Some efficacious Ayurvedic panchakarma procedures in children with cerebral palsy

Abstract

Cerebral palsy (CP) is defined as a non-progressive neuromotor disorder of cerebral origin. Motor disorders of CP are often accompanied by disturbances of sensation, perception, cognition, communication and behavior. In Ayurveda, there is no single condition/disease which exactly show similarity with CP. Most of the authors considered CP as vata vyadhi. Various Panchakarma procedures like Udwartana (mediated powder massage), Sarvaanga abhyanga (full body massage with medicated oil), Baashpa sweda & Naadi sweda (steam bath) and Vasti (oil and decoction enemas) etc are found to be beneficial in the management of CP in children. Present study is focused on panchakarma procedures which are commonly used and found effective in children with CP. Udwartana opens the minute channels and improves blood as well as lymphatic circulation. Udwartana is kapha, vata hara and removes aavarana or srotorodha. It provides a platform for further procedures like abhyanga, swedana and vasti. Sarvanga abhyanga, baashpa & naadi sweda reduce spasticity (especially scissoring phenomenon), improves flexibility of joints, improves circulation and reduces pain. Vasti is the major treatment for CP and it improves gross as well as fine motor functions, provides nourishment, improves overall general condition and quality of life in children with CP.

Keywords: panchakarma, ayurveda, cerebral palsy, vasti, sweda, nasya

Introduction

Cerebral palsy (CP) is defined as a non-progressive neuromotor disorder of cerebral origin. Motor disorders of CP are often accompanied by disturbances of sensation, perception, cognition, communication and behavior. CP is classified into four types, spastic, ataxic, dyskinetic and mixed. Spastic CP accounts for a major portion of CP.1 In India, the prevalence of CP is estimated around 3 cases per 1000 live births. There is no known cure for all four subtypes of CP.2 Stem cell transplantation procedures, Botulinum toxin injections, intrathecal injection of baclofen, using various orthotic devices, hyperbaric oxygen therapy, neuroplasticity etc are the new advancements evolved for managing CP.1

In Ayurveda, there is no single condition/disease which exactly show similarity with CP. Some conditions explained in Ayurveda, which have shown some similarity with CP are, phakka (a kind of nutritional disorder), pangalya (locomotor disorders), mukatva (dumbness), jadatva (mental disorders), ekanga roga (monoplegia), sarvanga roga (quadriplegia), pakshaghatva (hemiparesis) and pakshavadha (hemiplegia) etc., vatayadhi’s (neurological disorders).3 Spastic CP can be considered as ‘Avarana janya vata vyadhi/Kaphavrita vata’. Vata vyadhi is the most similar condition to CP.4 According to some authors, CP in Ayurveda can be considered as ‘Shiro-Marmabhigathaja Bala Vata Vyadhi’.5

Ayurvedic Panchakarma (five major ayurvedic procedures and many allied procedures which are intended to cleanse the body) therapy along with appropriate internal medication can provide good improvement in quality of life of CP patients.1 It is well known fact that internal medication along with Panchakarma procedures is more effective when compared with only oral medications.2 Various panchakarma procedures like Udwartana (mediated powder massage), Sarvaanga abhyanga (full body massage with medicated oil), Baashpa sweda & Naadi sweda (steam bath) and Vasti (oil and decoction enemas) etc are found to be beneficial in the management of CP in children.1 Present study is focused on various panchakarma procedures which are commonly used and found effective in the management of CP in children.

Review methodology

Electronic database, ‘Google scholar’ has been searched for relevant studies and reviews published/appreaded from 2007 to December 2017. The key words used for search are, ‘Udwartana in cerebral palsy children’, ‘Sarvanga abhyanga in cerebral palsy children’, ‘Naadi sweda in cerebral palsy children’, ‘Baashpa sweda in cerebral palsy children’, ‘Shashthika shali pinda sweda in cerebral palsy children’, ‘Vasti in cerebral palsy children’ and ‘Nasya in cerebral palsy children’. Abstracts and full texts of open access articles in English language were only considered.

Panchakarma

Panchakarma is a collective term which indicates five major therapeutic procedures of detoxification to cleanse the body channels, along with many other supportive procedures. Literally, Panchakarma is made up of ‘Pancha’ means ‘five’ and ‘karma’ means ‘procedure/action’ (procedures of purification). Ayurveda treats diseases by using two different methods, shodhana (purificatory) and shamana (pacificatory). Shodhana means cleansing or detoxification of the body by expelling the deranged doshas (morbid materials inside the body causing various diseases). Shamana is pacification of symptoms without eliminating the morbid doshas. Typically, all treatment protocols ought to begin with shodhana, followed by shamana for better outcomes. When the body is saturated with toxins, the toxins interfere with the absorption of herbal medicines. Furthermore, it is necessary to eliminate ama (accumulated toxins in the channels) and to re-establish the homeostasis. The five main procedures within panchakarma are: vanana (emesis), virechana (purgation), nasya...
(nasal instillation of herbal oils/powders), basti or vasti (herbal enema), and raktramokshana (bloodletting). Primarily, these practices are aimed at eliminating ama (toxins) from the body and cleanse the channels. Each procedure is performed in three phases: Poorva karma (preparatory methods), Pradhan karma (main procedure) and Paschat karma (post-cleansing procedures which include dietary and behavioural regimen).6

Panchakarma is the ultimate mind body healing experience for detoxification of the body, for strengthening the immune system, to restore the balance and wellbeing. It is one of the most effective healing modalities of ayurveda. Prior to panchakarma, poorva karma like deepana and paachana (appetizers and digestives), snehana (oleation) and swedana (sudation) are given to the patient. Ayurveda considers that the purification of the body is important before the commencement of any other therapy. Shodhana chikitsa (purificatory or cleansing procedures/panchakarma) is considered superior to Shamana chikitsa (treating with internal medicines) because the condition treated with shodhana therapy will never recur, whereas the condition treated with shamana therapy may recur in due course of time.7

Some effective panchakarma in CP

Various panchakarma procedures like Udwartana (medicated powder massage), Sarvaanga abhyanga (full body massage with medicated oil), Baasha sweda & Naadi sweda (steam bath), Shashthika shali pinda sweda – SSPS (sudation with a bolus prepared by boiled rice), Nasya, Shirodhara (oil drip over the forehead) and Vasti (oil and decoction enemas), are found to be beneficial in the management of CP.1-10 Present study is focused only on few panchakarma procedures which are commonly used and found effective in the management of CP like Udwartana, Sarvaanga abhyanga, Baasha sweda & Naadi sweda, Shashthika shali pinda sweda, Nasya and Vasti.

Udwartana

Rookshana procedure (dryness inducing procedure) like ‘Udwartana’ seems to be beneficial in reducing the spasticity in CP patients and it is suitable in ‘Avamavata’ (accumulation of waste materials inside the body) or ‘Kapha aadhihka’(predominance of kapha dosha) (Figure 1).11 Considering the Bahya karma (external procedure), the Uudwarthana is the rookshana poorvakarma (preparatory procedure which induces dryness) used with powders of medicines it brings Rakshana at the level of superficial Dhathus (tissues) especially at the level of Twak, Raktha, Mansa and Meda (skin, blood, muscle and fat).12 For ama pachana (metabolizing accumulated toxins in the body) purpose rookshana procedure like udwarthanam with ‘kola kuluthadi choornam’ (a medicated powder used for Udwartana) can be used. Udwartana brings lightness in body, improves appetite and relieves pain. After attaining niraaamavastha by udwartana, snehana and swedana etc procedures can be started.20 Udwartana helps in reduction of vitiated kapha by its dryness-inducing and blockage-removing properties. Once aaarvara (blockage) is removed, vitiated vata can be pacified by further treatment.1

Udwartana opens the minute channels and improves blood as well as lymphatic circulation.

Sarvaanga abhyanga

The term Abhyanga (Figure 2) is used as a synonym of oil bath. This is advised to be practiced daily. Oil in anointed all over the body, especially on the head, in the ears and on the feet. Specific oil should be selected according to the type of the disease or the temperament. For a person with vata temperament medicated oils like ksheerabala, balaguduchyadi, karpasasvityadi etc; for pitta temperament oils like bhringamrlakadi, manjishthadi, kavyanyadi etc; and for kapha temperament oils like eladi, asanavilvadi, marichadi etc can be used.13 Abhyanga provides nourishment due to its snigdha (unctuous), mrudu (soft) and picchila (sticky) qualities. Vata resides in sparsanendriya (skin) and massage is said to be as tvachya (good for the skin). Massage directly works on vata to bring it back to normalcy.1 Abhyanga along with swedana and vasti removes aaavaran and srotorodha (obstruction of channels). Abhyanga and swedana together divert the dosha’s from shakha to kshota, later from kshota dosh’s can be managed by vasti or other panchakarma procedures. When vata comes to normalcy development of milestones will become normal.7 Abhyanga reduces increased muscle tone, improves muscle bulk and power in CP cases.3

Figure 1 Udwartana.

Figure 2 Sarvaanga Abhyanga.
Some efficacious Ayurvedic panchakarma procedures in children with cerebral palsy

Abhyanga is Kaphavatara, Pushthi (health promoting) and Ayuvardhaka (increases life span). Abhyanga nourishes the superficial and deep muscles and make the muscles strong and joints stable. Abhyanga induce pleasantness and calming effects. The strokes used in Abhyanga like kneading; friction etc improves local circulation. The procedure which causes unctuousness, fluidity, softness, and moistness in the body is snehana or oleation therapy. Abhyanga and SSPS both cumulatively help in reduction of spasticity and facilitate free movement of joint preventing from deformities and contractures in CP cases. Massage of the entire body with medicated oils like Bala tailam, Narayana tailam, Prasurini tailam, and Mashadi tailam are very effective. Massage involving concomitant stretching maneuvers is very beneficial in patients with spastic diplegia resulting from CP.

**Baasha sweda & Naadi sweda**

Swedanam (sweating/diaphoresis/sudation) is a prerequisite for all shamanas (pacifying treatments) courses and it provides temporary and lasting relief in many ailments. Many types of swedana are explained; among them ‘Baasha sweda’ or ‘Ooshma sweda’ (steam bath) and ‘Naadi sweda’ (tube sweating) (Figure 3) are commonly used. In baasha sweda the patient may sit or lie on a chair or on a wooden table and whole body is exposed to steam. Sweating is induced by means of steam coming from the fluid which may contain many herbs or other liquids such as dhanyamala (an alcoholic beverage prepared from grains) or wine or milk etc in baasha sweda. In naadi sweda a spouted pitcher or pressure cooker (which should be filled with liquids or herbs) is used and patient is exposed to steam coming out of the spout or a tube which is fitted to a narrow-mouthed vessel (pressure cooker) over the required body part.

Sudation causes excretion of waste metabolites through diaphoresis. Swedana along with abhyanga removes aavarana and srotorodha. Swedana is shambhagna (relieves spasticity), Sandhichestakar (improves joint mobility), Srotoshuddhikar (cleanses channels) and Kaphavata nirodhaka (pacifies kapha and vata). Thus by its action the ‘Sroto sanga vighatana’ (removal of obstructions in channels) may take place and stiffness of the joints relieved. The treatment plan should be that of vatashamana in CP, vata being dominant dosha involved. Management of vata disorders includes snehana, swedana and vasti. Thus swedana procedures like baashpa sweda and naadi sweda both has an important role and proved their efficacy (especially in reducing spasticity) in the management of CP.

**Shashtika shali pinda sweda**

In SSPS (Figure 4) heat, massage and pressure are provided which nourishes muscles and stimulate nerve endings. This is the common method of swedana used in paediatric patients in which specific part or whole body made to perspire by the application of shashtika shali (a variety of rice) in the form of pottalis (boluses tied in a cotton cloth). 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 decoction and milk should be mixed and heated in low temperature to dip the boluses for warming the Pottali. After creating pottalis, patient is massaged with suitable warm oil and then warm pottalis gently applied. The procedure takes about half to one hour.

**Figure 3** Naadi sweda & Baasha sweda.

**Figure 4** Various steps of Shashtika Shali Pinda Sweda.

Shashthika rice (Oryza sativa Linn) is Snigdha (unctuous), Bala vardhana (tonic) and Deha dardhyakrita (makes the body strong). The heat provided by bolus of Shashtika shali dipped in Balamula kwatha (roots of Sida cordifolia) with Godugdha increases the blood flow locally, relieve muscle spasm, increase tendon extensibility and provides pain relief. Bala absorbed locally provides nourishment to muscular tissue and prevents from emaciation. Combined effect of Abhyanga and SSPS (Figure 4) along with Physiotherapy helps to reduce spasticity, facilitate the free movement of the joints and to prevent development of deformities and contractures in CP patients. It also provides nutrition to muscular tissue thereby preventing from atrophy and detrimental changes. SSPS or Navarakkizhi is the most important sweda method used in hemiplegia, opisthotonus, emprosthonus, wasting paralysis and other chronic vata diseases. SSPS is a Brimhaniya Snehika (tonic) sudation performed by bolus of boiled Shashtika Shali with Vatahara Kwatha (decoction of vatahara...
Some efficacious Ayurvedic panchakarma procedures in children with cerebral palsy

Anuvasana, which usually is pressed with a uniform pressure. The pressure is 6.

Vasti:

Vasti is the procedure where the medicines in suspension form are administered through rectum or genitourinary tract using Vasti yantra (enema can or specific apparatus). Among all therapeutic procedures, vasti is superior because it is like anvita (nectar) for child patient and the most appropriate remedial measure for vata dosha. Vasti is prepared by using various medicated oils, kwatha (decocion) & kalka (paste prepared by herbs), madhu (honey) and saindhava (rock-salt) (Figure 5). The patient is advised to lie down in left lateral position. Small amount of oil is applied on patient’s anus and also on vasti netra (nozzle). The vasti netra is gently inserted into the anal canal up to a specific length and vasti putaka (pouch or bag) containing mixture (vasti dravya) 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 the nozzle is removed gently and the patient is allowed to lie down on supine position till he feels urge to excrete (Figure 6). After evacuation of the bowel, the patient may take hot water bath. Madhutailika vasti, bala guduchyadi vasti, patolanimbadi vasti, vaitaranana vasti, mustadi yapana vasti, tilaka kshira vasti etc are commonly used vasti preparations. Mata vatra is a type of sneha vasti (oil enema) in which medicated oil given in a small dose, and it can be given daily with no risk. Mata vatra can be used irrespective of age and not much precautionary measures are required. The usual dosage is 60ml. For infants the quantity of mata vatra is 20ml (Figure 6). Snigdha Basti (anevasana with balatailam) (oil enema) is said to have brimhana (nourishing) effect. It is found that vasti improves the flexibility of joints in cases of CP by vastahamana. Vasti is ‘Artha chikitsa’ (half of the treatment) of vata and most important panchakarma in CP. There are many types of vasti like niroha (decocion enema), anuvasana (oil enema) and uttara (enema given through urethra in males and through cervix in females). No other treatment has the capacity to pacify and regulate the force of vata apart from vasti. Vasti is the procedure in which the administered medicine through anal canal reaches up to umbilicus, hips, waist, loins and small intestine, churns the accumulated materials like dosh and purisha (feces), spread the unctuousness all over the body and easily comes out along with purisha and dosh (impurities). Vasti is advised for both children and aged persons, which is excellent both for the elimination of Doshas and nourishment of the body. Vasti therapy instantaneously promotes Bala (strength), Varna (complexion), Harsha (sense of exhilaration), Mardavatva (tenderness) and śnehana (unctuousness) of the body. Vasti is being the most widely used and highly effective treatment modality for treating neurological disorders. The pharmacodynamic action of vasti in alleviating symptoms of neurological manifestation in exact way is still not clearly understood.
nervous system has positive effects over central nervous system also. When vasti dravyas are passed through the gastrointestinal tract, it probably stimulates the cells (enterochromaffin cells or entero-endocrine cells) and act as secretogogues thus compensates neurological deficit and improves the functions.\textsuperscript{12}

\textit{Matra vasti} (Figure 6) is a sub type of \textit{anuvasana vasti} in which oil or ghee is given by rectal route in a small quantity. When medicated oil reaches rectum and colon, presence of short chain fatty acids in oil allows direct diffusion of drugs from epithelial cells in to capillary blood villi showing its generalized effect.\textsuperscript{17} \textit{Shodhana} (detoxification) \textit{karma} is performed mainly by \textit{niruha} or \textit{asthapana basti} (decocition enema) (Figure 5). The protocol is determined according to the disease and the patient’s condition.\textsuperscript{9} \textit{Vasti} is restricted till the child has attained a crawling age. But \textit{anuvasana vasti} (oil enema) is promoted from early infancy. As far as possible \textit{shodhana} therapies (cleansing and purifying therapy) should be avoided in children.\textsuperscript{19} In children compared to \textit{niruha vasti}, \textit{anuvasana} and \textit{matra vasti’s} are used commonly in the management of various neurological conditions. By considering all the above facts, \textit{vasti} seems to be beneficial in children with CP.

\begin{figure}[h]
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\includegraphics[width=0.8\textwidth]{Matra_Vasti.png}
\caption{Matra Vasti.}
\end{figure}

According to the authors personal observations (Figures 7-10), \textit{udwartzana} brings lightness in the body or limbs and especially useful in flaccidity in CP cases. Whereas procedures like \textit{sarvanga abhyanga}, \textit{baashpa} & \textit{naadi sweda}, SSPS and \textit{matra vasti} are beneficial in reducing the spasticity like scissoring phenomenon, improves mobility or flexibility of joints, improves gross and fine motor functions, and quality of life in children with CP (Figures 7–10). Ayurvedic panchakarma procedures seem to be efficacious in children with CP.

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{Case_1.png}
\caption{Case 1 - Improvement in spasticity and deformities.}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{Case_2.png}
\caption{Case 2 - Improvement in Scissoring phenomenon.}
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\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{Case_3.png}
\caption{Case 3 - Improvement in Spasticity and Scissoring of legs.}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{Case_4.png}
\caption{Case 4 - Improvement in Gross motor functions.}
\end{figure}
Conclusion

Various panchakarma procedures have proved their efficacy in the management of CP. Udwarthana opens the minute channels and improves blood as well as lymphatic circulation. Udwarthana is kapha, vata hara and removes aavarana or srotorodha. It provides a platform for further procedures like abhyanga, swedana and vasti. Sarvanga abhyanga, baashpa & naadi sweda reduce spasticity (especially scissoring phenomenon), improves flexibility of joints, improves circulation and reduces pain. Vasti is the major treatment for CP and it improves gross as well as fine motor functions, provides nourishment, improves overall general condition and quality of life in children with CP. Further studies on large sample with accurate methodology are required to substantiate these claims.

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None.

Conflict of interest

Author declares that there is no conflict of interest.

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