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A DERMATOLOGICAL INSIGHTS AND EXPLORATION ON THE TOPIC OF ECZEMA

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ABSTRACT

The study and diagnosis of the skin is referred as Dermatology. Human skin is the largest organ and therefore it has the most chance to get affected at first, and it becomes important to go in-depth to check the dermatologic condition that can be done under the study of dermatology. There are various dermatologic conditions from mild to worst leading to skin cancer as well. This article covers the basic dermatologic conditions and a detailed overview on one of them that is Eczema, what is eczema, what are its types, how it is diagnosis, how it is treated etc.

Key Words: *skin, disease, eczema, dermatitis*

Introduction

Dermatology is a study, diagnosis, and research of skin that can also be normal or abnormal. Dermatology involves the management of health conditions that can directly or indirectly affect the skin, hair, nails, or membranes.

It is a connective tissue infection associated toward polymyositis, with the intention of characterized through tenderness of muscles & skin. It is an idiopathic provocative myopathy (group of diseases) among typical cutaneous results (Airio A, 2006)

Skin is the largest organ of the human body which covers its internal organs from any external bacteria or infection. Skin acts as a barrier and protects the internal body against any injury, resulting in the skin getting infected. So, dermatology involves properly managing skin diseases caused by any injury, infection, bacteria or other reason.

Skin disease comes in multiple variants and each variant has its own kind of severity. It can be associated with hair, nails, mucous membranes, etc. Most skin problems are physically visible and can cause psychosocial effects.

Human skin has its own underlying structure and any disorder can be caused by the disturbance of the integumentary system.

Here are some common types of skin problems;

1. Acne
2. Dermatitis
3. Eczema
4. Fungal infection

5. Skin cancer

Here is a brief explanation of the above dermatologic conditions.

1. Acne

Sebaceous glands can be seen in the above picture, and acne is caused when these glands become inflamed. A pimple on the skin appears when the hair follicles become blocked due to oily substances, dirt, or bacteria.

As children mature, a distinct acne microbiome composition emerges in those with acne. (Schneider AM, 2023)

2. Dermatitis

It is a form of an allergic reaction on the skin that is caused by contact with any substance for example any cosmetics item, a fragrance, any plant or jewelry.

3. Eczema

Eczema is a kind of dermatitis, and it appears when the immune system of the skin is exposed to an inflammatory response that includes the epidermis and dermis. It causes red, dry patches on the skin.

Eczema has been widely recognized worldwide for its adverse clinical and psychological effects. (Za'im Ramli R, 2023)

4. Fungal infection

Fungal infection is caused by any fungus present in our environment mostly in the form of yeast. It is caused by the body's weakened immune system.

5. Skin Cancer

When there is uncontrollable growth of

abnormal cells in the epidermis, due to exposure to direct ultraviolet rays, skin cancer grows.

All the above-described skin conditions are linked with each other in one or another way, and dermatologic problems are not limited to only these conditions, but, they have multiple variants against each skin disease depending on the nature, severity, and historical background of the affected person.

Considering the eczema in detail, how it begins, how it varies from person to person, and how it is treated.

Eczema

The definition of eczema means a noncontagious epidermo-dermitis with typical clinical and dermato-histological signs and comprises irritative-toxic and allergic contact dermatitis, but also other forms like seborrheic dermatitis and nummular eczema. (Eyerich K, 2023)

An eczema is a form of dermatitis that is caused due to an allergic reaction and as a result red, itchy, dry patches appear on the skin, and the skin looks inflamed. This skin condition weakens the outer skin barrier which protects the skin from external elements and causes the skin to lose its moisture.

It can happen to any age group from children to adults, even a newborn child can experience eczema from mild symptoms to worst. Young children can have different severity and can have blisters as a result. It can happen in your 20's and in 50's also.

Types of Eczema

There are seven types of eczema depending on the nature of symptoms, intensity or skin area. For example, Seborrheic Dermatitis makes the scalp itchy and some rashes may also form on the scalp area. Dyshidrotic Dermatitis is also known as foot dermatitis as it affects the edges of the toes, and fingers by causing small blisters.

The most common type of eczema is Atopic Dermatitis, which causes some painful, itchy, dry patches on the skin. If the skin tone is lighter reddish rash appears on the skin, and if the skintone is darker brownish or purple rash appears under this type.

Causes of Eczema

Generally, there's no specific cause of eczema, but there are certain factors that trigger eczema including Environmental conditions, Genetics, Immune system, Emotional Stress, etc.

Environmental Conditions

Direct exposure to extremely dry, cold, or warm air can trigger eczema as it can have any bacteria or can appear harsh on the skin leaving it itchy and dry, direct contact with plants like poison ivy, poison oak, and ragweed can also cause eczema as too due to allergic reactions.

Genetics

Family background plays an important role in developing eczema, for example, if one has a history of eczema in the family, he/she is most likely to have it because there's a genetic protein called as Filaggrin that helps the skin retain its moisture, but if there's a history of eczema in the family, one has a deficiency of this

protein causing the skin dry and itchy and as a result getting an eczema.

Immune System

If the body has a weaker immune system, it most likely to have bacteria or fungus that get into the body more easily resulting in the eczema.

Emotional Stress

If someone is emotionally stressed or having an anxiety, they are more likely to get eczema, the exact reason is still unknown but if the mental state is unstable, eczema can be caused.

Symptoms

Below are the detailed symptoms of the eczema;

- ✓ Itchy, dry skin
- ✓ Small blisters on the skin
- ✓ Reddish bumps on the skin
- ✓ Thick patches on the skin
- ✓ Flaky skin
- ✓ Inflamed skin

Some patients contain slight pain other than the additional encompass severe. So, the situation differs from person to person. Also, in a lot of belongings the muscles might depreciate & turn into the tainted for the moment paralyzed, not capable on the way to stroll, sprint, find out of bed or else still swallowing of muscles occurred. (Kumar V, 2007)

Diagnosis

Mild eczema can be diagnosed by physical examination. A dermatologist can physically look at the skin and recommend some anti-biotic or moisturizer.

Severe eczema needs some allergic test or a skin biopsy to diagnose the exact

type of dermatitis as the symptoms are common in most of the types.

Some other tests such as imaging studies, pulmonary function studies, together with diffusion studies & electrocardiography are completed for the complete diagnosis of the respective disease. Skin biopsy is also done for the diagnosis of dermatomyositis. (Fardet L, 2009)

Treatment

Eczema is treated according to its intensity, as mild eczema can go on its own or sometimes by simply applying moisturizer or keeping the skin hydrated. Whereas, the worst kind of eczema needs proper medication, diet, and avoiding specific foods that can trigger it. Medication can be oral or injectable or it can be applicable on the skin. Initially, worst eczema is treated via oral or injectable medications. It is recommended to use dermatologically tested shampoos, soap to avoid it and regular use of moisturizer to keep the skin hydrated.

Scientific workers are also trying to design new drugs and vaccines. (Abbas SZ, 2020) (Ahmed B, 2020) (Qadir MI Y. I., 2020) (MI., 2020) (Ilyas U N. S., 2021) Therefore, computational drug-designing has helped us for the purpose to overcome the resistance and tolerance. (Ilyas U A. R., 2017) (Fatima N, 2016) (Qadir MI M. H., 2018) Development of new drugs, either by the use of proteomics or genomics has been used for decades. The scientists are

also trying to synthesize new drugs from viruses. (Qadir MI S. S., 2017) (Qadir MI M. T., 2018) (Qadir MI C. Z., 2018) However, now a day, the trend is being changed to the use of herbal products or their extracts to control the diseases in human beings. A large number of drugs are constantly being explored for their possible pharmacological value particularly for their anti-inflammatory (Hamayun R, 2021) (Mallhi TH, 2014) (Irfan M, 2017) (Qadir MI A. K., 2014) (Qadir MI B. H., Human Oropharyngeal Candidiasis: From Etiology to Current Treatment, 2023) (Saher T, 2022) and anti-viral (Qadir MI B. H., Human Oropharyngeal Candidiasis: From Etiology to Current Treatment., 2023) (Qadir MI M. F., 2015) drugs are the other groups being explored.

Prevention

It can be prevented by adhering to the following steps

- ✓ By applying the moisturizer before going out
- ✓ Keeping the body clean
- ✓ Taking shower regularly
- ✓ Drinking enough water to keep you hydrated
- ✓ Avoiding triggering foods (as identified by healthcare provider)
- ✓ Wearing loose and comfortable clothes that do not make you irritated.
- ✓ Avoid using specific fragrances if you're allergic to them.
- ✓ Do not pop up in an environment that irritates your skin.

✓ Maintain your mental and physical health, take good diet and stay happy.

Contagious/ Non- Contagious

When we're talking about eczema, this question arises that whether it is contagious or not, so the answer is eczema do not spread by direct or indirect contact of person to person.

Research Statistics

Study Design

Research was conducted in Bahauddin Zakariya University among students from different backgrounds coming from different cities and of different age, in multiple phases of the years engaging more than 300 people and more than 10 cities.

Statistical Analysis

Atopic dermatitis is the most common form of eczema and the main cause of its spread is still unknown, but it is considered that genetics and environmental factors are the main cause of its development and its effect varies from person to person, according to research, there is an increase from 5%-20% since 2021 in the age group of 18-22 years.

A survey was conducted by Institute of Molecular Biology and Biotechnology (IMBB) department in Bahauddin Zakariya University over a phase of years, and its 1st phase of survey that was conducted during 2021, where around 150 students from more than 5 cities were engaged to evaluate the extent of eczema, and the

survey resulted in 0.6%-20.5% of the population suffering from this atopic dermatitis.

Students conducted another survey after 2021, and when the results of this survey revealed there was an increase of 7.9% from the last survey majorly in the age group of 18-20 years.

This survey was conducted in almost 100 people from around 10 cities. The prevalence varied by city and the maximum prevalence found in Lahore was 25%. In D.G. Khan it was 0.2%, in Multan it went from 0.9% to 22.5%.

Another study was carried out by the other group of students that released its one-year statistics claiming that the

frequency of pervasiveness among 22-24-year-olds was 2.4%, among teenagers the rate of propagation was 6% in Bahauddin Zakariya University.

According to the survey conducted in the Islamabad, the extent of this disease in people was 10.7%.

In 2021 and 2022, survey was conducted in Muzaffargarh, and the prevalence of eczema increased from 3.9% to 11% among the people of age group 21-22 years.

Results and Discussions

Age Group	Cities	Prevalence	Research Conducted by
18-21 Years	Multan	0.6% - 20%	Students of IMBB
18-20 Years	D.G. Khan	0.2% - 8%	Students of IMBB
18-20 Years	Lahore	2% - 25%	Students of IMBB
18-19 Years	Multan	0.2% - 6%	Other Group of Students
22-24 Years	Islamabad	0.2% - 2.4%	Students of IMBB
21-22 Years	Muzaffargarh	3.9% - 11%	Students of IMBB

Scientists are currently working to develop a probiotic (helpful bacteria) that can help ease in the symptoms of eczema and the need of steroid medicine in the children will be reduced.

Conclusion

In this article, dermatology was briefly and specifically discussed. Dermatologic conditions like dermatitis, eczema, acne, fungal infections, skin cancer was briefly explained, since these conditions are linked with each other so eczema was discussed in detail which is a kind of dermatitis and its types were explained shortly, main causes of eczema were highlighted and it was concluded that there's no main cause of eczema but it is triggered due to some environmental conditions, immune system, genetic problems or taking some allergic food or substance. It was important to share the main symptoms of eczema that how it looks like on different parts of bodies including the infants. Eventually, diagnosis, treatment and how it can be prevented was discussed in detail.

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