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Review Articles

AYURVEDIC MEASURES OF IMMUNIZATION IN CHILDREN

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ABSTRACT-

Immunity is the state of having sufficient biological defences to avoid infection, disease or other unwanted biological invasion. It is the capability of the body to resist harmful from entering it. A healthy immune system is vital for children as they exposed to a plethora of germs. Many micro-organism enter the body through air and water, but fails to create disease due to immune response present in the body. Many children prone to disease due to change in climate, on the other hand some children remain healthy in spite of change in climate and do not get affected by any disease. The most important thing in relation to health and disease is immunity. Concept of *Vyadhikshamatva* described in the classical text of Ayurveda is all about immunity. *Rasayana* therapy, *Lehana* karma and many more Ayurvedic preparation are helpful in enhancing the child immunity.

Key words – Immunity, Vyadhikshamatva, Rasayana, Lehana

INTRODUCTION

Immunization is a process by which we can improve body immunity by

increasing resistance power against disease. 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 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 resist a developed disease, is called immunity.¹

Immunity is broadly divided in to- Innate immunity and Acquired immunity

1. **Innate immunity-** Immunity which is present at birth. It is primitive, nonspecific, has no memory and provides the first line of defense against infections. Comprises of skin, mucosal barriers, phagocytes (Neutrophils, monocytes, macrophages) and natural killer cells.
2. **Acquired immunity-** Acquired immunity is pathogen specific. Lymphocytes (B & T) are responsible for acquired immunity. It is again of 2 types:- Humoral and Cell mediated

Humoral immunity – It is characterized by antigen specific responses to a foreign antigen or pathogen. B lymphocytes are responsible for humoral immunity. They secrete antibodies which act by neutralising, complement activation or by opsonophagocytosis. They also produce memory cells, plasma cells etc. which prevents the same infection when the same pathogen invades again.

Cellular immunity – Cell mediated immunity is an immune response that does not involve antibodies, but rather involves the activation of phagocytes, antigen specific cytotoxic T-lymphocytes, and

release of various cytokines in response to an antigen.

Development of immune system – In utero, the fetal environment demands that the immune system remains tolerant to maternal alloantigens. 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 newborn compared with later life. Mature neutrophils are present at the end of the first trimester and steeply increase in number, stimulated by granulocyte-colony-stimulating factor, shortly before birth. 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 chemotaxis. 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.

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 system.²

Concept of Vyadhikshamatva – The term *Vyadhikshamatva* made up of two words *Vyadhi* and *Kshamatva*. *Vyadhi* means disease and *Kshamatva* indicates the resistance or tolerance of the body to fight against disease. *Chakrapanidatta* has interpreted the term *Vyadhikshamatva* as *Vyadhibala Virodhitva* ie; antagonistic to the strength and virulence of the disease and *Vyadhyutpada Pratibandhakatva* ie; the capacity to inhibit and bind the causes and factors of disease.³ It depends on *Bala*, *Balavardhakabhava*, *Prakrita Kapha* and *Oja*. Synonyms for *Vyadhikshamatva* which appears in Ayurvedic text are- *Sleshma*, *Bala* and *Oja*.

Bala – *Bala* imparts firm integrity to the muscles, improves the voice and complexion, and helps the person to perform his natural functions normally.⁴ Three types of *Bala* described in Ayurvedic text.⁵

1. **Sahaja Bala-** It is genetic and inborn resistance to disease, which exists since birth. It is said to increase with the growth of tissues and does not depend upon any other cause.
2. **Kalaja Bala-** This type of immunity attained from time to time, at different stages of life. Similarly, as per the seasonal variations body immunity fluctuates.
3. **Yuktikrita Bala-** This type of *Sarira Bala* refers to modulation of body's resistance

against diseases by resort to appropriate aahara, physical exercise, yoga, ausadhi.

Oja- According to Charaka, the *Oja* appeared foremost in the human body. In Ayurveda, *Oja* has been considered vital in the defense mechanism of the body. It resides in the heart but also circulate all over the body and maintain healthy status of the person. If this is lost, life also lost.

Concept of Immunization through Ayurveda -

Rasayana

Taking *Rasayana* is helpful to increase the immunity of the person to keep him away from opportunistic diseases. The possible mechanisms by which action of *Rasayana* can be interpreted with modern aspects are; nutritive function, immunomodulatory action, antioxidant action, anti-aging effect, neuroprotective action, haemopoietic effect etc.⁶

In recent years numerous researches have been done to explore Ayurvedic treasure for benefits of common people to improve health by using different Ayurvedic drugs. Some drugs are-

1. Immunopotentiating property of *Tinospora cordifolia* Willd(Guduchi).⁷
2. Macrophage activation property of *Tinospora cordifolia* Willd(Guduchi).⁸
3. Effect of some Indian herbs [*Asparagus racemosus* Willd (Shatavari), *Tinospora cordifolia* Willd(Guduchi), *Withania somnifera* Dunal(Aswagandha) and *Picrorhiza kurroa* Royle ex Benth(Katuka).] on macrophage functions in mice.⁹

4. Antioxident property of *Momordica charantia* Linn(Karvellak), *Glycyrrhiza glabra* L(Yastimadhu), *Acacia catechu* Willd(Khadir) and *Terminalia chebula* Retz(Haritaki).¹⁰
5. Antioxidative effect of *Triphala* [combination of *Terminalia chebula* Retz(Haritaki), *Terminalia bellerica* Roxb(Bibhitak). And *Embelica officinalis* Gaertn(Amalaki)]¹¹
6. Antibacterial activities of *Embelica officinalis* Gaertn(Amalaki). and *Coriandrum sativum* L(Dhanyak).¹²
7. Immunomodulatory activity of *Triphala* (combination of fruit pulp of *Terminalia chebula* Retz, *Terminalia bellerica* Roxb. and *Embelica officinalis* Gaertn).¹³

There are number of such studies through which Ayurvedic single or multiple formulations tested by experimental studies on albino mice/rats etc. or reported the beneficial effect of human trials, so these studies reveals that there are wide range of possibilities improving immunity and treatment in various disease.

Lehana

Lehana literally means giving something to lick. In Ayurvedic text, various *Acharyas* have described countless useful formulations and mode of conduct for children. *Acharya Kashyapa* describe a special formulation by name of *Lehana*.¹⁴ The concept of *Lehana* which depicts the administration of various herbal drugs, ghrut preparation and gold as supplementary feeds, which enhances immunity and also fulfil the nutritional

requirement, thus minimizes infection episodes. The drugs for *Lehana* should always mixed with *Madhu* and *Ghruta*. *Acharya Kashyapa* has given special emphasis on *Lehana* karma and a separate chapter called *Lehadhyaya*. In this chapter so many single drugs and also compound drugs has been given for *Lehana* karma.¹⁵

- *Bramhi*, *Mandukparni*, *Triphala*, *Chitraka*, *Vacha*, *Satapusp*, *Satavari*, *Danti*, *Nagbala*, *Nishoth* are used separately mixed with *Madhu* and *Ghruta* for purpose of enhancing *Medha* (Intellect)
- *Manjistha*, *Triphala*, *Bramhi*, *Bala*, *Atibala*, *Chitraka* should be used in the form of powder in an equal quantity mixed with *Madhu* and *Ghruta* for increasing intellect, longevity and strength.
- *Ghruta* made with *Kustha*, *Sarshapa*, *Pippali*, *Triphala*, *Vacha*, and *Saindhava* is effective for renovating the intelligence.
- *Abhaya Ghruta* benefits of *Abhaya Ghruta* are seen in Pishacha, Rakshasa, Yaksha, Matraka.
- *Samvardhan Ghruta*. By the use of this *Ghruta* regularly the child grows rapidly and remains free from diseases. Crawls and walks early. Lamb, dumb, deaf, idiot child shows marked improvement.

DISCUSSION – *Vyadhikshamatva* is the strength to protect the body against diseases. The concept of *Vyadhikshamatva* is related with *Kapha*, *Bala*, *Agni* and *Oja*. Ayurvedic *Rasayana* therapy in light of the concept of modern immunology, particularly the immunomodulation is

quite rewarding. Rasayana act at three levels such as at the level of Poshaka Rasa (increase nutrition), at the level of Agni (increase digestion and assimilation of food) and at the level of Srotas (increase absorption of food from serum to various part of the body). Many research work on various drugs, having immunomodulatory, antibacterial, antioxidant, macrophage activation property are effective in enhancing immunity and prevent the diseases. Like Rasayana therapy Lehana drugs are known to enhance growth and development by providing sufficient nutrition, promote health, complexion and strength(immunity) and protect from various infections along with improving intellect and speech.

CONCLUSION – Balyavastha (childhood) has been described in

Ayurveda as a period of minimal relative *Bala*(physical strength and immunity) and hence children of this period are considered to be more prone for various diseases. In childhood period Dhatu are in immature form so the modification at this age can be make easily. Attempt should be done to prevention from disease and to enhance physical, mental & social wellbeing of children so each child may achieve good health. Destroy the disease and check the further spread of the disease are two facets of *Vyadhikshamatva*. Checking spread of disease as well as lowering down the intensity of disease requires increased resistance of the body. *Rasayana, Balya, Jeevaniya aushadhi, Lehana, Swarnprashan*, are described in ayurveda for this purpose.

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