

KEYWORDS: Mobile phones, Electromagnetic Rays, Hypothalamo - Pituitary-Thyroid axis (HPT) Axis, Hypothyroidism

EMISSION OF ELECTROMAGNETIC RAYS FROM MOBILE PHONES CAUSE DYSFUNCTION OF THYROID GLAND



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ABSTRACT

During the past decade, there is a dramatic increase in wireless communication system particularly the mobile phones (cell phones) which are low power single channel two ways radios that emit signals through electromagnetic waves. As most of the physiological functions in our body is regulated by electric currents and the electromagnetic fields (EMF) emitted from the mobile phones may affect the physiological processes and associated health effects like sleep disorders, headaches, etc. When we discuss about the endocrine system the most exposed vital endocrine glands when compared to pineal, pituitary, adrenal which can get affected by the electromagnetic fields is thyroid gland, An important endocrine glands that control our body metabolism which is located in front of the neck and release hormones into the bloodstream. It secretes Thyroxine(T4)1, Triiodothyronine(T3) Calcitonin, to synthesize thyroid hormones Thyroid gland needs Iodine, too little or too much iodine can affect the level of hormones and its release. Role of thyroid hormones is to control Metabolism, Body Temperature, Breathing, Heart rate, Brain development, Mental activity, Digestion, Fertility etc. This study shows a higher TSH level (Hypothyroid) with low T4 in mobile phone users. It may be concluded that there can be deleterious effects of mobile phones through electromagnetic rays on Hypothalamo-Pituitary-Thyroid axis (HPT)

INTRODUCTION

In the recent years there is a huge increase in mobile phones usage throughout the world. The Electromagnetic Rays (EMR) induced by the Global system of Communication from mobile phones can have detrimental effects on Human health. This EMR'S are non-ionising in nature and cannot ionise molecules in our body these can affect thyroid gland metabolism as a part of its non thermal effects. Generally mobile phones are low power single channel two ways radios that emit signals through electromagnetic rays. As most of the physiological functions in our body is regulated by electric currents and the electromagnetic rays (EMR) emitted from the mobile phones may affect the physiological processes and associated health effects like sleep disorders, headaches, etc. When we discuss about the endocrine system the most exposed vital endocrine gland when compared to other endocrine glands such as pineal, pituitary, adrenal which can get affected by the electromagnetic rays is thyroid glands, An important endocrine glands that control body metabolism which is located in front of the neck and releases hormones into the bloodstream. They secretes thyroxine1 (T4), Triiodothyronine (T3), Calcitonin, to synthesize

thyroid hormones, thyroid glands need Iodine too little or too can affect the level of hormones. Role of thyroid hormones is to control Body Metabolism, Temperature, Breathing, Heart Rate, Brain Development, Mental activity, Digestion, Fertility etc.

MATERIALS AND METHODS

The present study shows alteration in TSH and thyroid hormones. The people who use mobile phones have elevated TSH, and decreased T4 and T3. This Study concluded that possible deleterious effects of mobile microwaves on Hypothalamo-Pituitary-Thyroid axis (HPT)2 affects the level of these hormones.

A study was done on the effect of electromagnetic radiation due to mobile phones use on thyroid function in medical students studying in medical college in south India4. They explored for the association between radiation exposure and thyroid dysfunction among mobile phone users. Students who actively have mobile phones usage was considered under inclusion criteria. The students who have preexisting thyroid disease was excluded from the study. Statistical analysis has shown that 53% of students spent 0.5 hour on phone, 28% of students spent 1-2 hours on phone, 10% for 3-4 hours. Around 20-22% of students of the above came with significant results of thyroid disease either a thyroid swelling or a thyroid dysfunction. study concluded that there is a significant correlation between total radiation exposure and increased TSH among students. But there was no consideration of family history of thyroid diseases under this study.

A study was done at diagnostics radiology department on mobile phone usage and risk of thyroid gland lesions detected by ultrasonography5. There were 180 participants with 110 females and 70 males of age 15 - 65 years, USG examination of thyroid gland was done 5-9 MHz linear probe in B- mode and colour Doppler mode and analysed for size, echogenicity, vascularity of thyroid gland and any presence of any focal lesion, calcifications or abnormal lymph nodes was checked. Demographic analysis of study group showed 141 with mobile phone uses and 39 non users. when compared to males, female uses were found more. 36.7% use mobile phone for >5 hours daily and had noticed that 46.7% had abnormal thyroid gland functioning and 53% were normal.

The study on thyroid cancer, Genetic variation Mutations and Point Mutations are found positive for regular usage of cell phones6, 900 people was examined and provided evidence that genetic susceptibility with certain SNP (single nucleotide polymorphism) in 4 genes found. It has a role in prolonged usage of cell phones, developing thyroid cancer.

DISCUSSION

An important endocrine glands that control body metabolism

which is located in front of the neck and releases hormones into the bloodstream. They secrete thyroxine (T₄), Triiodothyronine (T₃), Calcitonin, to synthesize thyroid hormones, thyroid glands need iodine. Too little or too much iodine can affect the level of hormones. Role of thyroid hormones are to control body Metabolism, Temperature, Breathing, Heart Rate, Brain Development, Mental activity, Digestion, Fertility. Etc. It may be possible to have deleterious effect of mobile microwaves on Hypothalamic-Pituitary-Thyroid axis affect the level of these hormones.

CONCLUSION:

As Mobile phones have become a daily necessity for every person. There are certain disadvantages of getting constant exposures of electromagnetic radiations. The emitted rays through mobile phones are very harmful to the whole body to absorb non ionising radiations. The most crucial and superficial endocrine gland that is thyroid gland get much of its effected by disturbing its normal functions as it controls Metabolism, Heart rate, Breathing, Brain development, Mental activity, Fertility. etc. The present study concluded there is a strong connection between mobile phones usage and thyroid dysfunction.

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