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IN VIVO STUDY OF IZDIAD-E-GHUDDA-E-IFRAZATH-E-GHUDDA-E-DARQIA(HYPERTHYROIDISM) IN ANIMAL EXPERIMENT

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ABSTRACT

Background: Thyroid disorders are very common throughout the world. Hyperthyroidism is essentially an autoimmune disease. According to Hakim Najmul Ghani the test drug Brahmi and Badranjboya for the management of GALAGANDA swelling of neck tumour, goitre that can be corelated with the hyperthyroidism is the evident from historical literature of Unani system of medicine. **Aim of the study**: The present pre –clinical in vivo Study of Brahmi (Centella asiatica) and Badranjboya, (*Nepeta hindustana*) in the management of drug-induced hyperthyroidism. **Material And Methods**: The Present pre-clinical study "In vivo study of Izdiad-e- Ifrazath- e-Ghudda-e-Darqia (hyperthyroidism) in Animal experiment" 30 Albino wistar rats (6 Groups, 14 days oral route). Except control group, all the rats were given thyroxine 600 µg /kg/bw Test drug Dose fixation done after toxic study for both drugs, 500mg/kg/bw. **Result:** Tgc Vs Sg Results T3 Mean Diff 47.33, P Value <0.0001 Resultant 48.33 %, T4 Mean Diff 1.473 P Value < 0.0001 Resultant 54.63%, Ts4, Mean Diff -0.36 P Value < 0.0001, Resultant 21.43%. **Conclusion:** The present pre – clinical study concluded the test drug 1 and test drug combined shows significant results in decreasing and blocking the thyroid receptors for excessive secretion of thyroid hormones levels T3 & T4 and increasing the TSH l, it has shown significant effect in improving HDL and lowering LDL as thyroidhistopathology shown a normal thyroid gland without atrophy with active follicles as comprising with standard group.

KEYWORDS: Brahmi, Badranjboya, Ghudda-e-arqia, Izdiad-e-razath-e-Darqia.

INTRODUCTION

Hyperthyroidism is essentially an auto immune disease. Most often, the entire thyroid gland produces the thyroid hormone. Sometimes, even a single nodule is also responsible for the excess hormone secretion. The underlying cause of hyperthyroidism is grave's disease. Antibodies that the patient's immune system makes which attach to specific activating sites on thyroid gland that in turn cause the thyroid to make more hormone cause grave's disease. Grave's disease has three distinct features.

Hyperthyroidism (overactive thyroid) is a condition in which thyroid gland produces toomuch of hormone thyroxin hyperthyroidism can accelerate body's metabolism significant causing sudden weight loss a rapid or irregular heartbeat sweating and nervousness or irritability.

Although hyperthyroidism can be serious if u ignore it most people respond well once, hyperthyroidism is diagnosed and treated.

1) Over activity of the thyroid gland called hyperthyroidism
2) Inflammation of the tissues around the eyes causing swelling and thickening of skinover legs called pretibial myxoedema

Global epidemiology between 100 and 200 cases per 100,000/year with the prevalence of 2.7% in women and 0.23% in men

A) Effects women much more than men about 8:1.

B) it is uncommon over the age of fifty and more common age group of thirty to forty often manifest a diffuse toxic goitre on account of the enlargement of the entire glandChances of heredity condency The study on the prevalence of sub clinical hyperthyroidism and coastal area in Telangana shows.

According to ancient Unani hakeems & pioneers like, asqaliboss, Ibn-e-sina, Buqrath and Jalinoos, the well-known and the marvellous, dynamic hakeems of Unani medicine who made a history. As per the Hakeems the main cause of any disease orany disturbances in the body due to disequilibrium of any khilt (Humour) in quantity and quality that leads to diseases.

The Unani term of hyperthyroidism is Izdiad-e-ifrazath-e-Ghudda-e-Darqia, it means increase secretion of thyroid hormones called hyperthyroidism the most common cause of hyperthyroidism is the Predominance of Safra or Ghaiar Tabayee safra Which (Altered bile)

Changes into Ghair Tabayee Sauda (Burnt Safra to Sauda).

Already the drugs have been used from ancient era to treat the imbalance of ghair tabyee safra and ghair tabayee sauda as

- Mushile sauda. afteemoon, turbud, haleela siyah and panwad.
- Munzij-e-sauda Badranjboya.
- Mushil-e-safra: saqmoonia, sibre zard, sana makki, shahtra.
- Munzij-e-safra: gul-e-banafsha. Beekh-e-kansi, tukhme kasni.
- Muquil, waj turki, kanchnar, zeera, asgandh, sonth has been using for thyroid disorders references.

The test drug Brahmi (*Centella asiatica*) and Badranj boya (*Nepeta hindustana*) have been used from ancient time in Unani system of medicine by great Unani pioneers and physician as brain cleanser, memory boosters ,treating neck tumors, inflammations, for weight gain, according to hakeem the drug has been reported for the management of GALAGANDA which can be correlate with the toxic and non-toxic goitre in hyperthyroidism that is the evident from historical literature of the Unani system of medicine, main actions of Brahmi: Muqawwi, mufarreh aza-e-Rayeesa.main actions of Badranj boya: Mufarreh muqawwi qalb, Munzije sauda etc.

MATERIAL AND METHODS

Experimental animals

The study was carried out on Albino Wistar rats, each weighing 100-120 gm. The experimental protocol was approved by Institutional Animal Ethics Committee of Govt. Nizamia Tibbi College, Charminar, Hyderabad. Reg. No.1070/GO/Re/S/07/CPCSEA, dated 24.03.2018. All experimental procedures and animal care are in accordance to CPCSEA guidelines for care and use of Animals in scientific research. The animals were housed in clean polypropylene cages with temperature (25 ± 2 C) and relative humidity of (60 ± 5%) under a 12 h light/dark cycle. Animals were fed with normal rat chow and water ad libitum throughout the study period. The animals were purchased from VAB Bio Sciences, CPCSE No.282/PO/RcBt/S/2000/CPCSEA, #7-12 Medipally Village, Narapally, Ghatkesar Mandal, Medchal District, Hyderabad-500039.

Test Drugs and Chemicals

BRAHMI (*Centella asiatica*) and BADRANJBOYA (*Nepeta hindustana*) were provided by

the department of Ilmul Advia (Pharmacology), Govt. Nizamia Tibbi College, Hyderabad, TS. The whole plant were submitted for identification and authentication tosurvey of medicinal plant unit SUMPU, NRIUMSD, HYD. Identification & authenticationwas done by Dr. Mohd Kashif Hussain botanist of SMPU, NRUMSD, Hyderabad vide vouchers specimen no SMPU/CRI Hyd 14105 for *Centella asiatica* and SMPU/CRI Hyd 14106 for *Nepeta hindustana*. : Thyroxine and carbimazole were purchased fromHyderabad, TS.

PREPARATION OF TEST DRUG EXTRACT

The test drugs used for experimental studies is in the form of aqueous extract was prepared through the process of soxhlet apparatus. The test drugs were crushed intocoarse powder and 100 gm powder of each drug was used for aqueous extraction separately using Soxhlet apparatus. Extracts were concentrated on waterbath at 80 °C until it becomes semisolid in nature. Dried extracts were weighed and It was labeled and kept in airtight container in refrigerator for further use.

Acute toxicity and dose of test drugs

The acute toxicity study was performed by using Organization for Economic Cooperation and Development (OECD) guidelines 423. Female Albino Wistar rats were used for the study. The dose of 2000mg/kg, P.O. of both extracts administered in the acute toxicity study. The animals were observed continually for 2hrs for gross behavioural changes and intermittently once every 2hrs and finally at 24 and 72 hours to note any signs of toxicity including death. After this observation, no sign of toxicity or death was recorded, after that; the dose of test drugs (*Centella asiatica Nepeta hindustana*) was fixed as 500 mg/kg body weight respectively.

Experimental Design

ANIMAL MODEL: The Present pre clinical in vivo study of brahmi (*Centella asiatica*) and badranjboya (*Nepeta hindustana)* in the management of hyperthyroidism in thyroxine induced hyperthyroidism in animal experiment, Albino Wistar male and female rats were given thyroxine 600 µg/ kg/bw by oral route for 14 days to induce hyperthyroidism.

In this study 6 male and 12 females albino wistar rats weighing about 100-120 gm were used for the experiment, the rats were divided randomly in to 6 groups with 3 animals in each group.

GROUP I: The rats of control group received only normal saline, rat chow and water orally once daily throughout the course of the experiment.

GROUP II: The rats of negative group received daily thyroxine 600 µg/kg/bw per day for 14 days by oral route.

Group III: The rats of standard group received daily carbimazole 1.34 mg/kg/bw per day by oral route along with thyroxine 600 µg/ kg for 14 days.

Group IV: The rats of this group received daily thyroxine 600 µg/ kg for 14 days alongwith extract of *Centella asiatica* 500mg/kg bw per day for 14 Days.

Group V: The rats of this group received extract of *Nepeta hindustana* 500mg/ kg bw per day along with thyroxine 600 µg/kg body weight daily for 14 days by oral route.

Group VI: The rats of this group received Brahmi (*Centella asiatica)* 250mg/kg bw and badranjboya (*Nepeta hindustana)* 250mg/kg body weight along with thyroxine 600 µg/kg body weight per day for 14 days by oral route.

Laboratory Investigations

Before study (zero day), two ml blood was drawn from the orbital sinus of rats by inserting the capillary tube into their orbital sinuses for thyroid profile T3, T4, TSH and serum cholesterol. At the end of experiment (on 15th day), all the animals were anaesthetized (Pentobarbitone sodium 60mg/kg; i.p.), blood was collected by cardiac puncture for biochemical assay and rats were sacrificed.

Histopathological Studies

Thyroid glands of animals were dissected out washed with normal saline, and preserved in 10% formalin for the purpose of histopathological examination and sent to the Veterinary pathology lab (veterinary lab Diagnopet, Hyderabad).

Statistical Analysis

Results were expressed as Mean±SEM. The different values determined were compared with each other and comparison was made using One-way ANOVA with Tukey's Multiple Comparison test. The difference of mean was considered significantat $p< 0.05$.

RESULT

Tgc Vs Sg Results T3 Mean Diff 47.33, P Value <0.0001 Resultant 48.33 %, T4 Mean Diff 1.473 P Value < 0.0001 Resultant 54.63%, Tsh, Mean Diff -0.36 P Value < 0.0001, Resultant 21.43%.

CONCLUSION

The present pre – clinical study concluded the test drug 1 and test drug combined shows significant results in decreasing and blocking the thyroid receptors for excessive secretion of thyroid hormones levels T3 & T4 and increasing the TSH l, it has shown significant effect in improving HDL and lowering LDL as thyroid histopathology shown a normal thyroid gland without atrophy with active follicles as comprising with standard group.

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