

**RESEARCH ARTICLE****ROLE OF AYURVED ENHANCING CHILD IMMUNITY: A REVIEW.****Diksha Upreti¹, Alok srivastva², Reena Pandey³ and Kshiteeja choudhary⁴.**

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Manuscript Info**Manuscript History**

Received: 19 February 2018
 Final Accepted: 21 March 2018
 Published: April 2018

Keywords:

immunity, development of immunity,
 swarn prashan, lehan karm.

Abstract

The concept of Vyadhiksamatva (immunity) is of tremendous importance in the daily wellness of human beings; for prevention and recovery from diseases. When etiological factors come in contact with the body they try to produce disease. At the same time the body tries to resist the disease. This power of the body, which prevents the development of diseases or resists a developed disease, is called Immunity. The immune system is very complex, and contains numerous types of cells and proteins that function to fight off infections and keep the body healthy the immune system start developed from the intrauterine life, and it gradually develop after birth and get mature. Synonyms for Vyadhikshamatva which appears in Ayurvedic scriptures are: Sleshma, Bala and Ojas. For increasing the immunity In Ayurvedic texts, various acharays described countless useful dravya, formulations, lehan karma, swarn prashan sanskar. There is also a garbhini masanumasik paricharya for outcome of a healthy baby, with a strong immunity.

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Introduction:-

The immune system is very complex, and contains numerous types of cells and proteins that function to fight off infections and keep the body healthy. When etiological factors come in contact with the body they try to produce disease. At the same time the body tries to resist the disease. This power of the body, which prevents the development of diseases or resists a developed disease, is called Immunity.^[1]

The immune system is divided into 2 major components: Innate immunity and Humoral immunity.

1. Innate immunity- immunity which is present at birth, its not specific to a particular pathogen. its also called natural immunity. Innate immune system is comprised of physical barriers and non-specific immune cells, including:
 - a. Skin
 - b. Mucous lining of nose, mouth, sinuses, digestive tract
 - c. Sweat and tears
 - d. Neutrophils, eosinophil's, basophils, mast cells, etc. – non-specific immune cells that perform surveillance of these physical barriers.
2. Humoral immunity- the second line of defense that is also called adaptive immunity. its characterized by antigen-specific responses to a foreign antigen or pathogen. Components of the adaptive immune system are:
 - a. B-cell lymphocytes and dendritic cells: these are circulating cells that recognize the foreign pathogens and antigens. They are responsible for developing antibodies that tag any foreign invaders for recognition and mounting immune reaction.

- b. T-cell lymphocytes: these cells attack and eliminate any pathogens and antigens that are tagged by an antibody.
- c. Macrophages: these cells also recognize antibodies; once they have found a pathogen, they engulf it and break it down.^[2]

Adaptive immunity is found only in vertebrates and is based on generation of antigen receptors on T & B lymphocytes by rearrangements.

Development of immune system:-

In utero, the fetal environment demands that the immune system remains tolerant to maternal alloantigen's. After birth, the sudden enormous exposure to environmental antigens, many of them derived from intestinal commensal bacteria, calls for a rapid change to make distinct immune responses appropriate for early life.

The innate immune system provides an early first line of defense. The cells involved are neutrophils, monocytes, macrophages and dendritic cells, which all interact with the adaptive immune system. These cells develop and mature during fetal life, but at different times, and the function of all components of innate immunity is weak in newborns. Mature neutrophils are present at the end of the first trimester and steeply increase in number. Their number then returns to a stable level within days, but they show weak bactericidal functions, poor responses to inflammatory stimuli, reduced adhesion to endothelial cells and diminished. These deficits are more striking in preterm infants, which also have lower serum IgG and complement. Consequently, the newborn, and especially premature infants, have impaired neutrophil functions, putting the child at risk of bacterial infections. In preterm and newborn infants, classical monocytes and macrophages are also immature.

First time during passage through the birth canal baby expose to infectious organism, and then as soon as he/she makes oral, skin and respiratory contact with the exterior. From then on, exposure to microorganisms is continuous.

The immune system gradually matures during infancy. Critical early protection against many infectious diseases previously experienced by the mother is given by the passive IgG antibody transferred from the mother transplacentally and in milk. Once that fades away, young children become more vulnerable to infections, though by then better armed with the maturing innate and adaptive immune systems.^[3]

Concept of immunity according to Ayurveda: The immunity as *vyadhikshmatva* perfectly described in *chark samhita*. Many people are very conscious about their health they eat properly and eat that good for health, and they follow a good daily routine for their health, but they get sick very often, beside that people are careless for their health, eat whatsoever they get without thinking about their health, with a disturbed daily routine they never get sick, the concept behind that difference is *vyadhikshmatva*. Because all unwholesome (*ahitkar*) food articles are not equally harmful, all doshas are not equally powerful; all persons are not equally capable of resisting disease *Vyadhiksamatva* (immunity) is of tremendous importance in the daily wellness of human beings; for prevention and recovery from diseases.^[4] When etiological factors come in contact with the body they try to produce disease. At the same time the body tries to resist the disease. This power of the body, which prevents the development of diseases or resists a developed disease, is called Immunity. Synonyms for *Vyadhikshamatva* which appears in Ayurvedic scriptures are: *Sleshma, Bala and Oja*.

Oja- According to Charaka, (during embryogenesis) the oja appeared foremost in the human body.^[5] In Ayurveda, Ojas has been considered vital in the defence mechanism of the body. It resides in the heart (*hridaya*), but also circulates (*vyapata*) all over body and maintains healthy status of the person. If this is lost, life also is lost.

Bala imparts firm integrity to the muscles, improves the voice and complexion, and helps the person to perform his natural functions (including the external and inner function) normally.^[6]

Three types of *bala* (*Vyadhiksamatva* or immunity) in Ayurveda:^[7]

1. **Sahaja-** acquired since birth. It depends on the healthy *shukra* (sperms) and *artava* (ovum). This concept indicates congenital abnormalities which occur due to abnormal changes at genes or chromosomal levels.
2. **Kalaja bal-** our immunity varies according to day, season, and age. Our body self-immunize according to season. Strength is assumed to be greater in the early morning, spring, and *yuvaawastha* (young age) than in evening, summers and old age.

3. **Yuktikrita** -the immunity which we obtained from aahar(good healthy food), exercise, yoga, ausadhi(drug or vaccination), is yuktikrita bal.

Causes of low immunity-

Congenital Immunodeficiency:-

According to kashyap samhita what so ever etables and drinkables often consumed by the pregnant woman, identical rasa is derived , which is utilized in three ways, one part for nourishment of the mother, second part for the fetus and third for the development of breasts, (thus) the fetus is nourished by mother, so mother should chose their food very carefully, because it affect the child immunity.^[8] The immune system is very complex, and contains numerous types of cells and proteins that function to fight off infections and keep the body healthy. A defect or mutation in any one of these components can lead to a congenital immunodeficiency, also referred to as a primary immunodeficiency. The most common defect is IgA deficiency, which can happen as often as 1 in 333 people, and is often asymptomatic; however, patients can also experience frequent sinus, urinary tract and intestinal infections^[9]

Sleep- now a day's excess use of mobiles and late night study disturb the sleep cycle of a child. The immune system is impaired by lack of sleep. Study showed that losing even as a few hours of sleep in just one night can increase inflammation in the body and interfere with its ability to keep itself healthy. "Sleep is crucial to immune system function,"

Stress-chronic and temporary stress can have physiological effects that can lower a body's ability to fight off infections. The immune system is also regulated by the activity of the endocrine system. The release of stress hormone from the hypothalamic, pituitary and adrenal (HPA) system causes suppression of the immune system.^[10]

Immunodeficiency Due to Malnutrition:-

Deficiency in certain vitamins and minerals can lead to decreased immune system function. Vitamins A, E and C, along with zinc, copper, iron and selenium, have all been shown to be important for either neutrophil, T cell, or antibody functions. People with a poorly balanced diet and those with intestinal disease causing decreased absorption of nutrients are at risk. Limit sugars from juice and other packaged foods, such as yogurt.

Enhance your immunity- In Ayurvedic texts, various acharays described countless useful dravya, formulations (*yogas*), mode of conducts for adults to enhance immunity (bala or vyadhikshmatva), similarly for healthy *ksheerapa* (infantile period), *ksheerannada* (1-2years age period) and *annada*-awastha (age period from 2-16 years). Acharya Kasyapa describe a special formulation by the name of "Lehana", for this purpose which enhances immunity and also fulfill the nutritional requirements,thus minimizes infection episodes.

The facts stated about lehana are as under - .To enhances growth & development by providing sufficient nutrition. 2. Promote health, complexion and strength (immunity). 3. Protect from various infections along with improving intellect and speech (delayed milestone).

Indication of lehana karma - children receiving inadequate amount of breast milk due to pregnancy of mother, children having increased demand of food, children passing less amount of urine and stool, children: very lean & thin without any organic problems ,constipation, good digestive fire.

Contraindications of Lehana karma - children having improper digestion, lethargic, passing excessive amounts of urine & stool, suffering from various disorders like eye, fever, diarrhea edema, jaundice, anemia, cardiac problems, rectal disorder, excessive vomiting & nausea, abdominal discomforts.^[11]

Acharya Sushruta - has described 4 recipes (containing gold) which provide general immunity, body resistance, helpful in growth & development as well as enhancing the intelligence. These are:

- 1) Svaran bhasm with kustha (Saussurea lappa), vacha (Acorus calamus), madhu (honey) & ghrita.
- 2) Svaran bhasm with paste of brahmi (Bacopa monnieri), sankhpuspi (Convolvulus pluricaulis), with honey & ghrita.
- 3) Svaran bhasm, arpushpi, vacha, honey & ghrita.
- 4) Svaran bhasm, khaidarya, sweta durva, ghrita.^[12]

Method of gold licking and its effect:- Svaran Prasana - Pure gold (in small quantity) is rubbed in water on a clean stone & given with honey and ghrita, to the newborn result in promote health, growth, complexion & strength

(immunity). By feeding the gold for one month (the child) becomes extremely intelligent and is not attacked by the disease, and by using for six months, is able to retain what so ever he hear.^[13]

In a pharmaco-clinical study, madhu-ghrita-swarna-vacha combination given to neonates showed a significant effect of humoral antibody formation and it acted on immunological system. Which was evident by triggering the response of immunological system arise in the total protein and serum igG level.

Gold is already proved for its immunomodulatory effects because of its antibacterial action against different organisms but when it is mixed with madhu and grith it widens its spectrum of action to stimulate body immune cells.

The clear information about does of swaran bhasma is not mentioned by Acharya. According to some text book as explanation for dose-the pediatric dose is-^[14]

Infancy to 5 year – 5mg per day

5 -10 years – 10 mg per day

10-16 years – 15 mg per day

The concept of- “vyaadhibalavirodhitvam” and “vyadyutpadapratibandhakatvam” elaborated by acharya Chakrapaani in this respect,

Methods to Boost up Vyadhiksamatva: In Ayurveda texts, various codes of conducts are described for each persons of any age (from conception to old age) to follow in different seasons, during healthy and diseased conditions in terms of dietetic (ahara) and mode of life (vihar). These are:

1. Antenatal period –follow garbhini masanumasic paricharya, punshavana karma, for out come of healthy baby.
2. To promote health of infant- Lehana Karma, various medhya rasayana (memory enhancing drugs).
3. Following swasthavritta paripalana (Dinacharya, Ritucharya).
4. Proper nutritious diet (satmya ahara).
5. Regular proper sleep, exercise, yogic asanas.
6. Adopting sodhana (Panchkarma) according to ritu in swasth purash (healthy person).
7. Following achara rasayana: for promoting mental and spiritual strength.
8. Meditation for spritual growth.^[15]

Conclusion:-

Children make the home lively and they are future of our country. The immunity start develop and mature, during fetal life, and just after the birth, to increase the immune system in children we have to started focus from the antenatal period by aahar(diet) and vihar(mode of life) of the mother. Just after the birth use the honey and grith to stimulate the immune system of the new born. Gold is proved for its immunomodulatory effects, we should use different Lehana for enhances immunity and to minimizes infection episodes. Maintain hygiene and stress free environment for the proper development of the child.

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