^{90}Y ibritumomab tiuxetan

Zevalin®

1. Indications

^{90}Y-ibritumomab tiuxetan is approved for single photon emission tomography imaging for detection of relapsed or therapy resistant CD20+ indolent B-cell non-Hodgkin's lymphoma. Further it is used for consolidation therapy after remission induction in previously untreated follicular lymphoma.

2. Preparation

Approved product, see summary of product characteristics (SmPC).

3. Quality control

Approved product, see summary of product characteristics (SmPC)

4. Interactions

Not assessed yet: colonies stimulating factors should not be admitted 3 weeks prior or 2 weeks after the treatment cause of high sensitivity of the fast splitting myeloid cells to the yttrium ^{90}Y radiation.

5. Contraindications

Attention has to be taken for patients with anti-mouse antibodies. Cause of knowledge leak the use of yttrium is dissuaded for patients with neutrophils lower than $1{,}5 \times 10^9$/l or thrombocytes lower than 100×10^9/l, if more than 25% of the bone marrow is infiltrated by lymphocytes, if more than 25% of the bone marrow is irradiated external. Further it is contra indicated in the case of bone marrow transplantation or stem cell support in the anamnesis.

6. Adverse events

Hypersensitivity reactions (uncommonly anaphylaxis) may occur in patients treated with HAMA. Hematological side-effects adverse events (neutropenia, thrombocytopenia) are very common (10% or more often) and are dose-limiting. Infections are very common in the first 13 weeks after administration of the therapy. Other adverse events reported include asthenia, shivering, gastrointestinal symptoms, malaise, joint pain, dizziness, dyspnoea and itchiness.

7. Biodistribution & pharmacokinetics

In patients given intravenous infusions of 250 mg/m^2 rituximab followed by intravenous injections of 15 MBq/kg of [^{90}Y]-radiolabelled Zevalin, the median serum effective half-life of ibritumomab-tiuxetan [^{90}Y] was 28 h.

8. Stability

After radiolabelling, an immediate use is recommended. Chemical and physical in-use stability has been demonstrated for 8 h at 2-8°C and protected from light. The shelf life of the radiolabelling kit is 5 years.

9. Literature

- KNMP kennisbank Yttrium-90; Y-90-Ibritumomab.
- SmPC Y-90-Ibritumomab, CIS bio international.
- E.J. Postema, H. H. Boersma Radioimmunotherapy as a Treatment Modality for Non-Hodgkin's Lymphoma. Drugs of the Future 2004,29:95-100.