## Incidence of Sunitinib induced thyroid dysfunction in renal cell carcinoma – a pilot retrospective audit

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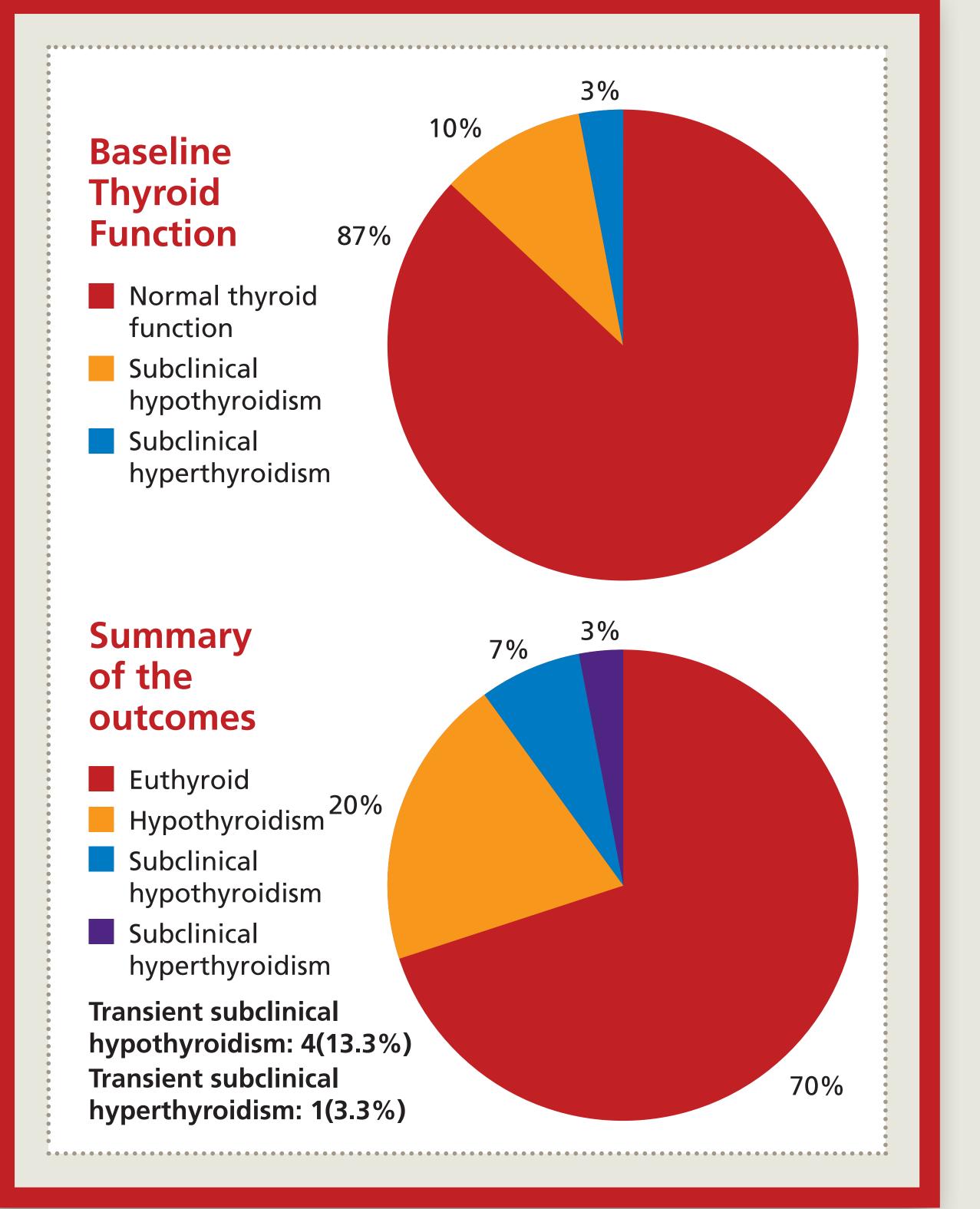


Tyrosine kinase inhibitors (TKI) are an emerging group of anti-growth factor agents used in the treatment of solid cancers. Treatment is associated thyroid dysfunction. Sunitinib is licensed for the treatment of metastatic renal cell carcinoma.

To determine the incidence of Sunitinib induced thyroid dysfunction and its management in patients with renal cell carcinoma (RCC).

Retrospective case note analysis of patients started on Sunitinib for metastatic RCC between January 2010 and December 2012 at the Oncology Unit in The James Cook University Hospital.

31 patients were started on Sunitinib between 2010-2012. One patient had pre-existing Primary Hypothyroidism and was excluded from analysis. Baseline thyroid function tests (TFT) were done in 93% of patients. The majority of patients (n=26) were euthyroid pre-treatment; at baseline, 3 patients (10%) had subclinical hypothyroidism and 1 patient (3.3%) had subclinical hyperthyroidism.



Mean duration of follow up was 53.33 weeks. Mean interval between starting Sunitinib and 1st TFT check was 3.3 weeks (range 2-12 weeks, SD 2.28). Mean interval to developing abnormal TSH was 9.3 weeks (range 2-42 weeks, SD 11.58). Primary hypothyroidism in this cohort developed at 27.7 weeks (range- 4-46 weeks). The mean time to commencing Levothyroxine (LT4) therapy was 55.5 weeks (range 21-105 weeks).

Sunitinib induced hypothyroidism developed in 6 patients (20%) whilst subclinical hypothyroidism developed in 2 patients (6.6%). 21 patients (70%) were biochemically euthyroid. Thyroid status of one patient with baseline subclinical hyperthyroidism remained unchanged. 4 patients (13.3%) developed transient subclinical hypothyroidism. Mean TSH level at start of LT4 therapy was 55.7mIU/l (range 19.43-107.24) and mean Free T4 was 8.4 pmol/l (range 3.5-11.8). LT4 was commenced at a mean dose of 39mcg once daily (range 25-50mcg) and the average final dose was 118 mcg once daily (range 50-225mcg).

## Conclusion

Primary hypothyroidism is a common adverse effect of TKI therapy. The incidence of primary hypothyroidism in this cohort was 20% and is similar to hypothyroidism rates in published data from Sunitinib studies (14-46%). There appeared to be a significant delay between the diagnosis of overt primary hypothyroidism and the start of LT4 therapy. Regular pre-cycle TFT checks and close liaison with Endocrinology will help reduce morbidity from delayed diagnosis and treatment of hypothyroidism.



