

**UNDERSTANDING OF LIABLE FACTORS FOR
IMMUNODEFICIENCY IN - AN AYURVEDIC VIEW****Dr. Manisha Machindra Suryawanshi*¹ and Vd. Naina Vishwakarma²**

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ABSTRACT

Immunodeficiency is the disappointment of invulnerable framework, which ordinarily assumes a defensive part against diseases, appears by occurrence of rehashed contaminations in a person. It is of two sorts essential (Congenital) and optional (or obtained) immunodeficiency.^[1] Immunity in Ayurveda is known by the word Vyadikshamathva.^[2] Bala (Strength) and Ojas (Essence of all Dhatus [tissue elements]) are utilized as equivalents for Vyadhikshamatava (Immunity) and Vyadhikshamatava relies upon the support of harmony territory of Dhatus. It is referenced that Bala, Arogya (Health), Ayu (Longevity) and Prana (Vital breath) are reliant upon the province of Agni (Digestive Power), that consumes when taken care of by the fuel of food and diminishes when denied of them^[3] i.e Malnutrition which prompts Dhatu Kshaya (Tissue Depletion) brings about decline in Ojas

which can be called as Immunodeficiency. Moreover Bala (Immunity/Strength) relies upon Balavat Purushe (Birth from normally solid guardians), Balvat Deshe Janma (Birth in a topographical area where individuals are normally solid), Balavat Purushe Kale (Birth when individuals normally gain strength) etc^[4]. Lopsidedness in any of these previously mentioned variables can prompts immunodeficiency. Admission of Dusht Stanya can be a reason for low resistance in newborn children. The current audit fundamentally looks at the accessible writings to assess the ideas of etiological elements answerable for low insusceptibility (Immunodeficiency) in kids.

KEYWORDS: Immunodeficiency, *Bala, Ojas*, immunity, *Vyadhikshamatava*.

INTRODUCTION

The opposition displayed by the host towards injury brought about by miniature living beings and different items is named as immunity.^[5] Insusceptibility in Ayurveda is known by the word Vyadikshamathva. The term Vyadhikshamathva is shaped by two words Vyadhi and Kshamathva, where Vyadi implies sickness and Kshamathva is obstruction; so it is the limit of the body to oppose the advancement of illness. The fundamental reason and objective of Ayurveda is Swasthasya Syasthya Rakshanam, Aaturashcha Vikar Prashamanam^[6] implies safeguarding of wellbeing in sound individual and treating infirmities with breaking causative elements of pathogenesis; and to accomplish this Vyadhikshamatava assumes a significant part. Chakrapani portrayed resistance in two ways that is Vyadhi Bala Viroditav implies which lessen the showed infection and Vyadhi Utpadaka Pradibandhakatvam which means to forestall the sign of disease.^[7] The invulnerable framework is shaped from a few unique kinds of white platelets. Typically, a wide range of white platelets cooperate to battle a wide range of diseases. Hence the insusceptible framework is really a framework, and issue in any part can make minor diseases become genuine ones.

Sharir Bhava Involved in Vyadhikshamathva

Balance province of Doshas (three i.e Vata, Pitta and Kapha Biological humors), Dhatu, Mala (Waste matter) and Agni are considered as solid condition of a person. Vitiated condition of these body components are considered as Vyadhi (Disease). Doshas get vitiated by outside and inward factors and this strange working of Dosha is the main driver of Vyadhi. When these vitiated Dosha enters to a specific Dhatu, causes manifestations connected with that specific Dhatu. Also end of Mala in viable manner is significant for condition of wellbeing. Similarly Agni (Digestive power) is associated with each capacity in the body and awkwardness in the physiology of Agni is the fundamental driver for advancement of numerous illnesses. As referenced by Acharaya Charaka when a lady gets enjoyed Dosha aggaravating factors, it bring about spread of Dosha in her body. At the point when they arrive at Shonita (Ovum) and Garbhashaya (Uterus including fallopian tubes) and when these Doshas don't cause total vitiation of Shonita and Garbhashaya, then, at that point, anomaly of at least one organs happens because of maternally inferred organs of that Garbha (Fetus). Whatever the Beeja (Sperm) or Beejabhaga (Chromosome) and Beejabhagavayava (Gene)

gets vitiated, relating organ gets anomaly. These all variables are viewed as engaged with the upkeep of Vyadhikshamathva. The job of Individual Sharir Bhava will be examined further.

Role of Doshas in Vyadhikshamathva

Doshas in their ordinary and undisturbed state are the justification behind Sharir Bala, however out of these three Doshas, Kapha in especially has impact in keeping up with the Sharir Bala (Strength). It is referenced by Charak that Kapha in its harmony state, itself goes about as Bala, for that reason ordinary Kapha is called Ojas (Essence of Rasadhi Dhatus) and when this Kapha became vitiated then it appear as Mala (Excreta) and causes diseases.^[8] Soma, the moon is addressed by Kapha in our body which in its not unexpected and strange state performs positive or negative exercises in our body, for example, immovability or strength of the body and detachment of body, sustenance and gauntness, intensity and impotency, astuteness and obliviousness and comparative pair of qualities.^[9]

Role of Dhatus in Vyadhikshamathva

Ojas is the pith of Rasadhi Dhatus and is shaped after the Shukra and this Ojas is called as Bala.^[10] Ojas having every one of the fundamental fixings and substance of the multitude of tissues implanted in it addresses the gross insusceptibility of an individual. On the off chance that all the Dhatus are adjusted as far as quality, the Ojas also will be shaped and adjusted in an incredible manner.

Importance of Ojas in maintaining Vyadhikshamathva

Ojas is the pith of Rasadhi Dhatus and it is likewise called Bala^[10] and this Bala can obliterate the strength of the Doshas and advances the strength of body^[11] thus this Ojas has the property to forestall and disposes of infections from the body. It is the Ojas which keeps generally living creatures sustained and invigorated. There can be no existence without Ojas.

Ojadosa (Abnormalities in Ojas) is of 3types^[12]

1. Ojo Visramsa (Displacement from its normal place)

Clinical features of Ojo Visramsa:

- Sandhi Vishlesha (Looseness of the joints)
- Gatra Sada (Weakness of the body)
- Dosha Chyavana (Displacement of Doshas from their respective seats)
- Kriya Sannirodha (Impairment in activities)

2. *Ojo Vyapat* (*Ojas* get vitiated by *Dusta Dosha* and *Dushya*)

Clinical features of *Ojo Vyapat*:

- *Sthabda Gurugatrata* (Stiffness and heaviness in body)
- *Vatashopha* (Edema because of increase of Vata Dosha)
- *Varna Bheda* (Skin discolouration)
- *Glani* (Fatigue)
- *Tandra* (Improper functioning of sense organs)
- *Nidra* (Excessive sleepiness)

3. *Ojo Kshaya* (Decrease in its quantity)

Clinical features of *Ojo Kshaya*:

- *Murcha* (Fainting)
- *Mamsa Kshaya* (Lack of muscle mass)
- *Moha* (Delusion)
- *Pralapa* (Delirium)
- *Marana* (Death)

Sharira Bala Vruddhikara Bhava (Factors responsible for promotion of strength)^[4]

Bala Vruddhikara Bhava has importance to improve *Bala* logically from the birth. *Sharir Bala* is the strength of an individual to do any work and prevent manifestation of disease. To achieve this Charak explained *Bala Vruddhikara Bhava* as follows:

1. *Balavat Purushe* (Birth from naturally strong parents)
2. *Balvat Deshe Janma* (Birth in a geographical region where people are naturally strong)
3. *Balavat Purushe Kale* (Birth at a time when people naturally gain strength),
4. *Sukhashcha Kalayoga* (Pleasant and moderate climate)
5. *Beeja Kshetra guna sampacca* (Excellence of *Beeja* [Sperm and ovum] and *Kshetra* [Uterus])
6. *Ahara Sampacca* (Excellence of Food)
7. *Sharira Sampacca* (Excellence of Physique)
8. *Satmya Sampacca* (Excellence of Adaptability to various factors responsible for maintenance of the body)
9. *Sattva Sampacca* (Excellence of mind qualities),
10. *Svabhava Samsiddhi* (Natural Tendency),
11. *Yauvanam* (Young Age),

12. *Karma* (Exercise)

13. *Samharsh* (Cheerful nature).^[4]

Immunodeficiency^[13]

Immunodeficiency is that failure of immune system, which normally plays a protective role against infections, manifests by occurrence of repeated infections in a person.

Immunodeficiency disease are classified into 2 groups

1. Primary (or Congenital) immunodeficiency diseases are the result of genetic or developmental abnormality of the immune system.

Classification of primary immunodeficiency diseases:

Humoral immunodeficiency (B cell defects)

- Bruton disease (X-linked agammaglobulinemia)
- Common variable immunodeficiency
- Isolated IgA deficiency
- Hyper IgM syndrome

Cellular immunodeficiencies (T cell defects)

- DiGeorge syndrome (thymic hypoplasia)
- Chronic mucocutaneous candidiasis
- Purine nucleoside phosphorylase deficiency

Common immunodeficiencies (B and T cell defects)

- **Severe combined immunodeficiencies**

Cytokine receptor mutation

Adenosine deaminase deficiency

- Wiskott-Aldrich syndrome
- Ataxia telangiectasia
- Nezelof syndrome

Disorders of phagocytosis

- Chronic granulomatous disease
- Myeloperoxidase deficiency
- Chediak adhesion deficiency

- Leukocyte adhesion deficiency
- Lazy leukocyte syndrome
- Job's syndrome or Hyper IgM syndrome

Disorders of complement

- Complement component deficiencies
- Complement regulatory protein deficiencies

2. Secondary immunodeficiency, also known as acquired immunodeficiencies are due to the secondary effects of other diseases, such as:

- Malnutrition (due to inadequate immunoglobulin synthesis)
- Aging (suppression of immune system with age)
- Patient with several infections that suppress immune system causing lymphocyte depletion, e.g. HIV infection.
- Underlying cancers (particularly those of the bone marrow and blood cells).
- Underlying proteinuric renal diseases – leads to loss of immunoglobulins.
- Sarcoidosis
- Patients on immunosuppressive medications.
- Patients receiving chemotherapy or radiation therapy for malignancy.

Factors Responsible For Low Immunity In Children

Ahara (Food) and Svapna (Sound Sleep)

There are three Upastambha (supporting points of support) which upholds life i.e Ahara, Svapna and Brahmacharya (command over faculties). By this body will be invested with strength, tone, development and live longer.^[14] Out of these three variables Ahara and Svapna assumes a significant part being developed of invulnerability in kids. It is plainly referenced in Charak Samhita that the food taken in right amount absolutely gives strength, composition, bliss and life span to the individual, without upsetting the normalcy.^[15] In babies and small kids insufficient bosom taking care of and Dusht Stanya are the significant reason for undernutrition and hunger. The kid who benefits from the milk of unusual taste endured by the vata, turns out to be exceptionally feeble. The kid hates the flavor of milk and in this way his development gets impaired.^[16] Consuming the frothy milk, the kid's voice becomes weak. His stool, pee and flatus are held and he experiences Shirorogas because of Vata and Pinasa (Chronic Coryza) and this Vata vitiated milk causes the diminishing in Bala

(Strength).^[17] If kid takes Pitta vitiated milk he experiences Pandu (Anemia) and Kamala (Jaundice).^[18] If a youngster takes the milk vitiated with Kapha, this Atisnigdha (excessively unctuous) milk cause spewing, holding torment and unreasonable salivation. The youngster experiences rest, depletion, shortness of breath, hack, inordinate spilling of salivation and because of Picchil Guna (Slimy) it cause enlarging of face and dull eyes and by Gurutav (Heaviness) kid experiences heart disease.^[19]

In Protein and Energy Malnutrition (PEM) cell interceded resistance is weakened, normal diseases and crafty infections can prompt expanded dismalness and mortality.^[20] Similarly *Nidra* (Sound sleep) affects the invulnerability of body. As healthy eating routine is significant for the upkeep of the body, rest is significant for satisfaction. Consequently, weight and leanness are explicitly brought about by ill-advised rest and diet.^[21] In individuals, joy and wretchedness, sustenance, starvation, strength and shortcoming, fruitfulness and barrenness, information and obliviousness, life and passing rely on appropriate and ill-advised rest. Appropriate rest achieves satisfaction and life span in human beings.^[22]

Role of Agnimandya in Immunodeficiency

If in any kid there is Agnimandya (Malfunctioning of stomach related fire) introductory Aahara Rasa stays undigested and this Agni Dushti Janya Aam Rasa stay in Amashya (Stomach) is known as Aam^[23] (Toxins from undigested food). This prompts defilement of Rasa Dhatu with Aam and resulting debilitating of Rasa Dhatva Agni and upset digestion inside the Rasa Dhatu. Rasa debased with the Aam will in general impede the channels of body, because of this body will be denied of nourishment. Because of obstructive pathologies like sanga and so on the ensuing Dhatus are not get appropriate sustenance and eventually debilitates the resistant framework and prompts cause various types of sickness related with that specific Dhatu. Immunodeficiency is that disappointment of insusceptible framework, which typically assumes a defensive part against diseases, appears by occurrence of rehashed contaminations in an individual.

Effect of Saririka Prakrti (Body Constitution) on Immunity

Seven sorts of Saririka Prakrti has been portrayed to be specific Kaphaja, Pittaja, Vataja, Vata Kaphaja, Kapha Pittaja and Sannipataja Prakrti.^[24] Sama Prakrti people has generally astounding characteristics of all Dhatus.^[25] Kaphaja personaty people are strong^[25] While Pittaja prevalent people are of moderate Bala^[26] and the people having prevalence of Vata

have low level of strength^[27] so a kid brought into the world with Vataja Prakrti might have low invulnerability when contrasted with other Prakriti kids.

Beeja Dosha (Genetic Defect)

Sahaja Bala^[28] which is the inherent limit of body to oppose and endure infections that one gain right from birth and relies on the sound state of sperm and ovum of guardians and legitimate admission of adjusted food by expecting mother during pregnancy and any issue in these variables may prompts Beeja Dosha and result in blemished Sahaja Bala called diminished natural insusceptibility which can be a reason for unhealthy condition.

Effect of Kala (Season) on Immunity

Kalaja Bala is clarified in Ayurveda. Kala (Season) are partitioned into two areas i.e Adana Kala and Visarga Kala. Adana Kala incorporates Shishira Rutu (Late Winter Season), Vasant Rutu (Spring Season) and Grishma Rutu (Summer Season) and there will be a decrease of body strength normally during Adana Kala while Visaraga Kala incorporates Varsha Rutu (Rainy Season), Sharad Rutu (Autumn Season) and Hemant (Rutu Season); these seasons invigorate regular the people. So the birth in the Visarga kala will give better insusceptibility when contrasted with the Adana Kala.

Stanya (Breast Feeding) and the Immune Response

Bosom taking care of gives unbeatable normal sustenance to the infant and baby. It has been additionally recommended that breastfeeding works with expanded immunologic resilience, and may in this way decline future danger of immune system disorder.^[29] Human bosom milk likewise contains various defensive variables which incorporate immunoglobulin essentially secretory IgA, macrophages, lymphocytes and so on Bosom feed children are less inclined to foster diseases. Bosom feed children have a lower hazard of sensitivity, ear contamination and orthodontic issues and have a lower hazard of diabetes, coronary illness and lymphoma in later life.^[30]

Aushdhi (Medication) During Pregnancy

Aushdhi like Antibiotic use during pregnancy can increase a child's risk of being hospitalised with infection by almost 20 per cent. This was most likely the result of a mother being prescribed antibiotics during pregnancy that then impacted on both her and her baby's microbiomes.^[31]

Paryavaranjanya (Environmental) Toxins

There are numerous other chemicals to which we are exposed in our daily life. For most, studies to examine whether they adversely impact the developing immune system or alter susceptibility to infectious disease have not been conducted. Likewise, for several of those chemicals, we do not yet fully understand their mechanism of action as toxicants. Despite these gaps in knowledge, it is increasingly recognized that formative years exposures can have a profound impact on the developing immune system, and will thereby contribute to disease later in life.^[32]

CONCLUSION

In Ayurveda Vyadhikshamatva interlinked with tissue sustenance, Ojas arrangement as the organic determinant of invulnerable strength in a person. Thus Ayurveda advocates for better nourishment, more extravagant Ojas framework, more grounded Agni and able microcirculation to have great invulnerable strength. Ayurveda considers Prakriti i.e innate and hereditary inclination and Apathya being the chief reasons for sickness. The advanced comprehension of resistance fits inside the wide idea of Vyadhikshamatva in Ayurveda. As indicated by Charaka, not all people are similarly fit for Vyadhikshamatva.^[33] This is because of the different wholesome status of the people and established status or Prakriti likewise contrasts from one person to another and along these lines the Vyadhikshamatva. Breastfeeding is notable to give resistant insurance and forestall different sicknesses in the perinatal period. There are different writing for proof of long haul advantages of bosom taking care of that might impact autoimmunity. There are likewise different variables like anti-infection agents during pregnancy and natural contaminations which might have antagonistic impact on invulnerability of kids.

REFERENCES

1. Harsh Mohan, Textbook of Pathology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd New Delhi, 2019, Chapter 5, p130.
2. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 28, 2016, Verse 7, p 472.
3. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 27, 2016, Verse 342, p 463.

4. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sarira Sthana*, Chapter 6, 2016, Verse 13, p 831.
5. Nitin Ashok John, CC Chatterjee's Human Physiology. 13th Edition, CBS Publishers & Distributors Pvt Ltd, New Delhi, 2020, Chapter 19, p 128.
6. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 30, 2016, Verse 26, p 495.
7. Dr. P.S. Byadgi, Parameswarappa's Textbook of Ayurvediya Vikrti Vijnana & Roga Vijnana, Volume I, Chaukhambha Publications, New Delhi, 2019, Chapter 3.10, p 232.
8. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 17, 2016, Verse 117, p 278.
9. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 12, 2016, Verse 12, p 195.
10. *Sushruta Samhita of Maharshi Sushruta* Edited with *Ayurved Tattva Sandipika* by Kaviraja Ambikadutta Shahstri foreword by Dr. Pranajivana Manekchanda Mehta, 1st Part, 14th Edition, 2003, Chaukhambha Sanskrit Sansthan, Varanasi, *Sutra Sthana*, Chapter 15, Verse 24, p 60.
11. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 2nd part, Chaukhambha Orientalia, Varanasi, *Chikitsa Sthana*, Chapter 28, 2016, Verse 167, p 104.
12. *Sushruta Samhita of Maharshi Sushruta* Edited with *Ayurved Tattva Sandipika* by Kaviraja Ambikadutta Shahstri foreword by Dr. Pranajivana Manekchanda Mehta, 1st Part, 14th Edition, 2003, Chaukhambha Sanskrit Sansthan, Varanasi, *Sutra Sthana*, Chapter 15, Verse 29, p 61.
13. Apurba S Sastry, Essential of Medical Microbiology, 3rd Edition, Jaypee Brothers Medical Publishers, New Delhi, 2021, Chapter 18, p 208.
14. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 11, 2016, Verse 35, p 171.

15. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 5, 2016, Verse 8, p 74.
16. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 2nd part, Chaukhambha Orientalia, Varanasi, *Chikitsa Sthana*, Chapter 30, 2016, Verse 239, p830.
17. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 2nd part, Chaukhambha Orientalia, Varanasi, *Chikitsa Sthana*, Chapter 30, 2016, Verse 241-42, p830.
18. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 2nd part, Chaukhambha Orientalia, Varanasi, *Chikitsa Sthana*, Chapter 30, 2016, Verse 245, p831.
19. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 2nd part, Chaukhambha Orientalia, Varanasi, *Chikitsa Sthana*, Chapter 30, 2016, Verse 247-50, p831.
20. Harrison's Principles of Internal Medicine, 14th Edition, Volume I, McGraw-Hill, 1998, Chapter 74, p.453.
21. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1nd part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 21, 2016, Verse 51, p317.
22. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1nd part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 21, 2016, Verse 36-38, p314.
23. *Astanga Hridayam of Srimadavagbhata* with Nirmala Hindi commentary by Dr. Brahmanand Tripathi, Reprinted 2019, Chaukhamba Sanskrit Pratishthan, Delhi, *Sutra Sthana, Doshopkramniya Adhyaya*, Verse 25, p 188.
24. *Sushruta Samhita of Maharshi Sushruta* Edited with *Ayurved Tattva Sandipika* by Kaviraja Ambikadutta Shahstri foreword by Dr. Pranajivana Manekchanda Mehta, 1st Part, 14th Edition, 2003, Chaukhambha Sanskrit Sansthan, Varanasi, *Sarira Sthana*, Chapter 4, Verse 61, p 37.
25. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Vimana Sthana*, Chapter 8, 2016, Verse 100, p 690.

26. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Vimana Sthana*, Chapter 8, 2016, Verse 96, p 688.
27. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Vimana Sthana*, Chapter 8, 2016, Verse 97, p 689.
28. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1st part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 11, 2016, Verse 36, p 172.
29. Kelly M. Jackson, Phd; Andrea M. Nazar, DO, Breastfeeding, the immune Response, and Long –term Health, The Journal of the American Osteopathic Association, April, 2006; 106: 203-207. <https://jaoa.org/article.aspx?articleid=2093315>
30. Vinod K Paul, Arvind Bagga, Ghai Essential Pediatrics, Eighth Edition, CBS Publishers & Distributors Pvt Ltd, Chapter 8, p 151.
31. *Professor David Burgner, University of Melbourne and Dr Jessica Miller, Murdoch Children's Research Institute*, Antibiotics during pregnancy and the link to a baby's immune system, <https://pursuit.unimelb.edu.au/articles/antibiotics-during-pregnancy-and-the-link-to-a-baby-s-immune-system>
32. Winans B, Humble MC, Lawrence BP, Environmental toxicants and the developing immune system: a missing link in the global battle against infectious disease?. *Reprod Toxicol*, 2011; 31(3): 327-336. doi:10.1016/j.reprotox.2010.09.004, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3033466/>
33. *Charak Samhita of Agnivesa with Ayurved Dipika* Hindi commentary, by Vd. Harish Chandra Singh Kushwaha, 1nd part, Chaukhambha Orientalia, Varanasi, *Sutra Sthana*, Chapter 28, 2016, Verse 7, p472.