SIR Publishers
CENTER FOR INTERNATIONAL SCIENTIFIC PUBLICATIONS
JOURNAL OF APPLIED MEDICAL SCIENCES
ISSN(Online): 2984-6730
SJIF Impact Factor |(2024): 6.515|
Volume-7, Issue-2, Published |20-02-2024|

THE INFLUENCE OF EXTERNAL ENVIRONMENTAL FACTORS ON THE OCCURRENCE OF BLOX-SULTSBERG DISEASE

https://doi.org/10.5281/zenodo.10720160

D.S.Yuldosheva
Assistant Professor of the Department of Dermatovenerology and Allergology, Fergana Medical Institute of Public Health
S.A.Raxmatov
Assistant Professor of the Department of Dermatovenerology and Allergology, Fergana Medical Institute of Public Health
F.F. Yoqubov
Assistant Professor of the Department of Dermatovenerology and Allergology, Fergana Medical Institute of Public Health

ABSTRACT

The environment that a clinical specimen is exposed to is an important preanalytical factor in laboratory testing. There are numerous environmental conditions that a specimen may experience before it arrives at the clinical laboratory for analysis. Specimens collected at offsite locations are typically stored at the site and transported to the clinical laboratory via courier. Depending on the geographic location, season, method of storage and method of transport, the specimen can experience varying climate conditions that can lead to inaccurate test results. Specimens collected within the healthcare institution are not exempt from suboptimal storage and transport environments. For example, specimens transported via pneumatic tube systems can experience extreme agitation and rapid accelerations and decelerations. Suboptimal storage and transport temperatures occur less frequently within health systems due to multiple regulatory requirements for temperature monitoring; however, temperature monitoring may not occur at every stage of the preanalytical phase. This review will highlight both internal and external environmental conditions that can cause preanalytical errors in clinical laboratory testing. Strategies to mitigate environmentally-induced preanalytical errors and regulatory gaps for environmental monitoring in the preanalytical phase will also be discussed.

Keywords

Climate; Environment; Preanalytical; Temperature; Transport.

Definition. Bloch — Sulzberger syndrome, or pigment incontinence (incontinentia pigmenti — IP), is a rare genetically determined dermatosis in which

SIR Publishers
CENTER FOR INTERNATIONAL SCIENTIFIC PUBLICATIONS
JOURNAL OF APPLIED MEDICAL SCIENCES
ISSN(Online): 2984-6730
SJIF Impact Factor |(2024): 6.515|
Volume-7, Issue-2, Published |20-02-2024|

abnormalities of the skin and its appendages are combined with damage to other organs and systems of ectodermal origin (teeth, eyes, nervous system).

The syndrome was first described in the literature by A. Garrod in 1906. A more detailed description and systematization of clinical observations were carried out by B. Bloch in 1926 and M. Sulzberger in 1927, according to their names, this syndrome got its name.

The prevalence of the syndrome is 0.2/100,000 of the population [23]. According to other data, the population frequency of pathology is estimated as 1 : 91,000; according to generalized data, more than 650 cases of the syndrome have been described in the literature. More than 90% of patients are female [24]. This is due to the fact that the classic type of IP inheritance among males, as a rule, leads to the development of a fatal outcome [3, 24].

Pathogenesis. In the vast majority of cases, this disease is inherited by the dominant X-linked mechanism. The Bloch—Sulzberger syndrome is based on a mutation of the IKBKG gene (kappa-B kinase gamma inhibitor), localized at the Xq28 X chromosome locus and responsible for the production of transcription factor NF-kB (nuclear factor kappa-B), which regulates the expression of hundreds of genes in almost all cells of ectodermal origin, especially in skin cells and neurons of the central nervous system (CNS) [28]. The phenotypic diversity of the IKBKG mutation is a consequence of the pleiotropic effect of the factor encoded by it [1, 9, 10]. At the same time, the role of probable mutations in the Xp11 and Xq21 segment for other phenotypes of this syndrome is not excluded [27]. IKBKG mutations were detected in 11.1% of patients with CNS pathology, of which 86% had a deficiency of 4-10 exons of this gene. The differences between these data and others obtained during earlier or during this period of studies of patients with IP are usually associated with a discrepancy in the number of samples [20]. As a result of these mutations, a cascade mechanism of apoptosis of cells of ectodermal origin is induced (metabolic hypothesis of IP pathogenesis). There is also another vascular theory of IP pathogenesis, currently under discussion, based on neuroimaging detection of focal cerebral infarcts as the most common functional disorders of the central nervous system [8, 15, 19]. It is assumed, however, that vascular changes that can be detected clinically are anyway preceded by the phenomena of cellular apoptosis, which at the stage of their origin can only be recognized by molecular histological studies [12, 17]. Nevertheless, even with such studies, certain facts are found that support the vascular hypothesis of the pathogenesis of Bloch—Sulzberger syndrome. Thus, during immunohistochemical studies of skin tissues, an abnormal increase in eosinophilic infiltration in degeneratively altered endothelial cells was found. It is theorized that exposure to apoptic keratinocytes

SIR Publishers
CENTER FOR INTERNATIONAL SCIENTIFIC PUBLICATIONS
JOURNAL OF APPLIED MEDICAL SCIENCES
ISSN(Online): 2984-6730
SJIF Impact Factor |(2024): 6.515|
Volume-7, Issue-2, Published |20-02-2024|

leads to the development of inflammatory reactions that cause the release of various chemokines, including eotaxin and vascular endothelial growth factor; these chemokines can directly participate in vascular changes in IP [1, 2, 13, 14, 16]. Similar processes can be observed in the nervous tissue. Taking into account the above, it can be assumed that in all ectodermal tissues (skin, retina of the eyeball, central nervous system), identical pathophysiological processes of IP development occur with apoptosis as a key mechanism and vascular reactions that appear secondary to apoptosis. Primary immunological pathological reactions leading to secondary immunological and non-immunological manifestations also play a leading role in the pathogenesis of IP [6]. Even cases of a combination of Bloch—Sulzberger syndrome with autoimmune diseases such as Behcet syndrome and rheumatoid arthritis have been reported, which undoubtedly also indicates in favor of pathological activation of the body's immune system [4, 25, 29]. Immunodeficiency is especially acute in males who suffer from IP, which has developed as a result of rare de novo mutations of IKBKG.

Criteria for diagnosis. The criteria for the diagnosis of IP used in clinical practice today were proposed by Landy and Donnai in 1993 [18]. These are the so-called large criteria: skin lesions that occur in several stages from infancy to adulthood (4 stages of skin damage), and small (or optional) criteria: damage to teeth (hypo- and adontia, microdontia, abnormal tooth shape), hair, nails, retina. Violations by the central nervous system are also considered small criteria.

Clinical manifestations. Cutaneous manifestations of Bloch—Sulzberger syndrome are its obligate feature. In their course, as mentioned above, there are 4 stages: bullous, or vesicular (inflammatory), hypertrophic, pigmented and atrophic. Skin changes appear in children at birth or in the first weeks of life. It should be noted that there are not always clear distinctions between the phases of disorders of pathological processes occurring in the skin [21]. In some cases, facultative manifestations such as congenital heart defects, anomalies of the skull, jaws, deformities of the auricles, congenital dislocation of the hip, kidney abnormalities, nail dystrophy, etc. are also observed. A diverse pathology of the central nervous system, which manifests itself in the neonatal or early childhood periods and can manifest itself as seizures, mental retardation, paralysis, hemiparesis, spasticity, microcephaly and cerebellar ataxia, poses the greatest threat to the duration and quality of life of patients with Bloch—Sulzberger syndrome [3, 18, 22, 33]. This pathology develops in about 30% of cases. Epileptic seizures (42%), motor disorders (26%) and mental retardation (20%) are the most common. Microcephaly is found in 4% of patients. In 62% of patients with diagnosed CNS pathology, this pathology has the character of a severe lesion. The manifestation of neurological disorders

occurs in the first week of life in 58%, in the first month of life — in 67%, in the first year of life — in 88% of cases [20].

Despite the fact that the skin and nervous system have a homogeneous ectodermal origin and the combined pathology of these systems is not unique, it is impossible to exclude other gene mutations in patients with NO. (in addition to the IKBKG mutation), which may be responsible for the development of mental retardation, microcephaly and other CNS disorders. For example, there are more than 290 genes, the mutation of which is manifested by the development of mental retardation [5, 7]. Hypothetically, it is possible that the damage to the skin in NO is caused by the IKBKG mutation, and the pathology of the central nervous system is caused by some other mutation; Based on this assumption, some scientists put forward a theory according to which the final phenotype of patient C is determined by a combination of various genetic mutations [11].

The study of the relationship between the simultaneous occurrence of the most common extracutaneous pathologies in No. revealed that in the presence of abnormalities of the visual apparatus, the probability of CNS pathology is significantly higher than if such anomalies are not detected; the simultaneous occurrence of such disorders occurs in 37% of cases. This is primarily due to the unified and close embryonic origin of the brain and visual apparatus. The relationship between the pathology of the central nervous system and dental defects or defects of the facial skull is even more common — in 70% of cases of such defects, the patient will also have neurological disorders [20].

REFERENCES

1. Aradhya S. Repetitive deletion in the ubiquitously expressed NEMO gene (IKK-y) is the cause of the vast majority of pigmentation mutations in urinary incontinence/S. Aradhya, H. Woffendin, T. Jakins [et al.]// Hum. Mole. Genetics. — 2001. — No. 10. — pp. 2171-2179.

2. Bachevalle F. The study of neurology in summer age with pigmented urinary incontinence / F. Bachevalle, K. Marshal, M.P. Di Cesare [et al.]//Ann. Dermatol. Venereologist. — 2003. — No. 130. — pp. 1139-1142.

3. Berlin A.L. Pigmented urinary incontinence: a review and update of the molecular foundations of pathophysiology / A.L. Berlin, A.S. Paller, L.S. Chan //J. Am. Acad. Dermatol. - 2002. — No. 47. — pp. 169-187.

4. Brown K.D. The role of the classical and alternative pathways of the nuclear factor-kappaB: potential consequences for autoimmunity and rheumatoid arthritis /K.D. Brown, E. Claudio, W. Siebenlist// Arthritis Res. In the same place. — 2008. — No. 10. — p. 212.

SIR Publishers
CENTER FOR INTERNATIONAL SCIENTIFIC PUBLICATIONS
JOURNAL OF APPLIED MEDICAL SCIENCES
ISSN(Online): 2984-6730
SJIF Impact Factor |(2024): 6.515|
Volume-7, Issue-2, Published |20-02-2024|

5. Chelli J. Genetics and pathophysiology of mental retardation / J. Chelli, M. Helfaoui, F. Francis [et al.]//Eur. J. Hum. Genetics. - 2006. — No. 14. — pp. 701-713.

6. Cheng L.E. Persistent systemic inflammation and atypical enterocolitis in patients with NEMO syndrome / L.E. Cheng,