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EVALUATION OF HYPOTHYROID STABILISATION AMONG PATIENTS WITH DIFFERENT DOSES OF LEVOTHYROXINE: A RETROSPECTIVE OBSERVATIONAL REVIEW STUDY

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Basil Lee Choong Lin,¹ Ernieda Md Hatah,² Adyani Md Redzuan²

¹Pharmacy Department, Hospital Kuala Kubu Bharu, Selangor, Malaysia

²Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

INTRODUCTION

Levothyroxine (LT4) dose ranges have been linked to affect the stability of thyroid stimulating hormone (TSH) values and hypothyroid disease stability in patients who have restored euthyroid state with LT4. This instability can be reflected by the increased need for LT4 dosage adjustments. The American Thyroid Association 2014 Guidelines suggested vaguely that lower doses of LT4 appear to produce more stable TSH values over time than those taking higher doses. Therefore, this study aimed to evaluate disease stabilisation following restoration of euthyroid state among hypothyroid patients with different LT4 doses.

METHODOLOGY

This was a retrospective observational study conducted in July 2022 focusing on noncomplicated hypothyroid patients prescribed with LT4 between July 2016 to January 2022 at the Outpatient Clinic Hospital Kuala Kubu Bharu. Disease stability between standard (100-150 mcg/day) versus extreme (<100 and >150 mcg/day) dose LT4 that restored euthyroid state over duration of 12 and 18 months were compared. Multivariate logistic regression was performed to determine factors that may influence disease stability up to 18 months while on the same LT4 regime that restored euthyroid state.

RESULT

Seventy-four hypothyroid patients on LT4 who attained stable euthyroid status were reviewed. More patients with extreme-dose LT4 required dosage adjustment compared to those on standard-dose LT4 (40.5% versus 16.2%; $p=0.010$ at 18-months). The factors identified to be significantly favourable to hypothyroid disease stability following euthyroid attainment include presence of chronically-interacting medication [adjusted odds ratio (AOR) = 0.054; 95% confidence interval (CI) = 0.007-0.453; $p=0.007$], Chinese ethnicity (AOR=0.093; 95% CI=0.009-0.946; $p=0.045$) and higher comorbid burden (AOR=0.555; 95% CI=0.310-0.993; $p=0.047$). Conversely, extreme-dose LT4 (AOR=8.375; 95% CI=2.102-33.559; $p=0.003$) and higher number of co-prescribed medications (AOR=1.643; 95% CI=1.071-2.521; $p=0.023$) were associated with greater odds of requiring LT4 dosage adjustment.

CONCLUSION

Extra caution and more frequent monitoring may be considered when treating extreme-dose LT4 patients who have already restored euthyroid state as their hypothyroid disease may still be unstable.