THYROID DISORDER IN PERSPECTIVE OF AGADTANTRA

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ABSTRACT

In today's era due to lifestyle of human beings thyroid disorder is very common. This article denotes the relation of thyroid and agadtantra. It involves thyroid disorders in perspective of Agad tantra. Modern medication for various metabolic disorders including thyroid disorders may be incorporated in the concept of garavisha as they are accumulated in the body by long term usage. Because of environmental toxins such as industrial chemicals, heavy metals, radiations it effects on thyroid glands. Some of Antithyroid drugs also affect thyroid. The antithyroid drugs such as thioamides, Iodides, Beta Adrenoreceptor blockers, Radiactive Iodine causes Thyroid hyperplasia, leucopenia, goiter, skin rashes etc. Some of drugs induces thyroid toxicity or thyroid dysfunction.

Keywords: Agad tantra, environmental toxins, Thyroid disorder

INTRODUCTION

Now a days the chemicals induced diseases are increasing and in recent years becomes major health problem. As per Ayurveda perspective we can incorporate these chemicals as a part of garavisha. In Agad tantra upavisha that effect in thyroidism are bhanga, Marijuana, Haridra. The toxic things that present in environment like industrial chemicals, pesticides, toxins present in common household product affects on thyroid. Heavy metals such as cadmium, lead, mercury also affects the thyroid gland that inhibit thyroid hormone production, Depressed thyroid fuction etc. Some of antithyroid drugs also produces toxic effects.
Antithyroid drugs that produces toxic effects are thioamides, Iodides, Beta Adrenoreceptor blockers, Radiactive Iodine etc.

**MATERIAL AND METHODS**

**Thyroid Disorders in perspective of Agadntantra**

- In recent years everything has undergone a change – life style, habits of people, diseases and its manifestations etc.

- In case of *garavisha* also, whatever have been described in our ancient classics are not exactly the same in today’s society. Now a days, the chemical induced diseases are increasing paradoxically and in recent years becomes major health problem

- As per Ayurvedic perspective we can incorporate these chemicals as a part of garavisha

**Common symptoms of garavisha and thyroid disorder(hyperthyroid and hypothyroid)**

<table>
<thead>
<tr>
<th>Symptoms of Garavisha</th>
<th>Symptoms of Hypothyroidism</th>
<th>Symptoms of Hyperthyroidism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pandu (Anaemia)</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Krisha (Weight loss)</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Alpaagni</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shvayathu</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Grahani</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Shwaas</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Gulma</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Daurbalya</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Yakshma</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Symptoms Of Dushivisha And Thyroid Disorder

<table>
<thead>
<tr>
<th>Symptoms of dushivisha</th>
<th>Symptoms in hypothyroidism</th>
<th>Symptoms in hyperthyroidism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atisara</td>
<td>-</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Moha (inability to think clearly)</td>
<td>Memory problems</td>
<td>-</td>
</tr>
<tr>
<td>Vaivarnya</td>
<td>Dry skin</td>
<td>-</td>
</tr>
<tr>
<td>Dhatukshaya (debility/weakness)</td>
<td>-</td>
<td>Weight loss</td>
</tr>
<tr>
<td>Unmada (psychological symptoms)</td>
<td>depression, mood swings</td>
<td>Anxiety, nervousness</td>
</tr>
<tr>
<td>Viloonpakshastu yatha vihanga (Hair fall, body gets emaciated and patient appears like bird clipped off from feathers)</td>
<td>Hair loss</td>
<td>Hair loss</td>
</tr>
</tbody>
</table>

Upavisha that effect in Thyroidism:

Bhanga (Cannabis sativa):

- Cannabidiol (CBD) and THC (Tetra hydro cannabinol), both are marijuana components have been shown to modulate downward inflammation in hypothyroidism throughout the entire body.

- The active ingredient of marijuana called cannabinoids, have been shown to have anti bacterial, anti cancer, anti inflammatory and anxiety reducing properties.

- There are many issues to look at in thyroid disease. The condition could be cancerous, there could be an excess or deficiency in iodine, there could an infection and fluid build up a benign tumour, cancer, infection or hormonal disorder. The absolutely amazing thing about the cannabinoids in marijuana is that they have been shown to help every one of the listed conditions.
Marijuana can definitely modify receptors that control metabolism. Certain strains known to be uplifting and some sedating.

New strain high in the cannabinoid without psychoactive component tends to balance metabolism.

**Action of Marijuana in Thyroid Disorders**[1]

**Action in Hyperthyroidism:**

<table>
<thead>
<tr>
<th>Thyroid disorders</th>
<th>Sign and symptoms</th>
<th>Action of marijuana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxic adenomas</td>
<td>Nodules in thyroid</td>
<td>Induce suicide in rogue cells (tumours)</td>
</tr>
<tr>
<td>Subacute thyroiditis</td>
<td>Inflammation of thyroid that causes leak excess hormones</td>
<td>Reduces inflammation, cannabigerol (CBG) take out methillin resistant staphylococcus aureus (MRSA)</td>
</tr>
<tr>
<td>Pituitary gland disorders or cancerous growth in thyroid gland</td>
<td>Anti cancerous activity</td>
<td>Anti cancerous activity</td>
</tr>
<tr>
<td>Hashimoto’s thyroiditis</td>
<td>Inflammation, enlarged thyroid</td>
<td>CBD, THC modulate downward inflammation throughout the entire body</td>
</tr>
<tr>
<td>Pituitary disorders in hypothyroidism</td>
<td>Development of tumors</td>
<td>Anti tumor properties</td>
</tr>
<tr>
<td>Cancer</td>
<td>Cancerous nodules</td>
<td>Kills cancer cells</td>
</tr>
</tbody>
</table>
Role of Haridra(Curcuma longa) in hypothyroidism:[2]

Mentioned in Vishaghna mahakashaya described by Acharya Charaka.

- Relieves inflammation.
- Prevention and management of thyroid cancer
- Cognitive functioning

Action of Curcumin in thyroid disorders:

<table>
<thead>
<tr>
<th>Thyroid disorders</th>
<th>Action of curcumin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thyroiditis (Inflammation of thyroid gland)</td>
<td>Anti-inflammatory effect</td>
</tr>
<tr>
<td>Chronic urticaria in hypothyroidism</td>
<td>Anti-inflammatory effect</td>
</tr>
<tr>
<td>Goiterogenesis</td>
<td>Reduces goiterogenesis</td>
</tr>
<tr>
<td>Reduces goiterogenesis</td>
<td>Enhances level of thyroid hormones at young age but reduces them in aged individuals</td>
</tr>
<tr>
<td>Disruption of liver enzymes in hyperthyroidism</td>
<td>Restores liver function</td>
</tr>
</tbody>
</table>

ENVIRONMENTAL TOXICITY AND ITS EFFECT ON THYROID[3]

- Environmental factors ranging from perchlorate in rocket fuel to polychlorinated biphenols, have shown influence on thyroid function.
- Increase risk of Autoimmune disorders
• Environmental agents Interfers with thyroid function at multiple site Thyroid Synthesis, Thyroid metabolism & Excretion, Thyroid hormone action

• Most of these agents reduce circulating thyroid hormone levels or impaired thyroid hormone action, although some may influence pituitary & thyrotropin (TSH) or even be partial thyroid hormone receptor agonist.

**Industrial chemicals**

**A. Perchlorate**

**Source**

Military applications including rocket fuel & explosives, leather, rubber

**Action**:

Reduces thyroid hormone production.

**B. Polychlorinated Biphenyls or PCB**

**Source**

Electrical equipments, Plastics, adhesives & paints

**Action**

Supress the production of thyroid hormone receptor.

Raise thyroid antibody levels & promote enlargement of thyroid gland

**C. Dioxin**

**Source**

Byproduct of manufacturing processes, including pesticide & plastic production

**Action**

Associated with decreased T4 & reduced thyroid function

**D. Pesticides**

**Source**

Pesticides
May affect the thyroid gland’s production of hormones.

**Household products**[^5]

a) Flame retardants (Polybrominated diphenyl ethers)

**Source**

Found in computer, TV screens, furniture

**Action**

Disturb thyroid function

b) Plastics

**Source**

Food storage containers, Water bottles, Children toys, Phthalates- decrease thyroid function

**Action**

Bisphenol A (BPA) – decreases thyroid receptor site sensitivity

c) Antibacterial

**chemical Triclosan**

Liquid hand soap,

**PFOA (perfluorooctanoic acid)**

**Source**

used in non-stick cookware

**Action**

decrease T4, ultimately lowering Thyroid function.
Heavy metals

a) Cadmium
   Source
   Mining, sewage sludge, batteries, plastics
   
   Action
   Initiate thyroid cell hyperplasia, which may lead to thyroid cancer

b) Lead
   Source
   Paint in older homes, inexpensive metal jewelry, children's toys
   
   Action
   Depressed thyroid function & elevated TSH

c) Mercury
   Source
   Dental amalgams, sea food, pollution from coal burning power plants
   
   Action
   Inhibit thyroid hormone production

d) Aluminium
   Source
   Antacids, deodorant, vaccines & aluminium based cookware
   
   Action
   Affects iodide uptake & thyroid hormone production

Radiation

- Most common thyroid manifestation of radiation is thyroid hypofunction, thyroid nodules and thyroid cancer
- Autoimmune thyroid disease has been linked to therapeutic medical radiation/environmental radiation
Medical radiation

- External Radiation for Hodgkin’s disease
- Stimulation of Antithyroid antibodies & autoimmune thyroid disease. Thyroid hypofunction most commonly

Dietary Factors\ Medications with high iodine composition

Excess Iodine  Reduce thyroid hormone production & release Wolff chaikoff effect

Persistant hypothyroidism

Cigarette smoking & Autoimmune thyroid diseases[6]

Cigarette smoking: Cigarette smoke contains cyanide which is metabolized to thiocyanate and can interfere with iodine concentration in the thyroid and lactating breast

cessation of smoking: Cessation of smoking may be associated with weight gain, and hypothyroidism should be considered as a cause.

Toxic effects of Antithyroid drugs[7]

- Thyroid hormone preparations, especially Thyroxine are widely used either at replacement doses to correct hypothyroidism or at suppressive doses to abolish thyrotropin (thyroid-stimulating hormone) secretion.

- Thionamide (methimazole, carbimazole, propylthiouracil) are the most widely used antithyroid drugs.

- They are given for long periods of time and cause adverse effects in 3 to 5% of patients.

- In most cases, adverse effects are minor and transient (e.g. skin rash, itching, mild leucopenia etc.) The dangerous effect is Agranulocytosis, which occurs in 0.1 to 0.5% of patients. Sometimes this life threatening conditions can be difficult to manage.
<table>
<thead>
<tr>
<th>Antithyroid drugs</th>
<th>Side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thioamides</td>
<td>• Thyroid hyperplasia&lt;br&gt;• Skin rash (3% to 5%),&lt;br&gt;• Aplastic anemia&lt;br&gt;• Myalgias&lt;br&gt;• Arthralgias</td>
</tr>
<tr>
<td>Propylthiouracil (PTU)</td>
<td>• Dermatologic reactions&lt;br&gt;• Leukopenia&lt;br&gt;• Hepatitis&lt;br&gt;• Goiter&lt;br&gt;• Alopecia&lt;br&gt;• Thrombocytopenia</td>
</tr>
<tr>
<td>Methyl Thiouracil</td>
<td>• Agranulocytosis&lt;br&gt;• Exfoliative Dermatitis&lt;br&gt;• Hepatitis</td>
</tr>
<tr>
<td>Methimazole</td>
<td>• Alopecia&lt;br&gt;• Aplastic anemia&lt;br&gt;• Dermatologic reactions (E.g. rash, pruritus, skin)&lt;br&gt;• Neuritis&lt;br&gt;• Polyarthritis</td>
</tr>
<tr>
<td>Carbimazole</td>
<td>• Painful Joints&lt;br&gt;• Muscle Pain&lt;br&gt;• Blood Disorders&lt;br&gt;• Bleeding Cutaneous Vasculitis</td>
</tr>
<tr>
<td>Iodide Sodium iodide</td>
<td>• Hypersensitivity reactions&lt;br&gt;• Fetal Toxicities&lt;br&gt;• Transient infertility</td>
</tr>
</tbody>
</table>
Drug Inducing Thyroid Toxicity /dysfunction

At four different levels:

1) May alter the synthesis and/or secretion of thyroid hormone

2) May change the serum concentrations of thyroid hormones by acting at the level of binding proteins or by competing for their hormone binding sites

3) May modify cellular uptake and metabolism of thyroid hormone.

4) May interfere with hormone action at the target tissue.

Drugs that affect synthesis / secretion of Thyroid hormone

<table>
<thead>
<tr>
<th>Decrease T3/T4 synthesis / secretion</th>
<th>Increase T3/T4 synthesis /secretion</th>
<th>Decrease TSH concentration / response to TRH</th>
<th>Increase TSH concentration / response to TRH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium Iodide</td>
<td>Iodide</td>
<td>T4, T3, Glucocorticoids</td>
<td>Iodine</td>
</tr>
<tr>
<td>Thionamides (Propylthiouracil, Methimazole, Carbimazole)</td>
<td>Amiodarone</td>
<td>TSH concentration</td>
<td>Lithium</td>
</tr>
<tr>
<td>Thiocyanate</td>
<td>Cytokines (IFN-γ, IL-2, GM-CSF)</td>
<td>TSH concentration / response to TRH</td>
<td>Dopamine-agonists</td>
</tr>
<tr>
<td>Perchlorate Amiodarone Cytokines (IFN-γ, IL-2, GM-CSF)</td>
<td>Aminogluthethimide</td>
<td></td>
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CONCLUSION

In today's era, the lifestyle of people is very advanced due to these advanced lifestyle people are more prone to disorders such as diabetes, thyroid, hypertension etc. In this article we focused on thyroid disorders its relation to Agadtantra. In Agadtantra we studied about upavisha. Some of the upavisha that effect in thyroidism are bhang, Marijuana, Haridra etc. Now a days the environment gets polluted because of industrial chemicals, heavy metals, due to radiations that also affects thyroid. Some antithyroid drugs also produces toxic effects. There are some drugs because of that they induces thyroid toxicity or dysfuction. In these way thyroid disorder is related with Agadtantra.

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