CHOP 21

Primary treatment of Stage IA DLBC Non-Hodgkins Lymphoma (combined with IF radiotherapy)
Stage II – IV DLBC NHL with allergy to Rituximab
CD20 negative aggressive lymphomas
Relapsed/refractory CLL and low grade lymphoma unsuitable for other treatments

Drugs/Dosage:	**Cyclophosphamide**	750mg/m^2	IV	D1
	Doxorubicin	50mg/m^2	IV	D1
	Vincristine	1.4mg/m^2 (max 2mg)	IV	D1
	Prednisolone	100mg (flat dose)	po daily	D1 to D5

Age > 60 yrs and pre-existing constipation or neurological problems, consider vincristine dose of 1mg. If in doubt, check with Consultant.

Other Drugs: Allopurinol 300mg po daily, ideally starting 24 hours before chemotherapy – review after 3 weeks
Use of proton pump inhibitor or H_2 receptor antagonist (e.g. ranitidine) is recommended whilst treating with steroids.

Administration: Doxorubicin & Vincristine via fast running infusion of 0.9% Sodium Chloride
Cyclophosphamide may be given as a bolus

Frequency: 3 weekly cycle
Stage IA: 3 – 4 cycles, with IF radiotherapy
Stage II – IV: Treat to CR plus 2 more courses, for a minimum of 6 courses and a maximum of 8 courses

Main Toxicities: myelosuppression; alopecia; mucositis; cardiomyopathy; peripheral neuropathy; constipation; haemorrhagic cystitis; tumour lysis syndrome (ensure pre-medicated with allopurinol and good hydration); ovarian failure; infertility

Anti- emetics: Highly emetogenic (but oral dexamethasone not needed due to prednisolone; dexamethasone iv is optional)

Extravasation: Doxorubicin & Vincristine are vesicants

Regular Investigations:	FBC	D1
	LFTs	D1
	U&Es	D1
	LDH	D1
	MUGA/echocardiogram	see Comments

Comments: Maximum cumulative dose of Doxorubicin = 450 - 550mg/m^2
A baseline MUGA scan/echocardiogram should be performed where the patient is considered at risk of having impaired cardiac function e.g. significant cardiac history, hypertension, gross or morbid obesity, smoker, ≥ 70 years old, previous

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exposure to anthracyclines, previous thoracic radiotherapy. MUGA/echo should be repeated if there is suspicion of cardiac toxicity at any point during treatment.

Dose Modifications

Haematological Toxicity: If neutrophils < 1.0 x 10^9/l or platelets < 100 x 10^9/l on D1, proceed as follows:

Curative intent: discuss with Consultant re: delay/use of G-CSF to maintain dose intensity
Without curative intent: delay chemotherapy until FBC recovered, then continue with 20% dose reduction of doxorubicin and cyclophosphamide

If low counts are due to marrow infiltration, discuss with Consultant.

Renal Impairment: If serum creatinine above normal range, estimate creatinine clearance using Cockcroft & Gault and dose cyclophosphamide accordingly.

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

Hepatic Impairment:

Bilirubin (µmol/l)	Doxorubicin Dose
20 – 50	Give 50%
51 – 85	Give 25%
> 85	Omit

Bilirubin (µmol/l)		ALT / AST (units/l)	Vincristine Dose
26 – 51	**or**	60 – 180	Give 50%
> 51	**and**	Normal	Give 50%
> 51	**and**	> 180	Omit

Neurotoxicity: Curative intent: Stop vincristine if patient experiences Grade 3 – 4 toxicity

Without curative intent: Give 50% vincristine dose if Grade 2 motor and/or Grade 3 sensory toxicity

If in doubt, discuss with Consultant.

Patient Information: CancerBACUP leaflet for CHOP

References: Sonneveld, P et al (1995); JCO (13): 2530-2539