

Cerebrosides Role in the Pathogenesis of Vitiligo

Saatov BT*

Department of Dermatovenereology and Cosmetology, Republican Specialized Scientific and Practical Medical Center for Dermatovenereology and Cosmetology of Ministry of Health Republic of Uzbekistan, Uzbekistan

INTRODUCTION

CEREBROSIDES

Natural organic compound of group's complex lipids. They consist of aminoalcohol sphingosine, a fatty acid and carbohydrate (galactose or glucose). Cerebrosides wide presents at tissues man and animals. C their functioning related activity the body at general and on cell level. Cerebrosides contained mainly manner at nervous tissue, especially at myelin shell nerve fibers found also at spleen, lungs, erythrocytes and et al. organs. glucosylceramide or cerebrosides up great part lipids skin where they required for forming lamellar Taurus horny layer epidermis and are mainly barrier permeability water at skin. As a of components biological membranes cerebrosides exert a powerful influence on the functional activity of biological membranes.

Types Cerebrosides: There are 4 main types of cerebrosides, in particular:

- kersine
- phrenosin
- oksinervon
- nervon

They perform the function of the receptor affect membrane transport, involved in neurotransmission, and in the intercellular contact biological recognition and adhesion processes, and cell aggregation. It should be noted that although the total amount of cerebrosides in small cages, however, they are of great interest and research intensively studied in recent years. This is due primarily to their participation in the implementation of basic cellular processes and in the occurrence of certain pathologies. However, it still remains poorly studied the role and place of glycosphingolipids, cerebrosides particularly in vital organs and tissues in general and humans. Virtually studied cerebrosides participate in the occurrence and development of pathological processes, ie, Their role in the pathogenesis of many human diseases, including skin, remains unknown.

Cerebrosides metabolic disorders caused by reduced activity or no enzyme hydrolysis of bound occurrence of diseases that are hereditary, such as Krabbe's disease, Gaucher's disease. We carried out a comparative study of the content of cerebrosides in the skin of healthy individuals and patients with vitiligo.

MATERIALS AND METHODS

A study conducted on skin biopsy specimens of 12 healthy individuals and 25 patients with vitiligo. Among healthy men and women were 7 - 5; patients were men - and women 16 - 9 M etodika cerebrosides study is based on the definition included in the galactose their composition. Extraction of total lipids from skin biopsies and purification from non-lipid contaminants were performed by Folch method using chloroform-methanolic mixture (2: 1). The extract was filtered, to the filtrate was added 0.4 ml of distilled water, stirred and, after phase separation, removed the upper section and the lower evaporated on a rotary evaporator, in which galactose was determined using the procedure of cerebrosides Radin et al in conjunction with the methodology Svennerholma.

Research methods: The principle of the method is based on the reaction with cerebrosides anthrone dissolved with concentrated H 3 PO 4, followed by addition ortsinovogo reagent prepared in concentrated sulfuric acid.

At the same time developing red color, the intensity of which is measured on the SF-26 spectrophotometer at a wavelength of 505 nm.

The calibration curve for the standard solution of galactose. The control sample contained 2 ml of orthophosphoric acid and 4 ml ortsinovogo reagent.

It should be pointed out that patients with vitiligo affected and unaffected (leather, located in the vicinity of the white spot) skin were studied individually. As can be seen from Fig. 1 content cerebrosides at skin patients vitiligo authentically decreases by compared from rate. When this decrease concentration cerebrosides celebrated as at depigmented so and at unaffected sites skin sick, t. e. the observed changes Content in cerebrosides

*Correspondence to: Saatov BT, Department of Dermatovenereology and Cosmetology, Republican Specialized Scientific and Practical Medical Center for Dermatovenereology and Cosmetology of Ministry of Health Republic of Uzbekistan, Uzbekistan; Tel: 998909212525; E-Mail: botir.saatov@mail.ru

Received date: June 12, 2020; **Accepted date:** September 31, 2021; **Published date:** September 15, 2021

Citation: Saatov BT (2020) Cerebrosides Role in the Pathogenesis of Vitiligo. J Clin Exp Dermatol Res 12: p330

Copyright: © 2021 Saatov BT. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

at investigated areas skin patients vitiligo It has unidirectional character. In our data at part of skin healthy persons quantity cerebroside is at average $283,5 \pm 12,8$ g 1 g tissue. In patients vitiligo this index at affected the skin equal to $245,2 \pm 11,4$ g, and at unaffected parts - $265,5 \pm 11,9$ g cerebroside 1 g tissue. Thus summary, these us research We found that by compared from standard at patients vitiligo at affected section skin concentration cerebroside decreases 13.6% and at unaffected parts 7%, m. e. in vitiligo decrease level cerebroside at skin at zone white spots it turned more pronounced than at unaffected section.

These data are completely new, since information in the literature on determining cerebroside in human skin, both in normal and in pathological absent. Established contact, data on changes in the content of cerebroside at skin at vitiligo leads on think about specific role these classes lipids at pathogenesis this dermatosis. It should be noted that to date etiopathogenesis vitiligo all yet remains finally not clarified. Therefore, specific experimental data concerning metabolic violations at vitiligo can make a certain contribution at ascertaining pathogenesis it dermatosis. Considering role cerebroside at quality barrier permeability skin must Note that they are required for intracellular membrane transport, cell proliferation and survival. It is possible for the lag before, what decrease level cerebroside at skin at vitiligo is an cause suppression above cell processes, at end eventually can lead to death cell leather, Specifically, melanocytes. In data literature violation metabolism galactocerebroside causes change velocity breath and synthesis ATP at mitochondria liver and brain. Can assume that similar infringement at functioning mitochondria is at cells skin at change content cerebroside. A This, in its queue supports hypothesis about meaning infringement exchange cerebroside at skin at mechanism development Viti Ligo.

CONCLUSIONS

For the first time, the content of cerebroside in the human skin was normal in vitiligo.

A marked decrease in the content of cerebroside was found both in depigmented and unaffected skin of patients with vitiligo.

REFERENCES

1. Abdel Malek Z, Swope V, Smalara D, Babcock G, Dawes S, Nordlund J et al. Analysis of the UV-induced melanogenesis and growth arrest of human melanocytes. *Pigment Cell Res.* (1994) 7, 326-332.
2. Alikhan A, Felsten LM, Daly M, Petronic Rosic V. Vitiligo: a comprehensive overview Part I. Introduction, epidemiology, quality of life, diagnosis, differential diagnosis, associations, histopathology, etiology, and work-up. *J. Am. Acad. Dermatol.* (2011) 65, 473-491.
3. Chakraborty DP, Roy S, Chakraborty AK. Vitiligo, psoralen, and melanogenesis: some observations and understanding. *Pigment Cell Res.* (1996) 9, 107-116.
4. Cui J, Shen LY, Wang GC. Role of hair follicles in the repigmentation of vitiligo. *J. Investig. Dermatol.* (1991) 97, 410-416.
5. Czajkowski R, Mecinska Jundzill K. Current aspects of vitiligo genetics. *Postepy Dermatol. Alergol.* (2014) 31, 247-255.
6. Ezzedine K, Eleftheriadou, V., Whitton, M., van Geel, N., 2015. Vitiligo. *Lancet* 386, 74-84.
7. Falabella, R., Barona, M.I., 2009. Update on skin repigmentation therapies in vitiligo. *Pigment Cell Melanoma Res.* 22, 42-65.
8. Goldstein, N.B., Koster, M.I., Hoaglin, L.G., Spoelstra, N.S., Kechris, K.J., Robinson, S.E., Robinson, W.A., Roop, D.R., Norris, D.A., Birlea, S.A., 2015. Narrow Band Ultraviolet B Treatment for Human Vitiligo Is Associated with Proliferation, Migration, and Differentiation of Melanocyte Precursors. *J. Investig. Dermatol.*
9. Guan, C., Xu, W., Hong, W., Zhou, M., Lin, F., Fu, L., Liu, D., Xu, A., 2015. Quercetin attenuates the effects of H₂O₂ on endoplasmic reticulum morphology and tyrosinase export from the endoplasmic reticulum in melanocytes. *Mol. Med. Rep.* 11, 4285-4290.
10. Hodgkinson, C.A., Moore, K.J., Nakayama, A., Steingrimsson, E., Copeland, N.G., Jenkins, N.A., Arnheiter, H., 1993. Mutations at the mouse microphthalmia locus are associated with defects in a gene encoding a novel basic-helix-loop-helix-zipper protein. *Cell* 74, 395-404.
11. Huo SX, Liu, XM Ge, CH, Gao L, Peng XM, Zhao PP, Yan M et al. The effects of galangin on a mouse model of vitiligo induced by hydroquinone. *Phytother. Res.* 28, 2014 1533-1538.