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**Title**

Long-term outcome of patients with low-grade follicular lymphoma treated with yttrium-90 ibritumomab tiuxetan: The Mayo Clinic experience

**Background**

Yttrium-90 ibritumomab tiuxetan [(90)Y-IT; Zevalin] is a radio-immunoconjugate (RIC) which targets CD20. This study analyzed patients with previously untreated (UFL) or relapsed/refractory low-grade FL (RFL) treated with (90)Y-IT. This is the largest reported cohort for therapeutic use of (90)Y-IT in low-grade FL.

**Methods**

The study included FL grades 1-2 (WHO grade 1-2) who received treatment with (90)Y-IT at Mayo Clinic Cancer Center between January 2003 and December 2018.

**Results**

137 patients – 29% (40/137) with UFL and 71% (97/137) with RFL. The median age at diagnosis was 60 years (range, 18-86) with 54% (74/137) males. The median follow-up from the time of (90)Y-IT therapy was 10.2 years (95% CI; 8.8, 11.6); 69% (95/137) of patients are alive. The ORR was 100% (40/40) in UFL with 93% (37/40) CR while ORR in RFL was 93% (90/97) with 73% (71/97) CR. 45% (48/108) of the CR patients remain in continuous CR (CCR) with a median follow-up of 7 years (95% CI; 5.2, 9.9). CCR was observed in 55% (22/40) of UFL patients compared to 27% (26/97) of RFL patients. 63% (86/137) of patients had relapsed during the study period. More relapses occurred in the RFL group (69/97; 71%) compared to the UFL group (17/40; 43%), (p=0.002). In the entire cohort, the median PFS was 2.5 years (95% CI; 2.1, 3.5) and TTNT was 3.6 years (95% CI; 2.5, 4.7). Median PFS was significantly higher in UFL group compared to RFL group- 4.1 years (95% CI; 2.3, NR) vs 2.2 years (95% CI; 1.6, 3.1), respectively. Median TTNT was higher in UFL group compared to RFL group- NR (95% CI; 4.1 years, NR) vs 2.4 years (95% CI; 2, 3.6), respectively. Median OS (entire cohort) was 18 years (95% CI; 15.8, NR) with no statistically significant difference between UFL group and RFL group; NR (95% CI; NR, NR) vs 18 years (95% CI; 12.3, 20.5), respectively.

**Conclusion**

(90)Y-IT is an effective single-agent regimen for low-grade FL. The response and survival data in this large real-world cohort is superior to the pivotal trials of this agent conducted nearly 20 years ago.