Gemcitabine and radiotherapy (pancreas)

Indication

First-line therapy with concurrent radiotherapy for locally-advanced pancreatic cancer, preferably pathologically staged to exclude peritoneal disease.

Patients should have completed three months of treatment with gemcitabine and had repeat CT scan with no evidence of disease progression.

ICD-10 codes

Codes pre-fixed with C25

Regimen details

Day	Drug	Dose	Route
1, 8, 15, 22, 29, (and 36)	Gemcitabine	300 mg/m²	IV infusion

Cycle frequency

Weekly for 5-6 weeks with concurrent radiotherapy.

Number of cycles

As above

Administration

Gemcitabine is administered in 250-500mL sodium chloride 0.9% over 30 minutes.

Gemcitabine is a known radiation-sensitizer. Patients should be carefully monitored for gastrointestinal toxicity.

Pre-medication

Nil

Emetogenicity

This regimen has low emetic potential.

Additional supportive medication

Nil

Extravasation

Gemcitabine – neutral (Group 1)

Investigations – pre first cycle

Investigation	**Validity period** (or as per local policy)
FBC	7 days
U+E (including creatinine)	7 days
LFTs	7 days

Investigations – pre subsequent cycles

Investigation	**Validity period** (or as per local policy)
FBC	weekly, valid for 24 hours
U+E (including creatinine)	weekly, valid for 24 hours
LFTs	weekly, valid for 24 hours

Standard limits for administration to go ahead

If blood results not within range, authorisation to administer **must** be given by prescriber/ consultant

Investigation	**Limit**
Neutrophils	>1.0 x 10^9/L
Platelets	>100 x 10^9/L
Bilirubin	≤1.5 x ULN
Creatinine Clearance (CrCl)	≥ 30 mL/min

Dose modifications

- **Haematological toxicity**

Neutrophils (x 10^9/L)		**Platelets** (x 10^9/L)	**Gemcitabine dose**
> 1.0	and	> 100	100%
0.5 – 1.0	or	50-100	75%*
< 0.5	or	< 50	omit

*Doses are for the days of treatment only and may be increased to 100% dose after FBC recovery.

If febrile neutropenia (neutrophils < 0.5 x 10^9/L and fever requiring IV antibiotics) – reduce gemcitabine dose to 75%.

- **Renal impairment**

If CrCl < 30mL/min consider dose reduction or omit (consultant decision).

- **Hepatic impairment**

Lack of information available on the use of gemcitabine in patients with hepatic impairment, therefore, used with caution. If bilirubin > 1.5 x ULN, consider reducing dose to 240mg/m^2 (consultant decision).

- **Other toxicities**

For all other toxicities, including stomatitis and diarrhoea, manage as per the following table:

Toxicity grade	**Gemcitabine dose**
1	100%
2	Delay until ≤ grade 1 then 100%
3	Delay until ≤ grade 1 then 75%
4	Delay until ≤ grade 1 then 50%

Adverse effects - for full details consult product literature/ reference texts

- **Rare or serious side effects**

Myelosuppression
Infertility
Haemolytic uraemic anaemia*
Interstitial pneumonitis, ARDS
Cardiotoxicity
Hepatotoxicity

Gemcitabine should be discontinued at the first sign of microangiopathic haemolytic anaemia (such as rapidly falling haemoglobin with concomitant thrombocytopenia, elevated bilirubin, creatinine, blood urea nitrogen or LDH. Renal failure may not be reversible with discontinuation of therapy, dialysis may be required.

- **Frequently occurring side effects**

Nausea and vomiting
Myelosuppression
Mucositis, stomatitis
Diarrhoea, constipation
Peripheral neuropathy
Oedema
Haematuria
Influenza like symptoms
Rash
Peripheral neuropathy

- **Other side effects**

Raised transaminases
Headache
Alopecia
Fatigue

Significant drug interactions – for full details consult product literature/ reference texts

Warfarin/coumarin anticoagulants: increased or fluctuating anticoagulant effects. Avoid if possible, consider switching patient to a low molecular weight heparin during treatment or if the patient continues taking an oral anticoagulant monitor the INR at least once a week and adjust dose accordingly.

Gemcitabine is a radiosensitiser.

Additional comments

Nil

References

- Summary of Product Characteristics Gemcitabine (Lilly) accessed 25 June 2014 via www.medicines.org.uk
- Burris HA, Moore MJ, Andersen J, Green MR, Rothenberg ML, Modiano MR, et al. Improvements in survival and clinical benefit with gemcitabine as first-line therapy for patients with advanced pancreas cancer: A randomized trial. J Clin Oncol 1997; 15 (6): 2403-2413.
- Allwood M, Stanley A, Wright P, editors. The cytotoxics handbook. 4th ed. Radcliffe Medical Press. 2002.

Written/reviewed by: Dr S Falk (Consultant Oncologist, UHBristol NHS Trust)

Checked by: Sarah Murdoch (Senior Oncology Pharmacist, SW Strategic Clinical Network)

Authorised by: Dr J Braybrooke (Consultant Oncologist, UHBristol NHS Trust, SW Strategic Clinical Network)

Date: 11 December 2014