

A Study on the Development of Cancer in Hyperthyroid Patients Treated with Radioactive Iodine at Sultan Qaboos University Hospital

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BACKGROUND

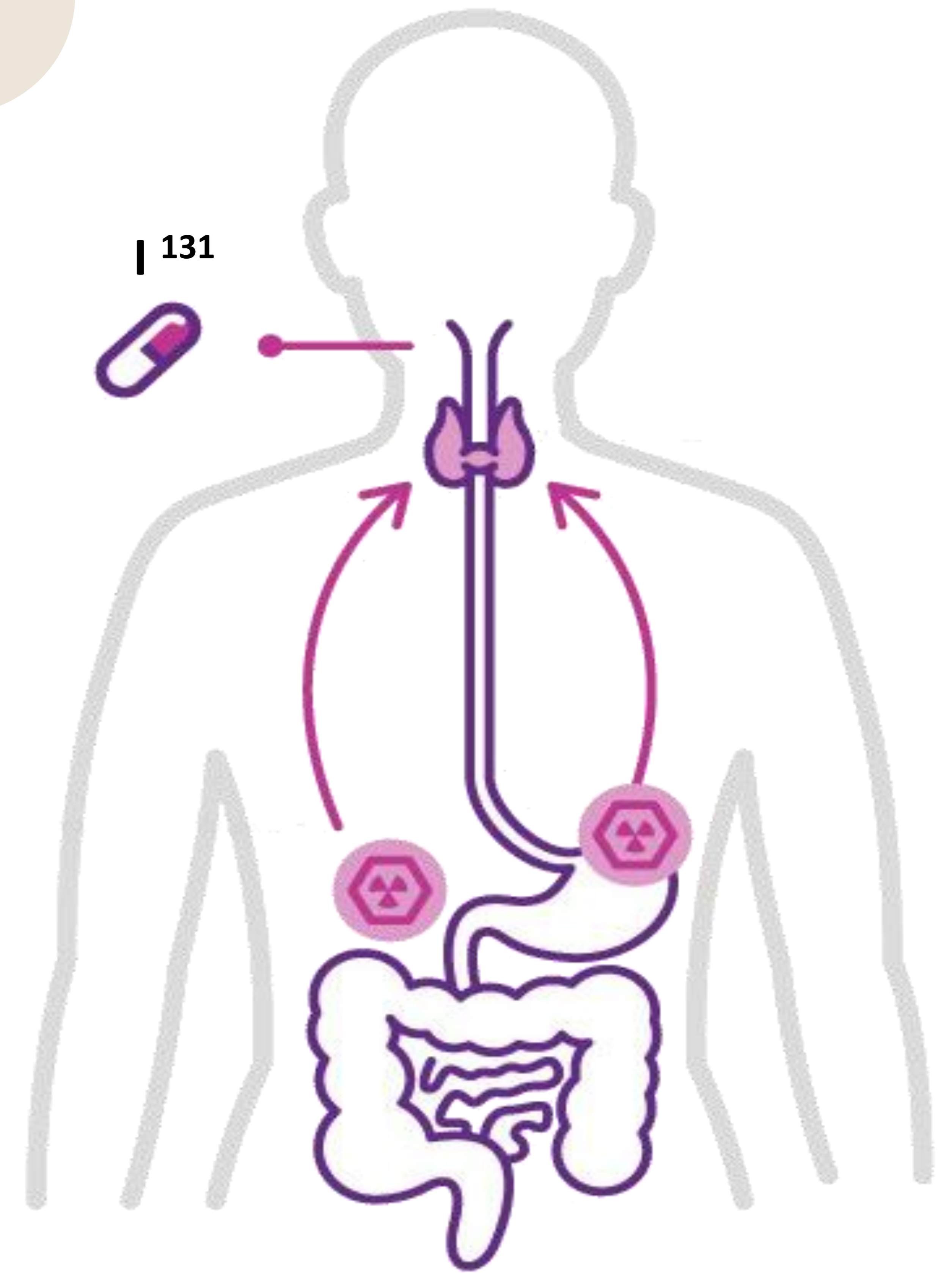
- Hyperthyroidism is a severe condition that can increase the risk of heart disease, weight loss, and fatigue and other health issues.
- RAI therapy has been consider as an effective and safe treatment option, however, the increasing use of RAI treatment has prompted concerns about the possibility of development of cancer.
- Some of the previous Cohort studies suggested that RAI therapy might increase the risk of the development of cancer in the hyperthyroid patients. (Kitahara et al., 2019).
- Contrary to the reports of cancer risk, other reports claimed no risk of cancer development in the RAI treated patients (Ron et al., 1998).
- Published research on this subject remains inconclusive on association of cancer development risk with the RAI therapy; therefore, this study will have a significant impact on the management of hyperthyroidism treatment and will provide an in-depth understanding of risk of cancer in RAI treated patients in Oman.

OBJECTIVES

- The aim of this study is to determine cancer incidence in hyperthyroid patients treated with Radioactive Iodine Therapy I-131 (RAI) at Sultan Qaboos University Hospital.
- To assess the association between higher doses of RAI with cancer incidence among hyperthyroid patients admitted to SQUH.

METHODS

- This retrospective cohort study was conducted on the data of 958 patients diagnosed with hyperthyroidism and treated with radioactive iodine I-131 (RAI) from January 2007 to January 2020.
- The data was collected using SQUH TrakCare system and classify the patients in two group based on number of doses.
- Data were analysed using SPSS. We used Z-test for proportions to identify the association between two group with a P-value of 0.05 as statistically significant.
- Ethical approval was obtained prior to the study from the Medical and Research Ethics Committee (MREC).

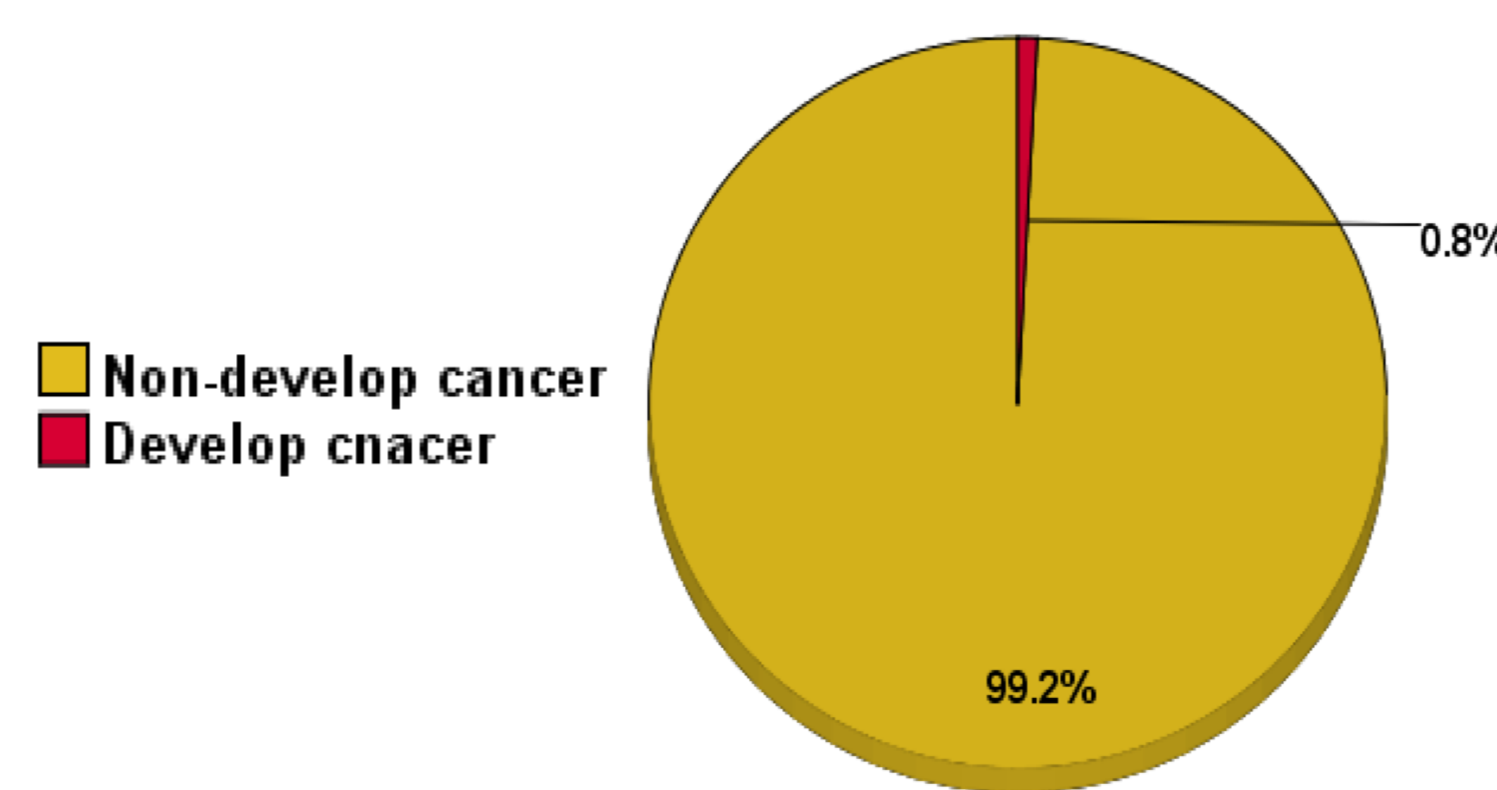


RESULTS

Table 1: The baseline characteristics of the cohort study.

Variable	Frequency (N)
Gender	
Female	595 (62.1%)
Male	363 (37.9%)
Age in years	
<25	25 (2.6%)
25-35	179 (18.7%)
35-65	635 (66.3%)
≥65	119 (12.4%)
Hyperthyroidism diagnosis	
Grave disease	871 (90.9%)
Thyroid toxic nodular goiter	65 (6.8%)
Toxic adenoma of thyroid	22 (2.3%)
Treatment combination	
RAI and antithyroid drugs	910 (95%)
RAI and surgical procedure	12 (1.2%)
RAI, surgical procedure and drugs	36 (3.8%)
Follow up (years)	
<10	894 (93.3%)
≥10	64 (6.7%)

Figure 1: Incidence of cancer in 958 hyperthyroid patients treated with RAI between 2007-2020 at SQUH.



Table

Scan QR code to know the Individual characteristics of patients that developed cancer.

		Number of doses		Total
		One dose	Two doses	
Cancer development	Develop cancer	8	0	8
	Non-develop cancer	878	72	950
Total		886	72	958

Table 2: Association between RAI doses and cancer incidence in 958 hyperthyroid patients treated with RAI between 2007-2020 at SQUH.

CONCIUSION

- The current study exclude any significance risk to the RAI therapy towards the risk of the development of the cancer in the hyperthyroidism patients. The study reveals that only 8 out of 958 (0.8%) developed the cancer. Interestingly, patients who received two doses of RAI did not show any incidence of cancer development. Further studies are required to establish the real cause of cancer development as there may be cofounding factors besides radioactive iodine may involve in the development of cancer in hyperthyroid patients.



References