Nelarabine

Indication

Treatment of patients with T-cell acute lymphoblastic leukaemia (T-ALL) and T-cell lymphoblastic lymphoma (T-LBL) whose disease has not responded to or has relapsed following treatment with at least two chemotherapy regimens.

Funding must be approved prior to commencing treatment.

ICD-10 codes

Codes with a prefix C83.5, C91.5

Regimen details

Day	Drug	Dose	Route
1,3 and 5	Nelarabine	1500mg/m^2/day	IV infusion

Cycle frequency

21 days

Number of cycles

Usually 1-2 cycles

Administration

Nelarabine is administered as an IV infusion over 2 hours. It is available as 50mL vials containing 5mg/mL and the solution should not be diluted but transferred into an empty infusion bag for administration.

Pre-medication

Prehydration may be required if bulky disease (e.g. 1000mL sodium chloride 0.9% over 4-6 hours)

Emetogenicity

This regimen has moderate emetic potential.

Additional supportive medication

Allopurinol 300mg OD (100mg OD if CrCl < 20mL/min)
Antiemetics as required
Antiviral, antifungal and PCP prophylaxis

Extravasation

Nelarabine is neutral

Investigations – pre first cycle

Investigation	Validity period
FBC	14 days
U+Es (including creatinine)	14 days
LFTs	14 days
LDH	14 days
Calcium	14 days
Magnesium	14 days
Glucose	14 days

Viral screen: Hepatitis B core antibody, hepatitis BsAg, hepatitis C antibody, EBV, CMV, VZV, HIV 1+2.

Investigations – pre subsequent cycles

Investigation	Validity period
FBC	96 hours
U+Es (including creatinine)	96 hours
LFTs	96 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	> 1.5 x 10^9/L
Platelets	> 50 x 10^9/L
Creatinine clearance	> 50mL/min

Dose modifications

- **Haematological toxicity**

If haematological parameters outside of normal range discuss with consultant prior to go ahead.

- **Renal impairment**

Nelarabine has not been studied in renal impairment. There is insufficient data to support a dose recommendation for CrCl < 50 mL/min. Discuss with consultant.

- **Hepatic impairment**

Nelarabine has not been studied in patients with hepatic impairment. Treat with caution.

- **Other toxicities**

Neurological reactions:

Severe neurological reactions have been reported with the use of nelarabine. These reactions have included altered mental states including severe somnolence, central nervous system effects including convulsions, and peripheral neuropathy ranging from numbness and paresthesia to motor weakness and paralysis. There have also been reports of reactions associated with demyelination, and ascending peripheral neuropathies similar in appearance to Guillain-Barré Syndrome. Patients must be closely monitored for such reactions and **nelarabine discontinued at first sign of reaction ≥ grade 2.**

Patients treated previously or concurrently with intrathecal chemotherapy or previously with cranio-spinal irradiation are potentially at increased risk for neurological adverse events and therefore concomitant intrathecal therapy and/or cranio-spinal irradiation is not recommended.

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

- **Serious side effects**

Myelosuppression
Severe neurological events
Rhabdomyolysis

- **Frequently occurring side effects**

Myelosuppression
Tumour lysis syndrome
Deranged electrolytes
Confusion
Seizures
Paraesthesia
Peripheral neuropathy
Headache
Blurred vision
Cough, dyspnoea
Diarrhoea, constipation
Nausea, vomiting
Altered LFTs
Myalgia, arthralgia
Oedema
Fatigue

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

Concomitant administration of nelarabine in combination with adenosine deaminase inhibitors, such as pentostatin is not recommended. Concomitant administration may reduce the efficacy of nelarabine and/or change the adverse event profile of either active substance.

Additional comments

This medicinal product contains 1.725 mg/ml (75 micromols) of sodium. To be taken into consideration by patients on a controlled sodium diet.

Patients should be advised to use effective methods of contraception during treatment and for at least three months following cessation of treatment.

Inform patient and transfusion laboratory that they will require irradiated blood products for all future transfusions due to risk of TA-GvHD associated with this regimen. The need for irradiated blood products is indefinite following the administration of nelarabine.

References

- Summary of Product Characteristics Nelarabine (Novartis) accessed 10 Jan 2019 via www.medicines.org.uk
- DeAngelo DJ et al (2007) Nelarabine induces complete remissions in adults with relapsed or refractory T-lineage acute lymphoblastic leukemia or lymphoblastic lymphoma: Cancer and Leukemia Group B study 19801. Blood 109(12):5136-42

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