

CRETINISM, TYPES OF CRETINISM SUCH AS CONGENITAL CRETINISM, ACQUIRED CRETINISM AND SYMPTOMS, DIAGNOSIS AS WELL AS TREATMENT OF CRETINISM

**Sony Sharlet. E¹, Venkat Navven. A², Sravani. K³, Vikunta Rao. V⁴,
Muralinath E.⁴, Manjari P.⁴, Sravani Pragna K.⁴, KALYAN C.⁴,
Guru Prasad.M⁵**

¹Veterinary College, Tirupati, Andhra Pradesh, India

²Technical Sales Officer, Vijayawada, Andhra Pradesh, India

³Veterinary Officer, Nuzivedu, Andhra Pradesh, India

⁴College of Veterinary Science, Proddatur, Andhra Pradesh, India.

⁵Vaishnavi microbial Phama pvt.ltd, Hyderabad, India

ABSTRACT:-

Cretinism is a rare and severe form of hypothyroidism that primarily influences infants and children. Types of cretinism are congenital cretinism and acquired cretinism. Symptoms of cretinism include developmental delays, intellectual disabilities, growth retardation, coarse facial features, hearing as well as speech impairments and constipation. Diagnosis is based on blood tests, imaging studies and genetic testing. Treatment is dependent on hormone replacement therapy, regular monitoring, supportive care and nutritional support. It is finally concluded that cretinism is a rare but serious condition that impacts thyroid hormone production resulting in the developmental intellectual disabilities due to the absence of treatment. Either early diagnosis or proper treatment particularly with hormone replacement therapy can enhance the quality of life for individuals in a significant manner.

KEY WORDS: infants, children, intellectual disabilities, thyroxine, tri iodo thyronine, congenital cretinism, acquired cretinism, radiation therapy, developmental delays, growth retardation, coarse facial features, hearing as well as speech, impairment, constipation, blood tests, imaging testing, hormone replacement therapy, levo thyroxine, physical therapy and iodine supplementation.

INTRODUCTION:-

Cretinism is a rare and severe form of hypothyroidism that primarily affects infants and children. This condition, if left untreated, can lead to significant developmental and intellectual disabilities. In this article, we will explore various aspects of Cretinism, including its causes, symptoms, diagnosis, and treatment options.

What Causes Cretinism?

Cretinism is primarily caused by a deficiency of thyroid hormones, particularly thyroxine (T4) and triiodothyronine (T3). There are two main types of Cretinism, each with its own underlying causes:

Congenital Cretinism

Congenital Cretinism is present at birth and is usually due to:

Iodine Deficiency: In regions with insufficient dietary iodine, the thyroid gland cannot produce enough hormones.

Thyroid Dysgenesis: This occurs when the thyroid gland fails to develop properly during fetal development.

Genetic Mutations: Rare genetic mutations can impair the thyroid's ability to produce hormones.

Acquired Cretinism

Acquired Cretinism can develop later in life due to factors such as:

Thyroid Surgery: Removal of the thyroid gland due to disease or cancer can lead to hormone deficiency.

Radiation Therapy: Radiation treatment for certain cancers in the head or neck area can damage the thyroid gland.

RECOGNIZING SYMPTOMS:-

The symptoms of Cretinism can vary depending on the age of onset and the severity of the hormone deficiency. Common signs and symptoms include:

Developmental Delays: Delayed physical and mental development in children.

Intellectual Disabilities: Reduced cognitive function and learning difficulties.

Growth Retardation: Stunted growth, resulting in short stature.

Coarse Facial Features: Facial swelling and abnormal features.

Hearing and Speech Impairments: Difficulty with hearing and speech.

Constipation: Digestive problems are common in individuals with Cretinism.

DIAGNOSIS AND EVALUATION:-Diagnosing Cretinism typically involves:

Blood Tests: Measuring thyroid hormone levels in the blood to confirm the deficiency.

Imaging: Ultrasound or scans to assess the thyroid gland's size and structure.

Genetic Testing: In cases of suspected genetic mutations.

TREATMENT OPTIONS:-

Fortunately, Cretinism is treatable, and early intervention is crucial in preventing irreversible complications. Treatment options include:

Hormone Replacement Therapy

Levothyroxine: A synthetic thyroid hormone is prescribed to replace the missing hormones.

Regular Monitoring: Ongoing blood tests to adjust the dosage as needed.

Supportive Care

Physical Therapy: To address motor skill delays.

Speech and Occupational Therapy: To improve communication and daily living skills.

Nutritional Support

Iodine Supplementation: If the cause is iodine deficiency, iodine supplements may be recommended.

CONCLUSION: -

Cretinism is a rare but serious condition that affects thyroid hormone production, leading to developmental and intellectual disabilities if left untreated. Early diagnosis and proper treatment with hormone replacement therapy can significantly improve the quality of life for individuals with Cretinism. It is essential for healthcare providers and parents to be vigilant in recognizing the signs and seeking prompt medical attention for affected children.

REFERENCES AND FURTHER READING:-

F. Delange, S. Bastani, M. Benmiloud, E. DeMaeyer, M.G. Isayama, D. Koutras, S. Muzzo, H. Niepomnyszcz, C.S. Pandav and G. Riccabona, Definitions of endemic goiter and cretinism, classification of goiter size and severity of endemias, and survey techniques, in: "Towards the eradication of endemic goiter, cretinism and iodine deficiency", J.T. Dunn, E. Pretell, C.H. Daza and F.E. Viteri eds., Pan American Health Organization Publ., Washington. PAHO Sc. Publ. n° 502 (1986) pp. 373-376.

M.P. König, Die Kongenitale Hypothyreose und der Endemische Kretinismus. Springer - Verlag Publ., Berlin (1968) pp. 1 – 175

S. Hetzel and A. Querido, Iodine deficiency, thyroid function, and brain development, in: "Endemic goiter and endemic cretinism", J.B. Stanbury and B.S. Hetzel eds., John Wiley Publ., New York (1980), pp. 461 – 472.1

P. Pharoah, F. Delange, R. Fierro-Benitez and J.B. Stanbury, Endemic cretinism, in: "Endemic goiter and endemic cretinism. Iodine nutrition in health and disease", J.B. Stanbury and B.S. Hetzel eds., John Wiley Publ., New York (1980), pp. 395-421.

F. Delange, Disorders of iodine deficiency. Endemic cretinism, in: "The thyroid", S.H. Ingbar and L.E. Braverman eds., J.B. Lippincott Publ., Philadelphia (1986), pp. 7223-734.

J.B. Stanbury, Iodine deficiency-related endemic retardation, in: "Iodine nutrition, thyroxine and brain development", N. Kochupillai, M.G. Karmakar and V. Ramalingaswami eds., Tata McGraw-Hill Publ., New Dehli (1986), pp. 18-27.

Z.F. Shi, G.H. Zeng, J.X. Zhang, X.T. Li, M.T. Hou, T.Z. Lu, J.B. Wu, G.X. Wang, Z.Z. Tian, J.L. Liu, Z.J. Liu, S.H. Yang, S.Y. Nie, S.G. Li, D.M. Kong and X.Y. Zhu, Endemic goiter and cretinism in Gui Zhou. Clinical analysis of 247 cretins, Chinese Med. J. 97: 689-697 (1984).

H.M. Wang, T. Ma, X.T. Li, X.M. Jiang, Y.Y. Wang, B.Z. Chen, F.R. Wang, S.M. Gao, L.Y. Ma and M.Y. Su, A comparative study of endemic myxedematous and neurological cretinism in Hetian and Luopu, China, in: "Current problems in thyroid research", N. Ui, K. Torizuka, S. Nagataki and K. Hiyai eds., Excerpta Medica Publ., Amsterdam (1983) pp. 349-355.

X.Y. Zhu, Endemic goiter and cretinism in China with special reference to changes of iodine metabolism and pituitary-thyroid function two years after iodine prophylaxis in Gui-Zhou, in; "Current problems in thyroid research" N. Ui, K. Torizuka, S. Nagataki and K. Hiyai eds., Excerpta Medica Publ., Amsterdam (1983), pp. 13-18.

N. Bleichrodt, I. Garcia, C. Rubio, G. Morreale de Escobar and F. Escobar del Rey, Developmental disorders associated with severe iodine deficiency, in.: "The prevention and control of iodine deficiency disorders", B.S. Hetzel, J.T. Dunn, J.B. Stanbury eds., Elsevier Publ., Amsterdam (1987), pp. 65-84.

M. Mehta, C.S. Pandav and N. Kochupillai, Intellectual assessment of schoolchildren from severely iodine deficient villages, Indian Pediat. 24: 467-473 (1987).

S. Muzzo, L. Leiva and D. Carrasco, Possible etiological factors and consequences of a moderate iodine deficiency on intellectual coefficient of schoolage children, in:

“Frontiers of thyroidology”, G.A. Medeiros-Neto and E. Gaitan eds., Plenum Press Publ., New York (1985), pp. 1001-1005.

B. DeLong, Neurological involmment in iodine deficiency disorders, in: “The prevention and control of Iodine Deficiency Disorders”, B.S. Hetzel, J.T. Dunn and J.B. Stanbury eds., Elsevier Publ., Amsterdam (1987), pp. 49-63.