

# Panchakarma in The Management Of Childhood Sickle Cell Anemia

<sup>1</sup>Dr. Akriti Gupta <sup>2\*</sup>Dr. Swapnil C Raskar <sup>3</sup>Dr. Aboli Patil, <sup>4</sup> Dr. Vishal Prajapati

<sup>1</sup>PG Scholar – Department of Kaumarbhritya, Parul Institute of Ayurved – Parul University – Limda Vadodara Gujarat

<sup>2\*</sup>Associate Professor – Department of Kaumarbhritya, Parul Institute of Ayurved – Parul University – Limda Vadodara Gujarat

<sup>3</sup>Associate Professor – Department of Kaumarbhritya, Parul Institute of Ayurved – Parul University – Limda Vadodara Gujarat

<sup>4</sup> Assistant Professor – Department of Kaumarbhritya, Parul Institute of Ayurved – Parul University – Limda Vadodara Gujarat

## Author for Correspondence

**\*Dr. Swapnil C Raskar**

Associate Professor – Department of Kaumarbhritya, Parul Institute of Ayurved – Parul University – Limda Vadodara Gujarat, Mobile: +919879340491

Email: [neonatecare99@gmail.com](mailto:neonatecare99@gmail.com)

## ABSTRACT-

Sickle Cell Anaemia (SCA) is an autosomal recessive disease characterized by the abnormal shape of red blood cell due to abnormality in haemoglobin (Hb-S). Abnormality in Hb is due to substitution of valine for glutamic acid at position 6 of the beta globin gene of hemoglobin. Though there is no direct correlation of SCA in Ayurveda the disease called *Pandu* has shown the some similarities in terms of clinical features with SCA, in addition some scholars consider the situation as the *Rasa* and *Rakta Kshaya* i.e. depletion in serum and blood cells qualitatively as well as quantitatively. There are many treatments has been described for these conditions in Ayurveda. Among the different treatment ailment *Panchakarma* is one of the popular treatment used in children which presents a unique approach of Ayurveda with specially designed five procedures of internal purification of the body through the nearest possible route. *Panchakarma* is genuinely used for the purification purpose to improve the nourishment of the tissues through *Srotas* (body channels). Various *Panchkarma* procedures like *Basti* (oil and decoction enemas), *Nasya* etc are found to be beneficial in the palliative care of SCA in Children. Present article is mainly focused on *Panchkarma* procedures which are commonly used and found effective in Children with SCA to highlight the role of Ayurveda to improve the quality of life of the children with sickle cell anaemia.

**KEY WORDS:** Ayurveda, *Panchakarma*, Sickle cell anaemia, *Rasa-Rakta Kshaya*.

## INTRODUCTION-

Sickle Cell Disease (SCD) is a term used for a group of a genetic disorder characterised by production of haemoglobin (Hb)"S". It is a result of single base pair change, thymine for adenine at 6<sup>th</sup> position on beta –globin gene on chromosome no. 11 replacing Valine for Glutamic acid<sup>1</sup>. The substitution of single amino acid is responsible for profound change in molecular stability and solubility of haemoglobin "S". The term SCD includes several distinct genotypes. More commonly seen is homozygous Sickle cell anaemia (SS), heterozygous form (AS), Sickle thalassaemia (SβO)<sup>2</sup>. Less commonly seen forms are SD Punjab disease, SO Arab disease. Prevalence rate in India: North-east India 0-18%, central India 22-44%, West India 0-33% and South India 0-40%<sup>3</sup>. Clinical manifestation of SCD is extremely varied. Some patients are entirely asymptomatic where as other patients are constantly troubled by painful episodes<sup>4</sup>. The term Sickle cell crisis was defined by digs as "any new syndrome that develops rapidly in patients with Sickle disease due to inherited abnormality. Sickle cell crisis are, painful crisis, Sequestration crisis, Vaso-Occulsive crisis, and aplastic crisis<sup>5</sup>. There is no definite known cure for SCD. Blood transfusion, Bone marrow transfusion, Hydroxyurea, Stimulation of HbF production by 5 Azacytidine, Gene therapy evolved for managing Sickle Cell Anaemia.

In Ayurveda there is no single condition disease which exactly shows similarity with SCD. *Pandu* has shown the some similarity in terms of clinical features with SCA like Pallor, Fatigue, Loss of appetite etc. In addition some scholars of Ayurveda consider the symptoms of *Rasa*<sup>6</sup> and *Rakta Kshaya* which are similar with that of Sickle cell Anaemia. Ayurveda describe the treatment of diseases in two broad senses as *Samshodhana* and *Samshamana Chikitsa*<sup>7</sup>. Among which *Samshodhana* is known as *Panchakarma*<sup>8</sup>.

Considering the pathological changes Ayurvedic *Panchakarma* therapy along with internal medication can provide good improvement in Quality of life of SCA patient.

Various *Panchakarma* procedures like *Basti*, *Nasya* etc are found to be beneficial in the palliative care of SCA in children. Present article is focused on various *Panchakarma* procedures which are commonly used and found effective in the palliative care of SCA in children.

REVIEW METHODOLOGY: - Electronic database, Google has been searched for relevant studies and reviews published from 2010 to 2020. The key words used for search are "*Nasya*

*Karma* in children”, *Nasya Karma* its use and benefits in children, *Basti Karma*, different types of *Basti*, *Basti* in children, different types of *Nasya*, *Panchakarma* used in SCA in children. Abstracts and full texts of open access articles in English language were only consider.

## **SICKLE CELL ANAEMIA AND AYURVEDA**

In Ayurveda no any disease entity which directly correlated with Sickle Cell Anaemia but the signs and symptoms of *Pandu Roga* and symptoms explained in *Rasa-Rakta Kshaya* resembles the features of sickle cell anaemia in children. In this article Sickle Cell Anaemia is correlated with the *Pandu* and *Rasa-Rakta Kshaya* and with this correlation the role of *Panchakarma* as a palliative care in the management of Sickle Cell Anaemia in children has been established. The correlation is based on the clinical observations and literature based knowledge.

### **PANDU IN CHILDREN<sup>9</sup>:**

There is no exclusive description of *Pandu Roga* in children in Ayurveda classics. The clinical features of *Pandu Roga* in adult are taken into consideration to describe the *Pandu Roga* in children. In addition Acharya Kashyapa defines the *Pandu* in children under *Vedana Adhyaya*<sup>10</sup> In anaemia there is swelling around umbilicus, whiteness of eyes, deformity of nails, loss of appetite and swelling in both eye-pits<sup>11</sup>. This condition occurred in the children with Sickle Cell Anaemia and hence the correlation of Sickle Cell Anaemia has been made by different scholars of Ayurveda. As most of the symptoms of *Pandu* and sickle cell anaemia are due to *Rasa-Rakta Dhatu Kshaya* and hence the pathophysiology and treatment principle are move around the nourishment and purity of *Rasa-Rakta Dhatu*. In succeeding session of the article role of *Panchakarma* to improve the nourishment of *Rasa-Rakta Dhatu* to improve the quality of life of the children with the Sickle Cell Anaemia. As the role of Folic acid is proven in the Sickle Cell Anaemia, *Panchakarma* should be applied as palliative care to improve the quality of life of children with the Sickle Cell Anaemia.

### **PANCHAKARMA IN CHILDREN<sup>12</sup>-**

Contrary to common belief *Panchakarma* practices are widely in used for the treatment of diseases of children<sup>13</sup>. Pancha means five and karma means action or therapy, so *Panchakarma* means five therapies<sup>14</sup>. *Panchakarma* treatment is basically a bio cleansing regimen intended to eliminate the toxic elements from the body and there by enhance

immunity of the body<sup>15</sup>. *Panchakarma* treatment is believed to help in radical elimination of the disease causing factors and maintains equilibrium of *Dosha*<sup>16</sup>. *Panchakarma* eliminates these toxins from the body, allowing permanent healing of tissues and channels<sup>17</sup>. *Panchakarma* is not only good for alleviating the disease but is also a useful modality of treatment in preserving and promoting the perfect health. *Panchakarma* purify the body, relax the mind, and improve the digestion and metabolism<sup>18</sup>. *Panchakarma* has a full therapy role as promotive, preventive and curative procedure. *Panchakarma* is the best mind- body healing experience for detoxification of the body, for strengthening the immune system to restore the balance and wellbeing. Each *Panchakarma* had three procedures: *Poorva Karma* (preparatory process), *Pradhana Karma* (main process), and *Paschat Karma* (post or cleansing process which include dietary and behavioural regimen)<sup>19</sup>.

### **SOME EFFECTIVE PANCHKARMA IN SCA-**

After considering the pathophysiology of Sickle cell Anaemia from Ayurveda perspective it is very clear that, *Panchakarma* plays very important role in reliving the symptoms of sickle cell anaemia and are useful to give strength to *Rasa-Rakta Dhatu* which gives strength and immunity to child in turn gives good quality of life to the children with sickle cell anaemia.

*Panchakarma* like *Abhyanga*, *Shashtikashalipinda Sweda*, *Basti (Matra, Snigdha, Sneha, Madhutailika, Yapana, Chandanadi Niruha, Yashtyadi, Lodhradi* etc and *Nasya* are found to be beneficial in the palliative care of Sickle cell anaemia in clinical practice and is in used by different Ayurveda practitioners in children of Sickle cell anaemia. Present study is focused only on few *Panchakarma* procedures like *Basti*, *Shashtika Shali Pinda Sweda*, *Udwartana*, *Abhyanga* and *Nasya* which are beneficial in the palliative care of Sickle cell anaemia patient.

1. **UDWARTANA-** *Udwartana* is one of the *Bahiraparimarjana Chikitsa* (External application therapy) which is performed by applying the dry *Choorna* (powder) of herbs over skin of whole body in *Pratilomagati* means from below upwards (against the direction of hairs of body) by using adequate pressure on the body. *Udwartana* is said to be *Kaphahara* (removes the vitiated *Kapha*), and *Meda Pravilayanakara* (dissolves the fats underneath the skin/subcutaneous fat), also *Sthirikara Anganm* (gives the tone to skin and muscles) and *Twakprasadakara* (cleansing of skin with improved complexion)<sup>20</sup>. *Udwartana* opens the minute channels and improves blood

as well as lymphatic circulation. *Udwartana* removes the obstruction in the channel of circulation which carries the nutrient materials to the site of organs. In case of Sickle cell anaemia like condition, there is *Rasa-Rakta Kshaya* and in order to improve the nourishment of *Rasa* and *Rakta Dhātu* one has to clear the obstruction in the *Rasa* and *Raktavaha Srotas* (channels). As said earlier *Udwartana* is useful to remove the obstruction in the Channels or *Srotas* which provide the nourishment to the tissue; *Udwartana* is very useful to improve the tissue nourishment especially of *Rasa* and *Rakta Dhātu* in child with sickle cell anaemia. In addition one has to always take care that *Udwartana* in children with sickle cell anaemia should be performed *Mrudu* (with very less pressure) and should be applied for less period of time.

2. SARVAANGA ABHYANGA- The term *Abhyanga* is used as a synonym of application of oil over body. According to Vagbhata oil is applied specially over head, ears and sole<sup>21</sup>. Specific oil should be selected according to the type of the disease as per the clinical situation permits. For a Vataja disease oils like- Ksheerabala, Balaguduchyadi etc. For Pittaja diseases oils like- *Chandanadi*, *Padmakadi*, etc. For *Kaphaja* diseases oil like- Moolakadi, Marichyadi etc can be used. *Abhyanga* provides nourishment due to its Snigdha, Mridhu qualities. *Abhyanga* is helpful in alleviating the early aging, fatigue, tiredness, and helps to improve sight and also helpful to improve the strength and longevity of individual, in all there is increase in strength and immunity of individual<sup>22</sup>. *Abhyanga* nourishes the superficial and deep muscles and make the muscles strong. *Abhyanga* causes softness, fluidity and moistness in the body; refined sunflower or fractionated coconut is found to be very helpful in improving the fluidity of body and hence found to be very useful in children with sickle cell anemia as there is *Rasa-Rakta Kshaya*<sup>23</sup>. This all properties of *Abhyanga* are very useful to deal with the condition of *Rasa-Rakta Kshaya* in children with sickle cell anaemia to improve the quality of life of child and hence very useful palliative care for child.
3. *Shashtika Shali Pinda Sweda- Pinda sveda* is one of the most important and special Panchakarma used in paediatric practice. It is a process by which the whole body or a part is made to perspire by the application of certain medicinal puddings externally in the form of boluses tied up in a cloth bag. *Shashtika shali* is cooked with milk and decoction of herbs. This cooked rice is to be kept in pieces of cloth to make *pottalis*. Remaining milk should be mixed and heated in low temperature to dip the boluses for warming the *pottali*. After making *pottalis* patient is massaged with suitable warm oil

and then *pottalis* applied. This provides nourishment to the muscles and joints and relief joints pain in Sickle cell patient.

4. BASTI- *Basti chikitsa* regarded as the prime treatment modality among the *Panchkarma*. It is having not only curative action but also preventive and promotive actions. It not only cures vatika disorder but also *Pittaja*, *Kaphaja* and *Sannipata* condition of *dosha*. *Basti* is a procedure in which the drugs are administered through the anal canal and it is retained for certain period of time, drag the waste matters from all over the body into the colon and eliminates them out of the body resulting into the desired effect. *Basti* is called as the nectar for child patient<sup>24</sup>. *Basti* is prepared by using various medicated *Madhu*, *Saindhava*, *Oil*, *Kalka*, *Kwatha*<sup>25</sup>. The patient is advised to lie down in left lateral position. Small amount of oil is applied on patient anus and also on *Basti netra*. The *Basti Netra* is gently inserted into the anal upto a specific length and *Basti Putaka* containing mixture is pressed with a uniform pressure. The pressure is continued till only small quantity of fluid remains in the bag to avoid air insertion. Then *Basti Netra* removed gently and the patient is allowed to lie down on supine position for some time and then after evacuation of the bowel the patient may take hot water bath.

While explaining the Age limit for *Basti* in children again a trial and error method has been followed. Physicians like Gargya, Mathara, Atreya Punarvasu, Parashara, Bhela at the end Kashyapa gives the final opinion that those children who are taking the cereals and the pulses along with breast milk, with well attained strength, able to walk and speak with well developed internal organs can be given *Basti*<sup>26</sup>. Method of administration of the *Anuvasana Basti* is very specific and child receiving the *Anuvasana Basti*, priory done *Parisheka* with the luke warm water and applied with fragrances. Before the use of the *Anuvasana Basti* massage and the irrigation with the hot water should be done. Following one *Asthapana Basti* next day *Anuvasana Basti* should be given in this method the physician should give the *Basti* in the alternative days<sup>27</sup>. *Basti* will cause the *Brhimiana* from the tip of the nail to head<sup>28</sup>. This is also responsible for imparting the complexion, lustre, strength, longevity and increases the *Śukra*<sup>29</sup>

This all characteristics of *Basti* give strength to the child and hence *Basti* is very useful to treat the children with Sickle cell anaemia.

Few *Basti* Useful for Children are discussed below -

*Matra Basti, Snigdha Basti, Sneha Basti, Madhutailika Basti, Yapana Basti, Chandanadi Niruha Basti, Yashtyadi Basti, Lodhradi Basti* are commonly used in SCA patient.

- a. *MATRA BASTI*- the dose of which is equal to *hrisva matra* of *Snehapana* is called *Matra Basti*. It is a type of *Sneha Basti*. In this medicated oil given in a small dose it is given daily with no risk. *Matra Basti* is *Balya, Brimhana*, so it is beneficial in SCA patient.
- b. *SNIGDHA BASTI*- it have *Brimhana* effect. *Sneha* or *Snigdha Basti* is good for the elimination of *Doshas* and nourishment of the body. *Basti* is *Bala, Varnakar* and *Harsha, Mardavatva* and *Snehana* of the body. *Sneha Basti* improves over all nourishment.
- c. *MADHUTAILIKA BASTI*- this *basti* mainly contains *Madhu* and *Taila* in equal proportion. It is *Mrudubasti* and hence there is less chance for complication. It is *Deepana, Brumhana, Balavarnakara* and hence considering the
- d. *YAPANA BASTI*- the *Basti* which sustain, support and maintain the life and promotes longevity is called *Yapana Basti*. It is indicated in *Swastha, Atura* and *Bala* or *Vruddha* pointing towards its preventive, curative and promotive nature. It is administered in all the seasons at all time and in all the age groups. It is having *Deepana, Brumhana* and *Balavarnakara* properties.
- e. *CHANDANADI NIRUHA, YASHTYADI, LODHRADI*- This is the useful in treating *pittaja vikara*. It is useful in treating- *Kamala, Pandu, Pittaja vikara*. *Chandanadi Niruha* is helpful in reducing the vitiated *Pitta* and hence useful to reduce the symptoms like *Panduta, Kamala* in children with sickle cell anaemia.

Administration of *Basti* leads to increased absorption of nutrients from gastrointestinal tract and hence there proper nourishment of *Dhatu* or tissues. Ultimately there is good quality of life of children with sickle cell anaemia.

5. *NASYA*- *Nasya* is the most important therapy as it is used for the treatment of *Urdhajatrugata* diseases. The drug administered though nose as *Nasa* reaches the brain and eliminates only the morbid *Dosha* responsible for producing the disease. *Nasya karma* is a therapeutic measure where the medicated oil, *Kwatha, Svarasa*,

*Churna* etc are administered through nose to eliminate the vitiated *Dosha*. *Kashyapa* has mentioned two types of

*Nasya*:- namely *Brimhana Nasya* and *Shodhana Nasya*. During *Nasya* the patient should sit or lie down in a comfortable posture, then applied gentle massage over the head, forehead and face followed by mild *Swedana* and then lightly warm oil should be instilled in the prescribed dose in each nostril. After that gentle massage is to be performed on the sole and palm region, shoulder's and back. After *Nasya* karma oil on the face is to be cleaned by the wipe or cloth and advice to patient for gargling with warm water. *Nasya* karma mainly cleanses the channels in the head region so it is useful in headache in Sickle cell anaemia patient.

- a. SNEHA NASYA- It is useful in treating the sickle cell anaemia patient because it has beneficial in rigidity of neck and headache. *Sneha Nasya* nourished the joints and acquires great strength so it is useful in treating pain in sickle cell patient. All the sense organs will be clarified and greatly strengthened. the face will become cheerful and plump. The voice will become mellow, firm and stentorian. As the word *Sneha* suggests, *Snehana Nasya* gives strength to all the *Dhatu* and is used as *Dhatuposhaka*.

*“In nut shell all Panchakarma procedure which are useful to treat the Rasa-Rakta Kshaya in sickle cell anaemia are found to be useful to improve the quality of life of children with sickle cell anaemia.”*

**CONCLUSION-** Various *Panchkarma* procedures have proved their efficacy in the palliative care of sickle cell anaemia. *Udwartana* opens the minute channels and improves blood circulation. *Udwartana* provides a platform for further procedures like *Abhyanga*, *Shashtika Shali Pinda Sweda*, *Nasya* and *Basti*. *Abhyanga* reduces pain, improves joint pain and flexibility and also improves circulation. *Abhyanga* is also beneficial in fatigue. *Shashtika Shali pinda sweda* provides nourishment to the muscles and joints and relief pain in joints and muscles. *Shashtika Shali Pinda Sweda* increases the blood flow locally. *Nasya* is helpful in treating headache and gives strength to all the *Dhatu*. *Basti* provides nourishment, improves overall general condition and quality of life in children with sickle cell anaemia. All these procedure are useful to reduce or allivate the condition of *Rasa-Rakta Kshaya* of Sickle cell anaemia which ultimately gives strength and immunity to child and hence should be use as an palliative care to improve the quality of life of children with sickle cell anaemia.

**REFERENCES:**

- <sup>1</sup> A Parthasarthy et al; Indian Textbook pediatrics; Volume 1: MR Lokeshwara; Chapter 15 Pediatric Hematology; VS Dani; topic 15.7 Sickle Cell disease; 4<sup>th</sup> edition; Jaypee Publication: 2009 p 816
- <sup>2</sup> A Parthasarthy et al; Indian Textbook pediatrics; Volume 1: MR Lokeshwara; Chapter 15 Pediatric Hematology; VS Dani; topic 15.7 Sickle Cell disease; 4<sup>th</sup> edition; Jaypee Publication: 2009 p 816
- <sup>3</sup> A Parthasarthy et al; Indian Textbook pediatrics; Volume 1: MR Lokeshwara; Chapter 15 Pediatric Hematology; VS Dani; topic 15.7 Sickle Cell disease; 4<sup>th</sup> edition; Jaypee Publication: 2009 p 816
- <sup>4</sup> A Parthasarthy et al; Indian Textbook pediatrics; Volume 1: MR Lokeshwara; Chapter 15 Pediatric Hematology; VS Dani; topic 15.7 Sickle Cell disease; 4<sup>th</sup> edition; Jaypee Publication: 2009 p 816
- <sup>5</sup> A Parthasarthy et al; Indian Textbook pediatrics; Volume 1: MR Lokeshwara; Chapter 15 Pediatric Hematology; VS Dani; topic 15.7 Sickle Cell disease; 4<sup>th</sup> edition; Jaypee Publication: 2009 p 816
- <sup>6</sup> Vagbhata, Ashtanga Hridaya, Sutra Sthana Chapter 11 Doshadivijnyaniyam Adhyaya versus 17; Hindi Commentary by Brahmananda Tripathi: Chaukhambha Sanskrit Pratishthana; Delhi page no.163.
- <sup>7</sup> Vagbhata, Ashtanga Hridaya, Sutra Sthana Chapter 1 Ayushkamiya Adhyaya versus 25; Hindi Commentary by Brahmananda Tripathi: Chaukhambha Sanskrit Pratishthana; Delhi page no.19-20.
- <sup>8</sup> Dr. Vijay Kumar Ray; Chapter 1; Panchakarma Samanya Parichaya; Chaukhambha Publications, New Delhi, p 1.
- <sup>9</sup> Agnivesha, Charaka Samhita, Charaka Chikitsa Sthana Chapter 16 Pandu Chikitsa Adhyaya versus
- <sup>10</sup> Kashyapa, Kashyapa Samhita, Sutra Sthana; chapter 25 Vedana Adhyaya versus 34-35; English commentary Prof. Premvati Tiwari, Chaukhambha Vishvabharati, Varanasi 2020. P.56
- <sup>11</sup> Kashyapa, Kashyapa Samhita, Sutra Sthana; chapter 25 Vedana Adhyaya versus 34-35; English commentary Prof. Premvati Tiwari, Chaukhambha Vishvabharati, Varanasi 2020. P.56
- <sup>12</sup> Subidhkant Pandey, Mayank Maniar, Swapnil Raskar, Panchakarma in Paediatrics, WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES; 2019; Volume 8, Issue 5, 1336-1343
- <sup>13</sup> Dr. Swapnil et al; Panchakarma in pediatrics; Ayurvedline; Himalaya Publication
- <sup>14</sup> Dr. Vijay Kumar Ray; Chapter 1; Panchakarma Samanya Parichaya; Chaukhambha Publications, New Delhi 2013, p 1.
- <sup>15</sup> Agnivesha, Charaka Samhita, Chapter 15 Upakalpaniya Adhyaya, versus 22; Hindi commentary by Dr. Brahmananda Tripathi; Chaukhambha Surabharati Prakashana Varanasi 2013: p320.
- <sup>16</sup> Kashyapa, Kashyapa Samhita, Siddhi Sthana; chapter 2 Trilakshana Adhyaya versus 4-7; English commentary Prof. Premvati Tiwari, Chaukhambha Vishvabharati, Varanasi 2020. P.266
- <sup>17</sup> Kashyapa, Kashyapa Samhita, Siddhi Sthana; chapter 2 Trilakshana Adhyaya versus 4-7; English commentary Prof. Premvati Tiwari, Chaukhambha Vishvabharati, Varanasi 2020. P.266.
- <sup>18</sup> Agnivesha, Charaka Samhita, Chapter 16Chikitsaprabhrutiya Adhyaya, versus 17-19; Hindi commentary by Dr. Brahmananda Tripathi; Chaukhambha Surabharati Prakashana Varanasi 2013: p323.
- <sup>19</sup> Dr. Vijay Kumar Ray; Chapter 1; Panchakarma Samanya Parichaya; Chaukhambha Publications, New Delhi 2013, p 7
- <sup>20</sup> Vagbhata, Ashtanga Hridaya, Sutra Sthana Chapter 2 Dinacharya Adhyaya versus 15; Hindi Commentary by Brahmananda Tripathi: Chaukhambha Sanskrit Pratishthana; Delhi page no.32.
- <sup>21</sup> Vagbhata, Ashtanga Hridaya, Sutra Sthana Chapter 2 Dinacharya Adhyaya versus 8; Hindi Commentary by Brahmananda Tripathi: Chaukhambha Sanskrit Pratishthana; Delhi page no.30
- <sup>22</sup> Vagbhata, Ashtanga Hridaya, Sutra Sthana Chapter 2 Dinacharya Adhyaya versus 8; Hindi Commentary by Brahmananda Tripathi: Chaukhambha Sanskrit Pratishthana; Delhi page no.29
- <sup>23</sup> Swapnil Raskar et al. Abhyanga in New Born Baby and Neonatal Massage - A Review. International Journal of Ayurveda and Pharma Research. 2015;3(6):5-10.
- <sup>24</sup> Kashyapa, Kashyapa Samhita, Siddhi Sthana; chapter 1 Rajaputriya Siddhi Adhyaya versus 40; English commentary Prof. Premvati Tiwari, Chaukhambha Vishvabharati, Varanasi 2020. P.264
- <sup>25</sup> Vagbhata, Ashtanga Hridaya, Sutra Sthana Chapter 19 Bastividhi Adhyaya versus 45; Hindi Commentary by Brahmananda Tripathi: Chaukhambha Sanskrit Pratishthana; Delhi page no.236
- <sup>26</sup> Kashyapa, Kashyapa Samhita, Siddhi Sthana; chapter 1 Rajaputriya Siddhi Adhyaya versus 11-20; English commentary Prof. Premvati Tiwari, Chaukhambha Vishvabharati, Varanasi 2020. P.258
- <sup>27</sup> Subidhkant Pandey, Mayank Maniar, Swapnil Raskar, Panchakarma in Paediatrics, WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES; 2019; Volume 8, Issue 5, 1336-1343
- <sup>28</sup> Kashyapa, Kashyapa Samhita, Siddhi Sthana; chapter 1 Rajaputriya Siddhi Adhyaya versus 43; English commentary Prof. Premvati Tiwari, Chaukhambha Vishvabharati, Varanasi 2020. P.264



---

<sup>29</sup> Subidhkant Pandey, Mayank Maniar, Swapnil Raskar, Panchakarma in Paediatrics, WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES; 2019; Volume 8, Issue 5, 1336-1343