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SFE-AFCE-SFMN 2022 consensus on the management of thyroid nodules

SFE-AFCE-SFMN 2022 consensus on the management of thyroid nodules: Epidemiology and challenges in the management of thyroid nodules



Francoise Borson-Chazot^{a,b,*}, Isabelle Borget^{c,d}, Muriel Mathonnet^{e,f},
 Laurence Leenhardt^g

^a Fédération d'Endocrinologie, Groupement Hospitalier Est, Hospices Civils de Lyon, Lyon, France

^b Research on Healthcare Performance (RESHAPE), INSERM U1290, Université Claude Bernard Lyon 1, Lyon, France

^c Service de Biostatistiques et d'Epidémiologie, Direction de la Recherche Clinique, Gustave Roussy, Paris-Saclay University, 114 Rue Edouard Vaillant, Villejuif, France

^d Oncostat, Université Paris-Saclay U1018, Inserm, Université Paris-Saclay, Equipe labélisée "Ligue Contre le Cancer", Villejuif, France

^e Chirurgie Digestive et Endocrinienne CHU Dupuytren, Limoges, France

^f Research on CAPTuR, INSERM UMR 1308, Université de Limoges, Limoges, France

^g Thyroid and Endocrine Tumors Department, Institute of Endocrinology, Pitié-Salpêtrière Hospital AP-HP, Institute of Cancer IUC Sorbonne University GRC N° 16, 75013 Paris, France

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ABSTRACT

The SFE-AFCE-SFMN 2022 consensus deals with the management of thyroid nodules, a condition that is a frequent reason for consultation in endocrinology. In more than 90% of cases, patients are euthyroid, with benign non-progressive nodules that do not warrant specific treatment. The clinician's objective is to detect malignant thyroid nodules at risk of recurrence and death, toxic nodules responsible for hyperthyroidism or compressive nodules warranting treatment.

The diagnosis and treatment of thyroid nodules requires close collaboration between endocrinologists, nuclear medicine physicians and surgeons, but also involves other specialists. Therefore, this consensus statement was established jointly by 3 societies: the French Society of Endocrinology (SFE), French Association of Endocrine Surgery (AFCE) and French Society of Nuclear Medicine (SFMN); the various working groups included experts from other specialties (pathologists, radiologists, pediatricians, biologists, etc.). This section deals with epidemiology and challenges in the management of thyroid nodules.

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1. Epidemiology

A nodule is any localized enlargement of the thyroid gland. The clinical prevalence of thyroid nodules is high, estimated at 3–7% in the general population, with female preponderance [1,2]. Nearly half of all nodules are now discovered on imaging [3]. Prevalence on ultrasound is about 10 times more frequent than on clinical examination, and is estimated in France to be between 11% and 55% [4]. It increases with age, approximately equal to that of the decade of the subject examined [5]. However, prevalence is probably underestimated, as most nodules do not lead to any clinical manifestation and about 11–13% regress spontaneously [6].

* Corresponding author at: Fédération d'Endocrinologie, Groupement Hospitalier Est, 28, avenue Doyen Lepine, 69500 Bron, France.

E-mail address: francoise.borson-chazot@chu-lyon.fr (F. Borson-Chazot).

Certain factors stimulate the multiplication or growth of thyroid cells, and in particular iodine deficiency, even when mild [7,8]. There is no relationship between the incidence of thyroid cancer and iodine intake, but correction of iodine deficiency decreases the proportion of vesicular cancers, in favor of papillary cancers. Other factors predisposing to onset of thyroid nodules include parity, overweight, insulin resistance, smoking and cervical radiotherapy [9–11].

2. Issues in the management of thyroid nodules

The incidence of thyroid cancer has been steadily increasing worldwide since the early 1980s, and contrasts with a stable low mortality rate over the same period [12]. According to Globocan, 448,915 new cases of thyroid cancer were diagnosed in 2020, representing an age-standardized incidence of 10.1/100,000 and 3.1/100,000 in women and men respectively, while the mor-

tality rate was 0.5/100,000 women and 0.3/100,000 men [13]. This epidemiological pattern, characterized by an increasing incidence of small cancers and/or cancers with good prognosis, with no known change in exposure to risk factors and stable mortality, strongly suggests overdiagnosis [14,15]. The development of imaging, improved access to care and changes in anatomical and pathological practice largely explain this overdiagnosis of papillary microcarcinomas, which represent more than 50% of all thyroid cancers in France [12]. Overdetection can be defined as diagnosis of thyroid tumors which, if left uninvestigated, would not cause symptoms or death. It leads to treatments with poor risk-benefit tradeoff. The attitude of operating on all patients with thyroid nodules would expose a large proportion of patients to unnecessary surgical morbidity, and the economic cost would be extremely high. Fortunately, overdetection has tended to decrease since the 2000s, probably due to a change in practices, recommending not to biopsy < 1 cm thyroid nodules unless there is a specific context [14].

The aim of the diagnostic approach to thyroid nodules is differential diagnosis between benign and malignant nodules. On average, 5% of thyroid nodules are malignant, with rates ranging from 1.5% to 38.1% depending on patient selection [2]. The vast majority of thyroid nodules are therefore benign and there is no reason to believe that a benign nodule can become malignant. Furthermore, the clinician's aim should not be to detect any and all thyroid cancers but only those that incur a high risk of recurrence or death and those occurring in patients at high risk of thyroid cancer.

In 2010, a study analyzed the care pathway of patients who had undergone thyroidectomy, based on reimbursement data from the French National Health Insurance system [16]. This database does not provide access to histological results. Thyroid cancers were identified by the association of thyroid resection with radioactive iodine administration or neck dissection. Microcarcinomas diagnosed retrospectively and not requiring adjuvant treatment were therefore not identified. Of the 35,367 patients operated on that year, 17% had thyroid cancer, 38% goiter or multiple nodules, 21% benign nodules and 25% had been operated on for other causes (hyperthyroidism, ENT cancer, etc.). Thus, although some surgeries may be justified by clinical symptoms (mainly cervical discomfort or esthetic blemish) or biological symptoms (hyperthyroidism), the proportion of thyroidectomies for benign nodules remains high: for every 4 cancers operated on, 5 benign nodules are operated on: a ratio of 0.8. In 2010, the cost of hospital stays for thyroidectomies amounted to €71 million, of which only €22 million was for malignant nodules (16). Similarly, the total cost of care in the 12 months before and after surgery was estimated at €91 m, of which only €31 m was for patients with cancer. Currently, despite a decreasing trend, 24,047 thyroidectomies (including 44% total thyroidectomies) for benign nodules (GHM 10C12) were still performed in 2021 in France [17]. With an average hospital stay of 2 days, the average cost of these stays was about €2,630 in the public sector, representing a total expenditure of €63.3 m per year,

much of which could be avoided. Better selection of patients to be operated on is therefore still necessary.

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Disclosure of interest

The authors declare that they have no competing interest.

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