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Eye and Skin connection: Unexplained Mystery

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Abstract:

It is generally considered that eye's only function is just to see an object, however, conditions such as diabetes, high blood pressure, arterial plaque, multiple sclerosis, brain tumors, stroke, leukemia and many other conditions can also be indicated by the eyes. A routine eye test can sometimes detect eye problems that indicate the presence of a brain tumour before any symptoms become obvious. Here we have discussed that the eye can also an indicator of skin health. Even by seeing the colour of the eye one can infer many skin problems.

Key words: extra visual functions; iris colours; diseases indicators; dry eye; retinal antigen.

In the human body all organs work in coordination and cooperation with each other since they are regulated by neurological, hormonal, environmental signals [1]. In a way all organs in the human body are connected to one another through blood; product of one organ can be carried by the blood to the other organ where it is required [2]. Most individuals do not realize the extraordinary connection between skin and eye, much less the fact that many skin diseases have concomitant ocular manifestations. For example, the 20 kd retinal antigen is expressed within the photoreceptor outer segments, and extends on into the optic nerve. Antibody activity with the 20 kd retinal antigen may be indicative of an autoimmune retinopathy but it is not confined to melanoma–associated retinopathy (MAR) patients, it is also found in other types of skin diseases in which retinal degenerations occur [3]. These findings raise the interesting possibility that the anti–retina reaction may result from a skin disease–induced loss of tolerance to a coetaneous antigen sharing immunologic similarities with the 20 kd photoreceptor component.

Diseases may range from the relatively trivial, nuisance consequences of acne rosacea, with its associated chronic eye lid and conjunctival inflammation, to the profoundly vision-threatening ocular consequences of ichthyosis, pemphigoid, Stevens Johnson Syndrome [4] and, even in some cases, allergic diseases like eczema. Patients with inflammatory eye disease may have a skin disorder [5].

Atopic dermatitis:

Atopic dermatitis (AD) is a genetic skin disorder and also affects the eyelids. The eye lid skin becomes red and scaly, and oozing and itching are common. Sometimes the eye lining and eyelids are also affected, resulting in a sore eye. There is watery eye discharge [5], and patients may find their eyes sensitive to light. Rash around the eyes can develop dermatological conditions and infections. Examples include atopic dermatitis, psoriasis, and cellulitis [6]. Atopic dermatitis is a skin condition that usually appears in childhood and can develop on any area of the body, including the face and around the eyes. AD around the eyes may have darker, thickened skin circling the eyes, which may be very itchy [7].

Vitiligo:

Vitiligo is an autoimmune skin disease in which pigment loss results in irregular white patches of skin and hair. In about 5 percent of people with vitiligo (some studies estimate as high as 19 percent), the condition can lead to inflammation of the eye called uveitis. Uveitis, which often accompanies autoimmune disorders such as vitiligo, can cause eye redness and pain, sensitivity to light, and may lead to vision loss [8]. If

melanocytes are destroyed in the iris, vitiligo could impact eye colour. If pigment cells are destroyed in the retina, it could impact vision. Researchers also identified 13 new genes that may predispose people to the condition, which often results in uneven patches of white skin and hair.

Connection between dry skin and dry eye:

There is a statistical connection between dry skin and dry eye. People with dry skin also have drier eyes [9].As both parts of the body surface play the same role of dehydration prevention, there has to be the same regulator of this function [10]

Eye colour:

The colour of the eye depends on how much melanin is present which in turn is considered a genetic alteration, which may have occurred about 6,000 to 10,000 years ago. The colour of the eye is created by the different layers in the iris. According to the American Academy of Ophthalmology, the blue colour is not due to a blue pigment but to a lack of pigment to stop the light rays. As there is no blue pigment in the irises, the eyes appear blue due to physics [11]. Even in blue-eyed individuals, the back layer has brown pigment, but the front layer in blue eyes has no pigment. Because of this lack of pigment in the front layer of the iris, the fibres interact with light and absorb some of the longer light rays. The eye appears a blue colour.

Blue eyes are considered rare. Approximately 8 to 10 percent of the world's population has blue eyes. Before that point, it was believed that most people had brown eyes. Eye colour is an indicator of whether a person is high-risk for certain serious skin conditions. People with blue eyes produce less melanin in the skin. Eye colour is directly related to the amount of melanin in the eyes. A large amount of melanin found in the iris. Depending on the quantity of pigment which is responsible for reflection of light and can make the eyes appear blue, green, amber, or hazel [12]. About 27 percent of people with vitiligo had blue/gray eyes.

Advantages of Blue Eyes: a big advantage to blue eyes is that research shows they might be linked to a lower risk of developing cataracts. Cataracts are clouding of the eye's lens. According to some studies, blue eyes may have evolved because these individuals were able to cope better with seasonal affective disorders.

According to some studies that people with blue eyes may be better equipped to tolerate long periods of low light and therefore they are better equipped to cope with seasonal affective disorders. Also, a big advantage to blue eyes is that research shows they might be linked to a lower risk of developing cataracts.

Disadvantages of Blue Eyes: Typically, people with blue eyes are likely to be more sensitive to light. With less pigment in the layers of the iris, they may be unable to block out the effects of bright fluorescent lights or sunlight.

This condition of light sensitivity is called photophobia. It does not indicate vision loss, but it can create some difficulty focusing or seeing clearly in bright lights. It may also cause pain around the eyes.

Studies show that blue-eyed people may be more at risk for developing eye melanoma. This is a rare form of eye cancer with only about 3,500 new cases per year.

According to the American Cancer Society, several risk factors can increase the chances of getting eye cancer. Eye colour is only one of the factors, so it doesn't mean you will develop eye cancer simply because you have blue eyes. Blue eyes contain less melanin, making the eyes more sensitive to bright lights. Wear sunglasses to protect your eyes from UV light, and wear them more frequently if the eyes feel particularly sensitive.

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