

# PREVALENCE OF ENDEMIC GOITER AND THE ROLE OF THE PATRONAGE NURSE IN ITS EARLY DETECTION AND CARE

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## Abstract

Endemic goiter remains one of the most common thyroid pathologies in regions with iodine deficiency. A visiting nurse, as a key link in primary health care, plays an important role in the prevention, early diagnosis and monitoring of patients with endemic goiter. This article analyzes epidemiological data on the prevalence of the disease, its causes, clinical manifestations and strategic aspects of nursing care in the fight against this disease.

**Keywords:** endemic goiter, iodine deficiency , thyroid gland, visiting nurse, prevention, nursing care.

## Introduction

Endemic goiter (nodular or diffuse enlargement of the thyroid gland due to iodine deficiency) remains one of the leading endocrine pathologies in Central Asian countries, including Uzbekistan. This disease has a pronounced geographical dependence and is characterized by mass distribution in regions with low iodine content in water and soil. Despite active preventive measures, including mass iodization of salt and educational campaigns, high morbidity is still observed in rural and remote areas, especially among children and women of reproductive age.

According to the World Health Organization (WHO), more than 30% of the world's population suffers from iodine deficiency, which makes iodine deficiency conditions one of the most common non-infectious pathologies. In particular, in Uzbekistan, the incidence of endemic goiter in some regions reaches 40%, which is due to both natural and geochemical features and the insufficient effectiveness of individual prophylaxis .

An important role in the fight against this pathology is played not only by the endocrinology service, but also by the primary link of medical care, in particular by visiting nurses. They are in direct contact with the population, especially with vulnerable groups, and can promptly identify the initial signs of the disease, monitor compliance with preventive measures, and also conduct health education work.

Thus, the aim of this work is to consider modern aspects of the prevalence of endemic goiter in endemic regions, analyze the causes of its occurrence, evaluate clinical manifestations and, especially, emphasize the importance of the role of the visiting nurse in the system of early detection and nursing care.

Etiology and pathogenesis of endemic goiter





Endemic goiter develops as a result of long-term and chronic iodine deficiency in the body. Iodine is necessary for the synthesis of thyroid hormones - thyroxine (T4) and triiodothyronine (T3), which play a key role in the regulation of metabolism, growth and development, especially in childhood and adolescence. With a lack of iodine in the diet, the thyroid gland does not receive an adequate amount of substrate for the synthesis of hormones, which leads to stimulation of the pituitary gland to produce thyroid-stimulating hormone (TSH), and, as a consequence, to hyperplasia of thyrocytes and an increase in the gland itself - the formation of goiter ( Delange F., 2000).

The main etiological factors are:

1. Geochemical deficiency of iodine in the environment , especially in soil and water. In regions such as Fergana, Samarkand and Kashkadarya regions, the iodine content in drinking water is less than 10 µg/l with a norm of 50–100 µg/l ( Sharipova G.A., 2021).
2. Low consumption of iodized foods , especially in rural areas. Despite government salt iodization programs, not all households use it regularly.
3. Goitrogenic factors in nutrition - consumption of foods containing substances that block the absorption of iodine, for example, cabbage, soybeans, turnips.
4. Deficiency of other micronutrients , especially selenium, iron and zinc, which are necessary for the metabolism of thyroid hormones ( Zimmermann MB, 2007).
5. Pregnancy and lactation are periods with an increased need for iodine, especially in the absence of additional intake of iodine-containing drugs.

The mechanism of endemic goiter development is as follows: with a lack of iodine, the level of thyroid hormones decreases, which causes a compensatory increase in TSH. Under the influence of TSH, the gland increases in volume (diffusely or nodularly), trying to maintain a sufficient level of hormonal activity. Over time, hyperplasia, fibrosis develop, and the formation of cysts and nodes may be observed.

Clinical manifestations and diagnostics of endemic goiter

Endemic goiter caused by chronic iodine deficiency may manifest itself with various clinical symptoms depending on the degree of deficiency and the patient's age. In the early stages, the disease is often asymptomatic, which complicates timely diagnosis.

Main clinical manifestations

- Enlargement of the thyroid gland : visually noticeable or palpable enlargement, especially in the anterior neck area.
- Feeling of pressure in the neck area : discomfort when swallowing or breathing.
- Fatigue and weakness : decreased performance, apathy.
- Dry skin and brittle hair : signs of hypothyroidism.
- Slow growth and mental retardation in children : especially in areas with severe iodine deficiency.
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**Diagnostic Methods**

1. Palpation of the thyroid gland : the primary method for assessing the size and structure of the gland.



2. Ultrasound examination (ultrasound) : allows to determine the volume, structure and presence of nodular formations.
3. Laboratory tests :
  - Thyroid stimulating hormone (TSH) levels : Elevated levels may indicate hypothyroidism.
  - Free thyroxine (T4) and triiodothyronine (T3) : decreased levels indicate impaired thyroid function.
  - Urinary iodine concentration : reflects the current level of iodine intake.

#### WHO classification of goiter grades:

Degree	Description
0	No goiter: the thyroid gland is not palpable or visible.
I	The goiter is palpable but not visible when the neck is in a normal position.
II	The goiter is clearly visible with the neck in a normal position and is palpable.

(Source: World Health Organization, 2007)

Early diagnosis of endemic goiter is especially important in children and adolescents, as iodine deficiency at this age can lead to irreversible impairment of mental and physical development. Health visitors play a key role in identifying the first signs of the disease, especially in rural and remote areas where access to specialized medical care is limited.

The role of a visiting nurse in the prevention and care of patients with endemic goiter

A visiting nurse is one of the key links in primary health care, especially in rural areas and hard-to-reach regions. Her work covers a wide range of tasks aimed at early detection of endemic goiter, prevention of iodine deficiency conditions, monitoring of patients' condition, and educational work among the population.

The main areas of activity of a visiting nurse:

1. Early detection and primary screening . During regular home visits, especially to children, pregnant women and the elderly, the nurse palpates the thyroid gland, pays attention to visible changes in the shape of the neck and records the patient's complaints. In case of suspected goiter, she refers the patient to a local therapist or endocrinologist.
2. Prevention and health education . The nurse gives lectures and talks in schools, first aid stations and at home, explaining the importance of using iodized salt, varied diet and taking iodine-containing drugs.
3. Monitoring the use of iodized salt . During home visits, she checks for the presence of iodized salt in the family, explains the rules for storing it (in a dark container, with a tightly closed lid, do not store for more than 3-4 months) and using it to avoid the destruction of iodine.
4. Monitoring patients with a diagnosis . For patients with already diagnosed goiter, the visiting nurse keeps records, monitors compliance with the diet and intake of prescribed medications (potassium iodide, levothyroxine , etc.), conducts follow-up examinations and organizes visits to the doctor.
5. Documentation and reporting . She fills out special observation forms, compiles reports on the number of people examined, identified and referred for consultation, which allows for the organization of effective local epidemiological surveillance .



**Conclusions and suggestions for improving nursing care**

An analysis of epidemiological data, clinical features and work practices of visiting nurses in Uzbekistan shows that endemic goiter remains a pressing medical and social problem, especially in regions with severe iodine deficiency. Despite the introduction of mass iodine prophylaxis programs, the proportion of children and women with signs of an enlarged thyroid gland remains high in a number of regions. This indicates the need to strengthen the role of primary care, in particular the visiting service, in identifying and monitoring the disease.

Home health nurses, with the opportunity to interact regularly with the population, especially with vulnerable groups, perform a unique function in the health care system. Their work allows:

- detect the first signs of goiter in time;
- educate the population on prevention issues;
- monitor compliance with recommendations on nutrition and drug therapy;
- to develop a responsible attitude towards thyroid health.

However, the effectiveness of the home care service can be significantly increased by implementing the following proposals:

1. Organization of specialized training. Conducting regular seminars and trainings on early diagnostics of iodine deficiency conditions and communication with the population.
2. Development and implementation of digital forms of accounting. Use of mobile applications and electronic forms to record data on patients, the presence of iodized salt in homes, as well as the results of palpation and surveys.
3. Expanding nurses' competencies . Granting visiting nurses the right to independently refer patients for TSH level tests and consultations with an endocrinologist if there are suspicious signs.
4. Motivation and support of home care workers . Providing nurses with transport, mobile communications and protective equipment, especially when working in hard-to-reach areas.
5. Information campaigns in the media and schools . State support for mass information work involving radio, television and social networks to form correct ideas about the benefits of iodine prophylaxis.

Thus, modernization and strengthening of the institution of visiting nurses is one of the most effective ways to reduce the incidence of endemic goiter, especially in conditions of limited access to endocrinological care. Integration of the visiting service into public health strategies helps to strengthen the preventive focus of medicine and improve the quality of life of the population.

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