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Controlled Vestibular Stimulation: Supplementary Treatment For Hypothyroidism.

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ABSTRACT

In this case report we have applied vestibular stimulation for the first time as a supplementary treatment for hypothyroidism. The present case shows that controlled vestibular stimulation along with medication has altered the symptoms Miss A suffered from in a beneficial manner and can be of use in similar cases. Hence we recommend further detailed study in this area.

Keywords: Controlled vestibular stimulation, Hypothyroidism, supplementary treatment.

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INTRODUCTION

Thyroid diseases are, arguably, among the commonest endocrine disorders worldwide. India too, is no exception. According to a projection from various studies on thyroid disease, it has been estimated that about 42 million people in India suffer from thyroid diseases.[1] Hypothyroidism is a condition in which the thyroid gland does not make enough thyroid hormone. This condition is often called underactive thyroid.[2] The increasing burden of thyroid diseases in the Kerala State has been worrying doctors, especially gynaecologists, who point out that a significant percentage of women coming in to their clinics complaining of infertility, recurrent miscarriages, irregular menstrual cycles, unexplained weight loss or gain are being diagnosed with low-functioning thyroid gland or hypothyroidism. Several studies conducted in Kerala in recent times have shown that with the widespread use of iodised salt, there is iodine sufficiency in the community.[3]

Thyroxine is the standard replacement therapy for patients with clinical hypothyroidism. However, there has been recent interest in examining the potential advantages of combined thyroxine and triiodothyronine treatment for the treatment of hypothyroidism.[4] Controlled vestibular stimulation is stimulating vestibular system by controlling direction, duration, frequency and intensity. Ideal direction, duration, frequency and intensity.

The need for vestibular stimulation can be observed throughout the life from newborns and infants in the cradle to the aged in a rocking chair. Everyday activities such as running, dancing, swinging or driving cars may exert positive and negative effects on subjective well-being.[5] Thyrotrophin releasing hormone (TRH) neurons are located in paraventricular nucleus. Electrical and caloric stimulation of vestibular pathways results in a response in PVN (para ventricular neurons) neurons in the guinea pig. Retrograde viral tracing in the rat brain has demonstrated the presence of a direct vestibuloparaventricular projection.[5] The hypothalamic pituitary thyroid (HPT) axis plays a critical role in mediating changes in metabolism and thermogenesis. Thus, the central regulation of the thyroid axis by Thyrotropin Releasing Hormone (TRH) neurons in the paraventricular nucleus of the hypothalamus (PVN) is of key importance for the normal function of the axis under different physiological conditions including exposure to cold and changes in nutritional status.[6] In the present case we have applied vestibular stimulation for the first time as a supplementary treatment for hypothyroidism.

CASE REPORT

Miss A, a 20 years old college student with 40 kg weight and 159cms height, complained of feeling tired easily and feel sleepy all the time from past 6 months. On advice she underwent a thyroid profile on aug 2013 and was found to have blood cholesterol 270mg/dl (125-250 mg/dl), T3- 0.59 ng/ml (0.79-1.49ng/ml), T4- 3ug/ml (4.5-12ug/dl), TSH- 0.39ul U/ml (0.49-4.67ul U/ml) and was diagnosed as hypothyroidism. Normally TSH secretion is inhibited in a negative feedback fashion by circulating free T3 and T4. But in the present case TSH is also suppressed along with T3 and T4. It may be due to some drugs effect. [8] So we advised her to use only the medication we have suggested. Other

investigations were normal (CBC, RFT, Blood sugar, CXR), ECG- sinus bradycardia. No family history of hypothyroidism is present.

Chief complaint

- Easily tired and feel sleepy all the time since 6 months,
- Menses irregular for last 6 months,
- Nausea and vomiting on a long drive.

The patient was started on medication of thyronome 25mcg. Her repeat investigations after three months were as follows. Blood cholesterol is 188 mg/dl, T3- 0.88ng/ml, T4-7.10ug/dl, TSH- 1.285ul U/ml, and still menstrual cycle was irregular. Then we advised her to start vestibular stimulation on a swing (back to front direction), along with medication.

This swing was installed in Little Flower Medical Research Centre, Angamaly to provide vestibular stimulation especially for college students. The swing seat width is 40.6 cms and length is 66.04 cms and ground to seat height is 50.8 cms. The swing maximum movement from centre to front is 238.76 cms and centre to back is 223.52 cms. On first day she used to swing for 15 minutes with frequency of 18 cycles/min and intensity of 238.7 cms from centre to front and 223.52cms from centre to back and she reported that she was not comfortable. This may be over stimulation for her, so we advised her to adjust frequency, duration and intensity which are more comfortable to her. From very next day she started swinging only for 2 minutes duration with frequency of 30 cycles/min and intensity 100 cms from centre to front and 90 cms from centre to back and she reported that she was comfortable with this stimulation. This may be controlled vestibular stimulation for her. This supplementary treatment was continued for three months along with the medication and after three months her blood cholesterol is 164 mg/dl, T3- 0.98ng/ml, T4-8.46 ug/dl, TSH- 1.34 ul U/ml and she reported that her menstrual cycle was almost regular.

	Blood cholesterol (mg/dl)	T3 (ng/ml)	T4 (ug/dl)	TSH (ul U/ml)
Before treatment	270	0.59	3	0.39
3 months after only with medication	188	0.88	7.10	1.285
3 months after medication along with controlled vestibular stimulation	164	0.98	8.46	1.34

Table: 1 Blood cholesterol, T3, T4, TSH values in hypothyroid patient before and after treatment.

CONCLUSION

The present case shows that controlled vestibular stimulation along with medication has altered the symptoms of Miss A suffered from in a beneficial manner and can be of use in similar cases. Hence we recommend further detailed study in this area.



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