 10mmol $MgS0_4$ IV over 2 hours
500ml Sodium Chloride 0.9% IV **or** 500ml water orally over 1 hour

Frequency: every 3 weeks for up to 8 cycles

Main Toxicities: myelosuppression; nephrotoxicity; neuropathy / ototoxicity; alopecia; mucositis; haemorrhagic cystitis; cardiomyopathy; ovarian failure / infertility

Anti-emetics: highly emetogenic

Extravasation: doxorubicin is a vesicant

Regular Investigations:	FBC	Day 1
	U&Es	Day 1
	Mg^{2+} and Ca^{2+}	Day 1
	LFTs	Day 1
	EDTA	Prior to 1st cycle
	MUGA scan	see Comments

Comments: Maximum cumulative dose of doxorubicin = 450 - 550mg/m^2

A baseline MUGA scan should be performed where the patient is considered at risk of having significantly impaired cardiac contractility. If ejection fraction is less than 50%, an alternative regimen should be given.
MUGA scan should be repeated if there is suspicion of cardiac toxicity at any point during treatment.

For patients on Cycle 1 whose EDTA is not yet available, Cockcroft and Gault may be used to predict GFR. Cisplatin dose should be adjusted according to EDTA on subsequent cycles. EDTA should only be repeated if the result is borderline or if there is a 30% change in serum creatinine

Check electrolytes – additional supplementation of magnesium, calcium or potassium may be required.

Reason for Update: new protocol	Approved by Lead Chemotherapy Nurse: P Deery
Version: 1	Approved by Consultant: Dr V Ezhil
Supersedes: None	Date: 26.6.13
Prepared by: S Taylor	Checked by: C Tucker

Weight should be recorded prior to and at the end of cisplatin treatment, and a strict fluid balance chart should be maintained. An average urine output of at least 100ml/hr must be maintained throughout treatment, and cisplatin infusion should not be commenced unless this urine output is achieved. If the urine output is inadequate, the patient should be assessed and urine output increased by administering 500ml Sodium Chloride +/- furosemide 20 - 40mg. Furosemide 20 – 40mg po may also be given if there is a positive fluid balance of 1.5 litres, a weight gain of 1.5kg or symptoms of fluid overload. The patient should be asked to drink 2 litres of fluid in the 24hrs following treatment, and to contact the hospital if this is impossible because of problems e.g. nausea and vomiting.

Dose Modifications

Haematological Toxicity:	Neutrophils < 1.5 x 10^9/l or Platelets < 100 x 10^9/l	Delay 1 week. Repeat FBC – if within normal parameters, proceed with 100% dose.

If patient has repeated delays, consideration can be given to a dose reduction.

Renal Impairment: NB. Cisplatin is both eliminated primarily (>90%) in the urine and is itself nephrotoxic.

CrCl (ml/min)	Cisplatin Dose
≥ 60	Give 100%
45 – 59	Give 75%
20 - 44	Cisplatin C/I – consider alternative regimen such as paclitaxel/carboplatin
< 20	Carboplatin contra-indicated

CrCl (ml/min)	Cyclophosphamide Dose
> 20	Give 100%
10 – 20	Give 75%
< 10	Give 50%

Hepatic impairment:

ALT / AST	Bilirubin (µmol/l)	Doxorubicin Dose
2 – 3 x ULN	-	Give 75%
> 3 x ULN or	20 – 50	Give 50%
	51 – 85	Give 25%
	> 85	Omit

Neurotoxicity: If patient develops Grade 2 neuropathy or ototoxicity, discuss with Consultant.

References: Loehrer, PJ et al; JCO 1994; 12: 1164 – 1168