

Prevalence Of Hypothyroidism In Newborn Babies Of Taluka Pano Akil And Sukkur

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Abstract

Congenital hypothyroidism (CH) is defined as thyroid hormone deficiency present at birth. Babies with CH who are not identified and treated promptly develop severe mental retardation. Studies show that lower neurocognitive outcome may occur in infant started at the age of greater than 30 days. Most of the babies with CH don't manifest the typical known signs and symptoms of hypothyroidism. But common symptoms include decreased activity and increased sleep, feeding difficulty, constipation. This study aimed to determine the prevalence of congenital hypothyroidism among the children of Sukkur and Pano Akil talukas. The blood samples were collected from Civil Hospital Sukkur and Sakhi Baba Hospital Pano Akil for screening at laboratory during the months of January 2022 to Jun 2022. The samples were taken by heel prick. The 80 new born babies were screened randomly by measuring serum TSH level. In primarily diagnosed cases of Congenital Hypothyroidism neonates were considered hypothyroid if their TSH was >6 mIU/ml. The prevalence at

high risk of hypothyroidism was observed higher in children of Pano Akil Taluka. The prevalence of mild hypothyroidism was similar in females of both Talukas which was greater in females than in males. Similarly the prevalence of Hypothyroidism was greater in females than in males and also it was greater in females of Pano Akil as compare to females of Sukkur Taluka. It is concluded that female patients of Pano

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Akil Taluka are more prevalent of Mild Hypothyroidism and Hypothyroidism but the situations are not alarming.

Introduction

The study of new born hypothyroid is the most common endocrine disorder affecting 1 in 3000 to 4000 new born (Niamh-McGrath et al., 2018). In new born hypothyroidism babies, thyroid gland does not function properly. In majority thyroid gland is absent, smaller than normal size, or located in wrong place (Ada's et al., 2019). New born babies remains undiagnosed at birth and late diagnosed may be cause of severe problems (Pankaj, 2015). New born hypothyroidism is the common cause of mental retardation but treatable. In many countries neonatal thyroid screening programs are performed for preventions of complication (Simsek, et al., 2003). Treatment should be started as soon as the diagnosis is suggested immediately after obtaining blood for conformation test as delayed treatment is associated with risk of cognitive development (Leger et al., 2014). All infants with a low T4 concentration and TSH concentration greater than 40mu per child are considered have congenital hypothyroidism, if TSH concentration is slightly elevated but less than 40mu per l child then second screening test should be performed result should be interpreted using age relative normal value at 1 to 6 week of age TSH range level between 20 to 40mu per l (Amfam, 2007). The drug that prevents hypothyroidism in new born is synthetic thyroid hormone called levothyroxine.

MATERIALS AND METHODS

MATERIALS

Cannula syringe, Test tube, Pipette, disposable gloves, TSH test kit, VIDAS instrument.

Methods

The study included collection of data of all infants who deliver during the period of January 2022 to June 2022 in Civil Hospital Sukkur, Sakhi Baba Hospital Pano Aqil and Government Taluka Hospital Pano Aqil. As part of routine new born screening, both cord blood and heel samples were collected from each new born for new born hypothyroidism screening by measuring TSH level. A umbilical cord TSH level was considered positive if the concentration of TSH was more than 60 mIU/L and considered negative if less 30 mIU/L. The umbilical cord TSH level between 30-60 mIU/L was considered normal birth life. T4 level was measured from the same umbilical cord sample and was considered positive if the freeT4 hormone level was 0.40-4.50mIU/L. All new born with positive results was recalled and samples were collected again from peripheral vein for TSH and free T4 level conformation. If confirmatory test was positive we recommended new born for treatment as early as possible with levothyroxine and suggested repeated venous sample monthly.

Procedure of Screening TSH Test (Hypothyroidism)

Step I: Collected blood samples from newborns using heel prick. Blood was collected in test tubes and carried to the laboratory.

Step II: Blood samples were centrifuged, serum separated, and transferred into new test tubes. The test was performed in VIDAS (Vitek Immuno Diagnostic Assay System).

Step III: Serum added into TSH SPR (solid phase receptacle). The assay was performed automatically using ELFA technique (Anckaert E et al., 2002).

Identification of Disease

Earliest manifestations: Lethargy, oversleeping, sluggishness, feeding difficulties, persistent constipation, jaundice, abdominal distention with umbilical hernia, cold/dry/rough/thick skin.

Classical features: Large tongue, puffy eyelids, depressed nasal bridge, short neck, scanty/dry/rough scalp hair, muscular hypertrophy (Kocher Debre-Semelaigna syndrome), and hernia of variable size.

Treatment of Hypothyroidism in Newborn Babies

Levothyroxine (Eltroxin) is recommended. Dose: 10–15 µg/kg/day in neonates and infants; 5–15 µg/kg/day for patients beyond one year of age (Stagi et al., 2022).

Results

The test results on completion were analyzed by using MS Excel 2010 and statistical analysis computer software.

The gender-wise distribution of thyroid condition was analyzed in two talukas, Sukkur and Pano Akil. On comparing mild hypothyroidism and hypothyroidism in males and females of Sukkur and Pano Akil, it is obvious that mild hypothyroidism and hypothyroidism is more in females than males as shown in figure No. 01. While comparing two regions, the hypothyroidism is more seen in females of Pano Akil and in males of two regions no any significant difference. On comparing all male and female subjects of two regions it is seen that mild hypothyroidism and hypothyroidism is more frequent in Pano Akil, more over to this the number of subjects with borderline of TSH hormone are from Pano Akil region as shown in figure No.2.

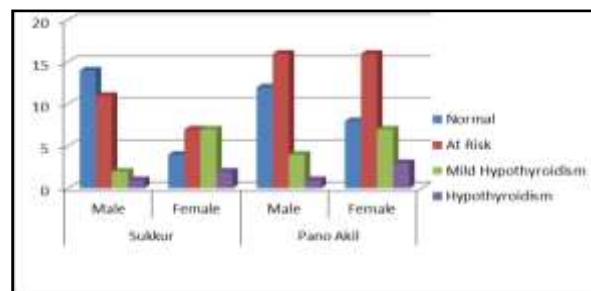


Fig. No.1. Gender and Taluka-wise distribution of thyroid condition

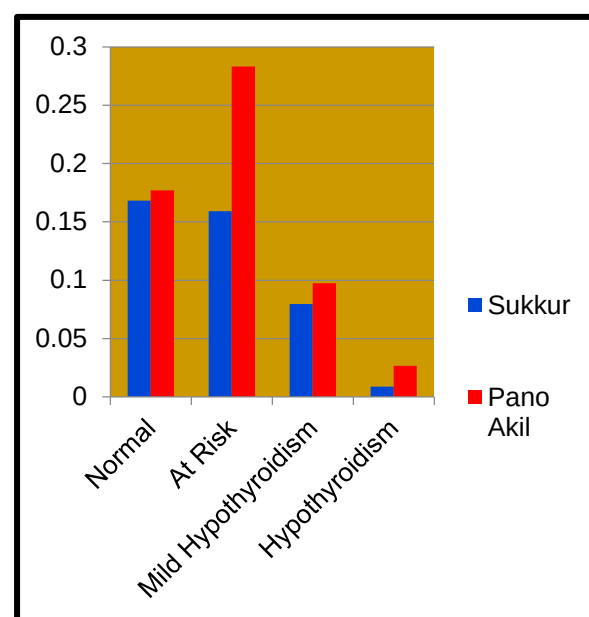


Fig. No.2. Overall distribution of thyroid condition

Discussion

Hypothyroidism is a clinical condition categorized through thyroid hormone deficiency which may be linked with developmental illnesses of thyroid gland or disorder of thyroid hormone biosynthesis and iodine deficiency, as well as by certain drugs used by mother throughout pregnancy. The most common disorder was congenital hypothyroidism. Harshness of the symptoms and manifestations are related to the degree of low thyroid hormone. Congenital hypothyroidism is the most common preventable cause of intellectual delay. Screening of 80 cases showed 3% hypothyroid children in Pano Aqil and 2% in Sukkur. As neonatal screening is not officially applied in Sukkur district, awareness programs are recommended.

Conclusion

Congenital hypothyroidism is seen more in children at Pano Aqil Taluka than Sukkur Taluka. It remains a rare condition, but iodine deficiency in maternal diet is a contributing factor. The prevalence of hypothyroidism is greater in Pano Aqil, though the situation is not alarming.

Recommendations

Parents should seek thyroid function tests if newborns show symptoms like large tongue, puffy eyelids, depressed nasal bridge, short neck, scanty/dry hair, and hernia. Treatment with levothyroxine is effective and usually lifelong. Regular monitoring of TSH levels is required. Levothyroxine should be taken on an empty stomach, preferably in the morning.

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