

# INITIAL RESPONSE TO THIONAMIDE MEDICATION IN YOUNG PEOPLE DIAGNOSED WITH THYROTOXICOSIS

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## INTRODUCTION

Patients with thyrotoxicosis can be treated with antithyroid drug (ATD) using either: 1) a blocking dose with thyroid hormone then replaced (block and replace, BR) or 2) ATD can be given alone with the dose adjusted up or down according to thyroid hormone concentrations (dose titration, DT)<sup>1</sup>. We assessed the response of young people randomised to BR or DT during the first 6 months post-diagnosis.

## DESIGN

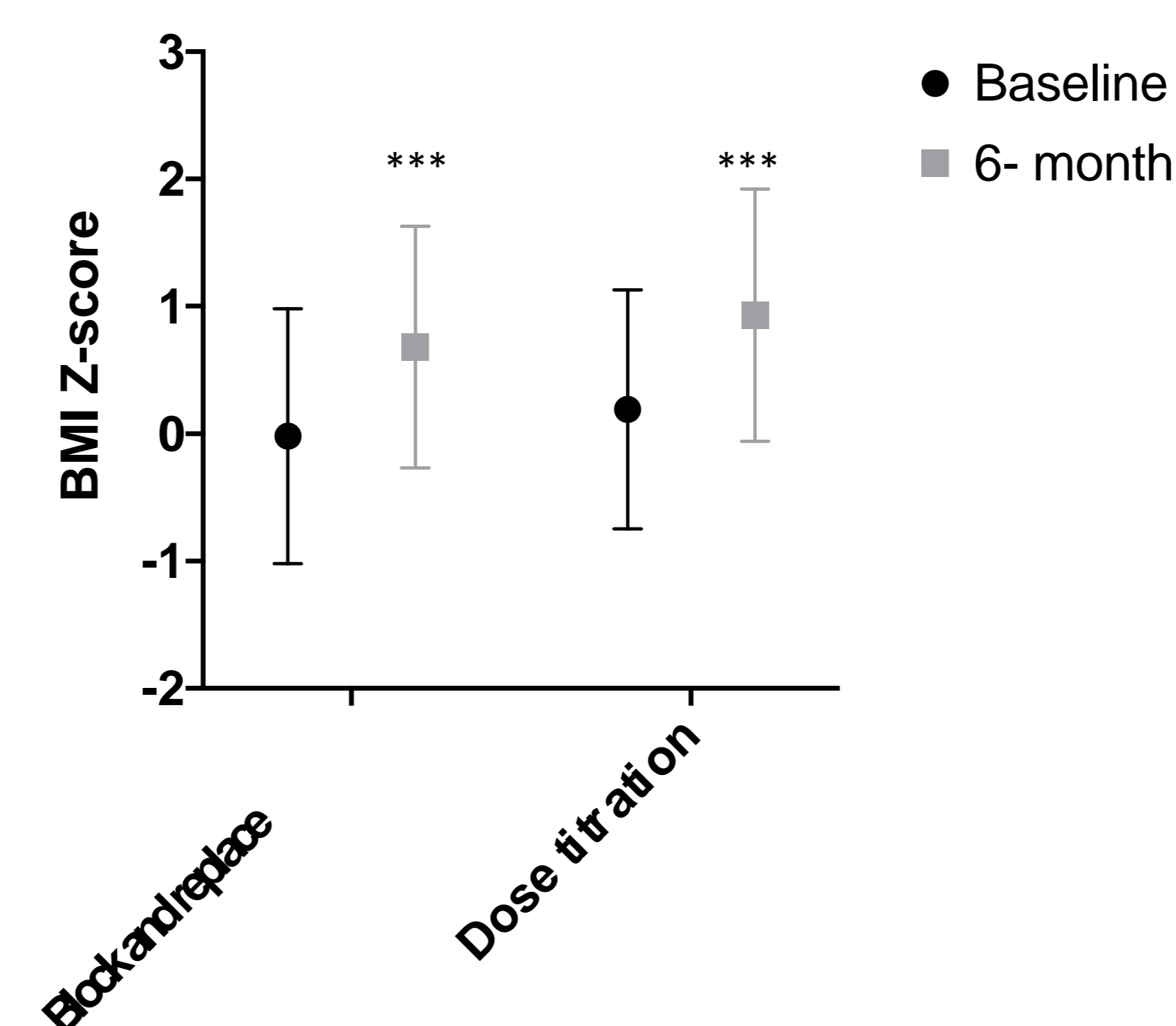
A multi-centre, phase III, open-label trial of newly diagnosed thyrotoxicosis patients randomised to BR/DT. The primary outcome of the trial was to compare biochemical control in the BR and DT groups beyond 6 months (prev reported)<sup>2</sup>.

Here we present data in the BR and DT groups for the first 6 months post diagnosis.

## RESULTS

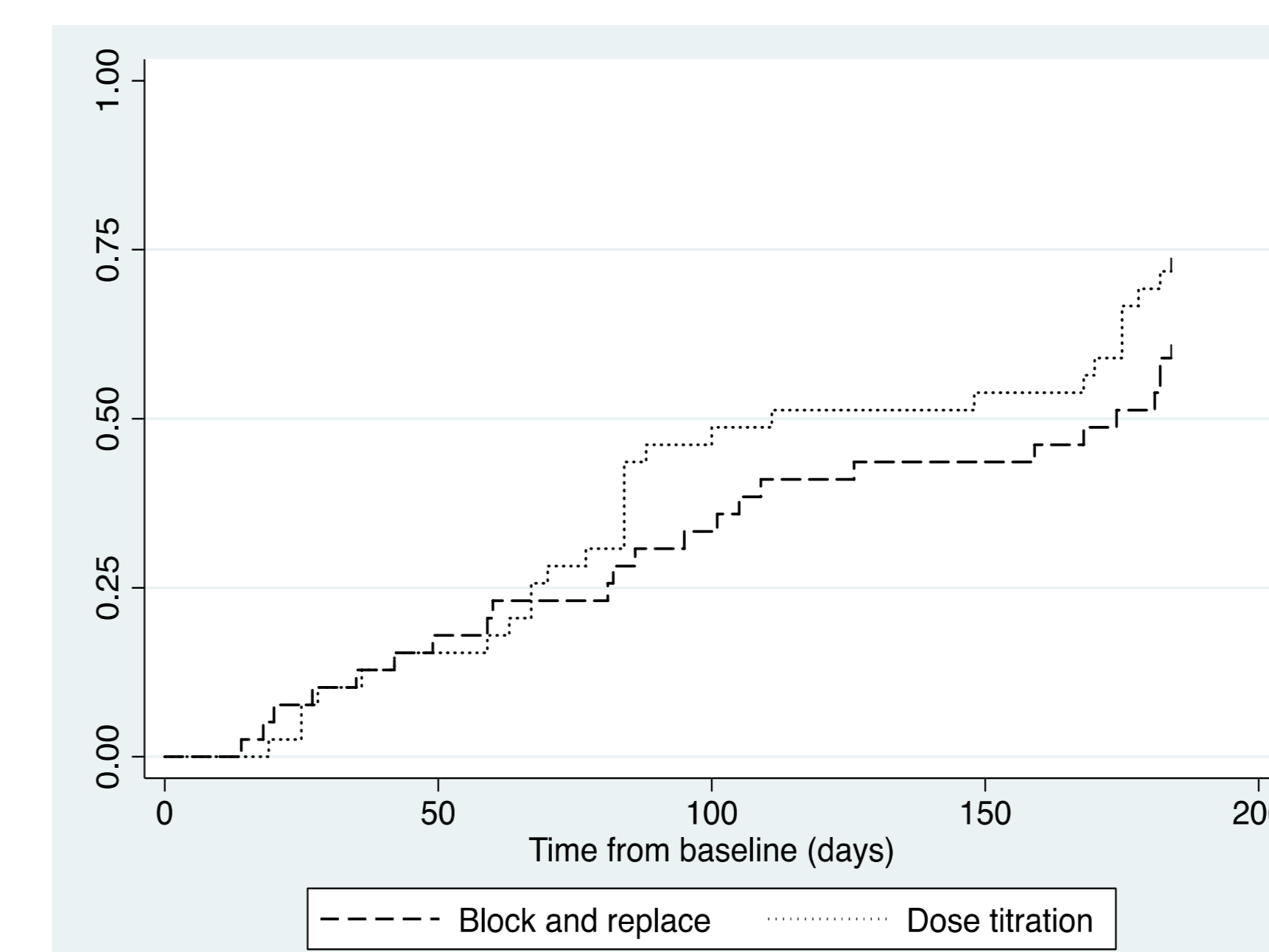
- Data available for 80 patients (baseline) and 78 patients (61 female) at 6 months.
- Mean CBZ dose was 0.9mg/kg/day (BR) and 0.5mg/kg/day (DT).
- No difference in time to achieve non-suppressed TSH concentrations; 16 of 39 patients (BR) and 11 of 39 (DT) had suppressed TSH at 6 months.
- Patients with suppressed TSH had higher mean baseline FT4 levels (72.7 v 51.7 pmol/l; 95% CI for difference 1.73,31.7;p =0.029).
- Time to normalise FT4 levels was reduced in DT (log rank test, p=0.049) with 50% attaining normal FT4 at 28 days (95% CI 25, 32) versus 35 days in BR (95% CI 28, 58).
- Mean BMI Z-score increased from 0.10 to 0.81 at 6 months (95% CI for difference 0.57, 0.86; p<0.001) and was greatest in patients with higher baseline FT4 concentrations.

**Figure 1** BMI Z-scores at baseline and six months after ATD treatment in young people with thyrotoxicosis randomised to BR or DT. Data presented are mean (symbol) and standard deviation (whiskers). \*\*\* signifies p<0.001 for difference between baseline and 6-month data



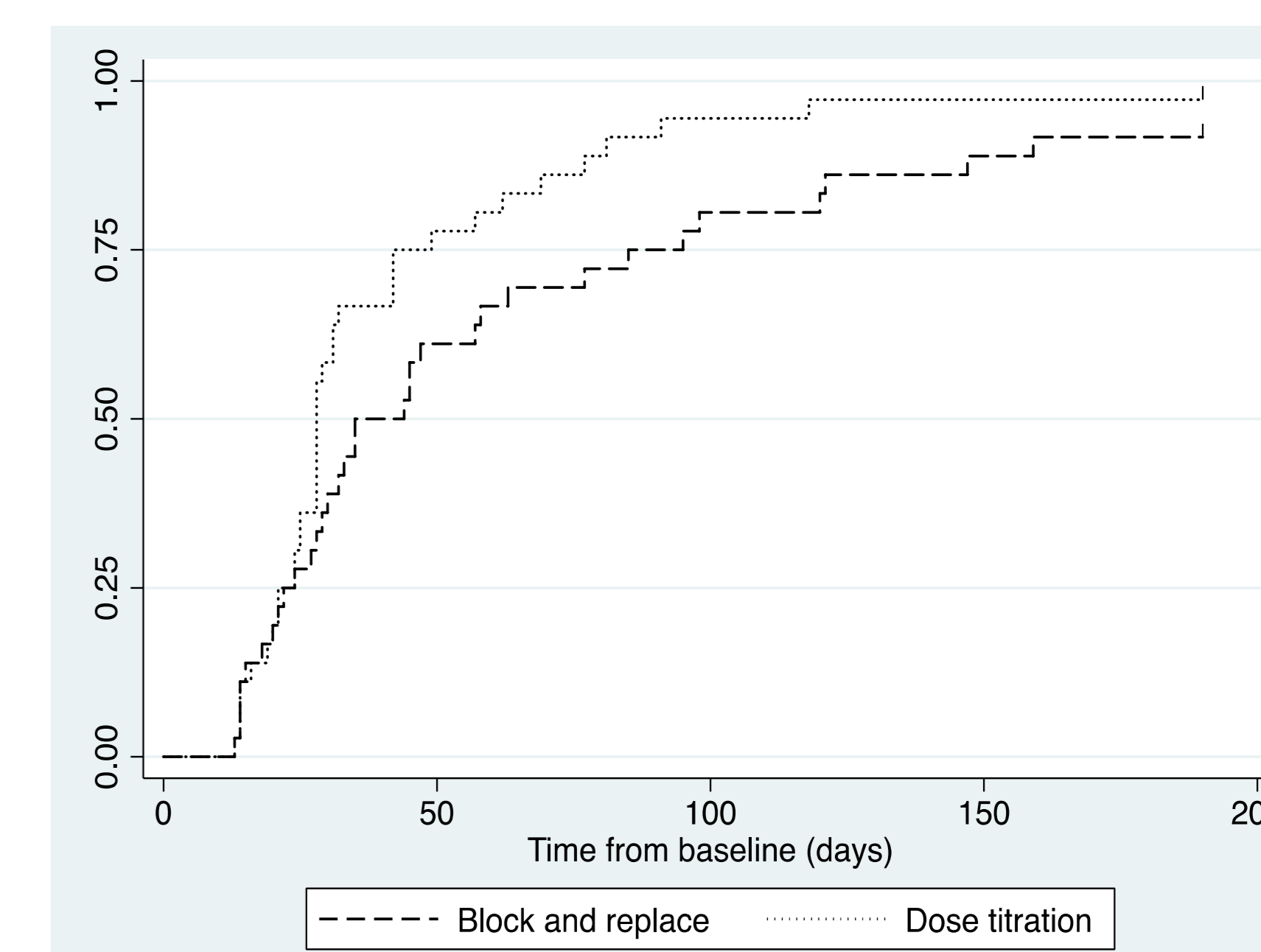
- 43/80 (53.8%) patients had no signs of thyroid eye disease
- 34/80 (42.5%) patients had mild signs including lid retraction, stare and mild proptosis.
- No patient had severe orbitopathy at presentation.

**Figure 2** Kaplan Meier curves illustrating the time taken for young people with thyrotoxicosis randomised to either BR or DT regimen to first achieve non-suppressed TSH levels in the initial six-months of ATD treatment.



Time from baseline (days)	0	50	100	150	184 (6 months)
Number of patients with suppressed TSH - BR	39	32	26	20	16
Number of patients with suppressed TSH - DT	39	33	21	18	11

**Figure 3** Kaplan Meier curves to show time taken for young people with thyrotoxicosis randomised to either BR or DT regimen to first achieve normal FT4 levels in the initial six-months of ATD treatment. Log rank test-p=0.049



Time from baseline (days)	0	50	100	150	184 (6 months)
Number of patients with abnormal FT4 levels- BR	36	14	7	4	3
Number of patients with abnormal FT4 levels- DT	36	8	2	1	1

## METHOD

- Newly diagnosed patients started on carbimazole at 0.75mg/kg and were then randomised to either BR or DT.
- We examined baseline patient characteristics, cumulative CBZ dose, time to serum TSH/FT4 normalisation and BMI Z-score.
- Paired t-tests compared changes in z-scores during study, unpaired t-tests were used to detect changes between regimens.
- Kaplan-Meier curves determined time to 50% normalisation of T4/TSH.

## CONCLUSIONS

- DT-treated patients normalised FT4 concentrations more quickly than BR.
- This difference may reflect a number of factors including the simplicity of the DT regimen (one medication rather than two) with associated improved compliance.
- 94% of patients have normal FT4 levels after six months but 33% still have TSH suppression.
- The risk of excessive weight gain should be discussed in detail with families when ATD is commenced<sup>3</sup>.

## REFERENCES

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