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A pioneer experience in Malaysia on In-house Radio-labelling of ^{131}I-rituximab in the treatment of Non-Hodgkin's Lymphoma and a case report of high dose ^{131}I-rituximab-BEAM conditioning autologous transplant

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HIGHLIGHTS

- Usual dose: Day 0 (dosimetry) – 5 mCi, Day 7 (therapeutic) 0.75 Gy to whole body.
- High dose: 6000 MBq (163 mCi) on Day − 18, BEAM conditioning starts on Day − 8.
- Self-labelled ^{131}I-rituximab is a viable treatment in resource limited environment.
- ^{131}I-rituximab may substitute autologous transplant.
- High dose ^{131}I-rituximab-BEAM is a feasible conditioning regime.

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ABSTRACT

Radioimmunotherapy is an established treatment modality in Non-Hodgkin's lymphoma. The only two commercially available radioimmunotherapies – ^{90}Y-ibritumomab tiuxetan is expensive and ^{131}I-tositumomab has been discontinued from commercial production. In resource limited environment, self-labelling ^{131}I-rituximab might be the only viable practical option. We reported our pioneer experience in Malaysia on self-labelling ^{131}I-rituximab, substituting autologous haematopoietic stem cell transplantation (HSCT) and a patient, the first reported case, received high dose ^{131}I-rituximab (6000 MBq/163 mCi) combined with BEAM conditioning for autologous HSCT.

1. Introduction

Radioimmunotherapy (RIT) is an established treatment modality in Non-Hodgkin's lymphoma (NHL). To date, the commercially available RIT approved by United State Food and Drug Administration are ^{90}Y-ibritumomab tiuxetan (Zevalin®, Spectrum Pharmaceuticals, Irvine, California, United States) and ^{131}I-tositumomab (Bexxar®, GlaxoSmithKline LLC, Wilmington, Delaware, United States). However in February 2014, GlaxoSmithKline discontinued the manufacture of ^{131}I-tositumomab, primarily because of commercial reason (Prasad, 2014).

The registered indication of ^{90}Y-ibritumomab tiuxetan is as consolidation after achieving complete response (CR) or partial response (PR) following first line treatment (Morschhauser et al., 2008, 2013; Rose et al., 2012; Provencio et al., 2014) in previously untreated follicular NHL and as the sole treatment in relapse/refractory low-grade or follicular B-cell NHL (Zinzani et al., 2010a; Vanazzi et al., 2014). It has been used in low grade B-cell NHL as

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