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### RADIOACTIVE IODINE THERAPY FOR BENIGN THYROID DISORDERS: EXPERIENCES FROM A TERTIARY CENTRE IN MALAYSIA

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Muhammad Faiz Che Ros,<sup>1</sup> Samuel Yee Siew Mun,<sup>2</sup> Noor Rafhati Adyani Abdullah<sup>1</sup>

<sup>1</sup>Endocrinology Unit, Department of Internal Medicine, Hospital Sultanah Bahiyah, Kedah, Malaysia

<sup>2</sup>Department of Internal Medicine, Hospital Sultanah Bahiyah, Kedah, Malaysia

#### INTRODUCTION

Radioactive iodine (I-131) (RAI) has been used to treat hyperthyroidism since the early 1940s. Its action causes permanent destruction to the thyroid tissue by emitting radiation of two forms, gamma and beta rays. Gamma radiation effects are more useful for diagnostic purposes, whereas beta radiation effects are therapeutic. RAI is indicated as a definitive therapy for benign thyroid diseases (Graves' disease, toxic multinodular goitre (TMNG) and toxic adenoma). The purpose of the study is to evaluate the outcomes of RAI for benign thyroid disorders in our centre.

#### METHODOLOGY

We conducted a retrospective analysis of patients with benign thyroid diseases treated with RAI between January 2020 to December 2022. The data was retrieved from our electronic medical records comprised of demographic data, endocrine thyroid data, prior antithyroid drugs, presence of thyroid orbitopathy, frequencies of RAI sessions and complications.

#### RESULT

A total of 283 patients received RAI. 76.1% (223/283) were female and the mean age was 46 years (SD 15). Most patients had Graves' disease (77%), followed by TMNG (20%) and toxic adenoma (3%). Thirty-three percent (72/218) of patients with Graves' disease had TSH receptor antibody (TRAb) level measurement with a mean value of 15.8I U/L (SD 28.1). The mean free T4 level prior to RAI was 18.1 pmol/L (SD 8.3). Mild thyroid orbitopathy was documented in 16.1% (35/218) of patients with Graves' disease which was considered low risk for RAI. 79% of the patients were rendered hypothyroid after a single RAI therapy, 19% required a second RAI therapy and 2% had third RAI therapy. Following RAI therapy, there were no episodes of worsening orbitopathy, one patient developed thyroid storm and one patient had a pregnancy within 6 months post RAI.

#### CONCLUSION

RAI therapy is a safe and effective treatment for benign thyroid diseases. Most patients achieved cure after a single RAI therapy with a very low complication rate. This study provides a benchmark for further improvement in thyroid patients' care.