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 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 (medicated 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 aavarnana or srotorodhana. It provides a platform for further procedures like abhyanga, swadana and vasti. Sarvaanga 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 1,000 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 [3].

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), jadatra (mental disorders), ekanga roga (monoplegia), sarvaanga roga (quadruplegia), pakshaghata (hemiparesis) and pakshavadha (hemiplgia) etc. vatavyadhi's (neurological disorders) [1]. Spastic CP can be considered as 'Avarana Janiya Vata Vyadhi/Kaphovrata Vata'. Vata vyadhi is the most similar condition to CP [3]. According to some authors, CP in Ayurveda can be considered as 'Shiro-Marmabhigathaja Bala Vata Vyadhi' [4].

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 (medicated 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 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 / appeared from 2007 to December 2017. The key words used for search are, 'Udwartana in cerebral palsy children', 'Sarvaanga abhyanga in cerebral palsy children', 'Naadi sweda in cerebral palsy children', 'Baashpa sweda in cerebral palsy children', 'Shashhtika 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 shaman (pacificatory). Shodhana means cleansing or detoxification of the body by expelling the deranged doshas (morbid materials inside the body causing various diseases). Shaman is pacification of symptoms without eliminating the morbid doshas. Typically, all treatment protocols ought to begin with shodhana, followed by shaman 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: vanama (emesis), virechana (purgation), nasya (nasal instillation of herbal oils/powders), basti or vasti (herbal enema), and raktaamoksha (bloodletting). Primarily, these practices are aimed at eliminating ama (toxins) from to 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 shaman therapy may recur in due course of time [7].

Some Effective Panchakarma in CP

Various panchakarma procedures like Udwarthana (medicated powder massage), Sarvaanga abhyanga (full body massage with medicated oil), Baasha sweda & Naadi sweda (steam bath), Shashtika shali pinda sweda – SSPS (sudation with a bolus prepared by boiled rice), Nasya, Shirodara (oil drip over the forehead) and Vasti (oil and decoction enemas), are found to be beneficial in the management of CP [1-19]. Present study is focused only on few panchakarma procedures which are commonly used and found effective in the management of CP like Udwarthana, Sarvaanga abhyanga, Baasha sweda & Naadi sweda, Shashtika 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 ‘Amavastha’ (accumulation of waste materials inside the body) or ‘Kapha aadhihika’ (predominance of kapha dosha) [5]. Considering the Bahya karma (external procedure), the Uudwarthana is the rookshana poorvakarma (preparatory procedure which induces dryness) used with powders of medicines it brings the Rukshana at the level of superficial Dhadhas (tissues) especially at the level of Twak, Raktha, Mamsa and Meda (skin, blood, muscle and fat). [11] For ama pachana (metabolizing accumulated toxins in the body) purpose rookshana procedure like udwarthana with ‘kola kaluhadi choornam’ (a medicated powder used for Udwarthana) can be used. Udwarthana brings lightness in body, improves appetite and relieves pain. After attaining niraamavastha by udwarthana, snehana and swedana etc procedures can be started [20]. Udwarthana helps in reduction of vitiated kapha by its dryness-inducing and blockage-removing properties. Once aavaran (blockage) is removed, vitiated vata can be pacified by further treatment [1]. Udwarthana 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, karpasasatyadi etc; for pitta temperament oils like bhringamukadi, manjishthadi, kayanyadi; and for kapha temperament oils like eladi, asanavilwadi, marichadi etc can be used [21]. Abhyanga provides nourishment due to its snigdha (unctuous), mridu (soft) and picchila (sticky) qualities. Vayu 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 aavaran and srotorodha (obstruction of channels). Abhyanga and swedana together divert the dosh’s from shakha to koshtha, later from koshtha dosh’a can be managed by vasti or other panchakarma procedures. When vata comes to normalcy development of milestones will become normal [2]. Abhyanga reduces increased muscle tone, improves muscle bulk and power in CP cases [3].

Abhyanga involves cutaneous manipulation and it is considered as one of the prime procedures for mitigating vata. Primarily it acts by two mechanisms i.e., local and central. The local mechanisms in dice cutaneous stimulation causing the arterioles to dilate and thereby achieving more circulation. It also assists venous and lymphatic drains. This state of hyper circulation also enhances the trans-dermal drug absorption and assimilation. Massage improves blood supply to muscles, relieves muscular fatigue and reduces stiffness. Massage stimulates sensory nerve endings of the skin and gives abundant sensory inputs to the cortical and other centers in central nervous system. Snehana and
**Svedana** are the prime procedures in treating various neurological conditions [4]. **Abhyanga** procedure is the mechanical stimulation more precisely the pressure application during massage. Pressure application done in proper way can help in reduction of motor neuron hyper-excitability by reducing the alpha motor neuron activity. A study reported that in hemiparetic subjects the H-reflex was depressed during both continuous and intermittent tendon pressure. Intermittent pressure was found more effective than continuous. In a study, cerebral palsy symptoms in children were decreased following massage therapy [9].

**Abhyanga** is Kaphavatahara, Pushti (health promoting) and Ayuwardhaka (increases life span). Abhyanga nourishes the superficial and deep muscles and make the muscles strong and joints stable. Abhyanga induce pleasantness and calming effects [10]. The strokes used in Abhyanga like kneading; friction etc improves local circulation [13]. 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 [17].

Massage of the entire body with medicated oils like Bala tailam, Narayana tailam, Prasarini tailam, and Mashadi tailam are very effective. Massage involving concomitant stretching maneuvers is very beneficial in patients with spastic diplegia resulting from CP [19].

**Baashpa sweda & Naadi sweda**

**Svedanam** (sweating / diaphoresis / sudation) is a prerequisite for all shamana (pacifying treatments) courses and it provides temporary and lasting relief in many ailments. Many types of svedana are explained; among them ‘Baashpa sweda’ or ‘Ooshma sweda’ (steam bath) and ‘Naadi sweda’ (tube sweating) (Figure 3) are commonly used. In baashpa 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 dhanyamla (an alcoholic beverage prepared from grains) or wine or milk etc in baashpa sweda. In naadi sweda a spouted pitcher or pressure cooker (which should be filled with liquids and 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 [22].

Sudation causes excretion of waste metabolites through diaphoresis [1,8]. Svedana along with abhyanga removes aavarana and srotorodha [2]. Svedana is sthambhagna (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 [10]. Svedana relieves heaviness, stiffness and coldness in the body parts [7]. The treatment plan should be that of vatashamana in CP, vata being dominant dosha involved. Management of vata disorders includes snehana, svedana and vasti [19]. Thus svedana 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 svedana 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 cooled 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 [15].
Shashtika rice (Oryza sativa Linn) is Snigdha (unctuous), Bala vardhana (tonic) and Deha dardhyakrite (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 [9]. SSPS or Navarakkizhi is the most important sweda method used in hemiplegia, opisthotonus, emprosthotonus, wasting paralysis and other chronic vata diseases [22]. SSPS is a Brimhanjya Snehika (tonic) sudation performed by bolus of boiled Shashtika Shali with Vatahara Kwatha (decoction of vatahara herbs) and milk [13]. Thus SSPS is one of the most preferred method of swedana for CP patients where muscle wasting and weakness present.

Nasya

Nasya is the process of administration of medicines through nostrils. Nasya is indicated mainly in aggravated and accumulated doshas (disease causing factor) of head and neck. Commonly used medicines for nasya are pancendriyavardhan tailam, dhanvantaram tailam, anu tailam, shadbindu tailam, shunthi churna, tailam, dhanvantaram tailam, anu tailam, shadbindu tailam

Nasya karma is mainly intended to cleanse the channels in the head and neck region. The aggravated kapha dosha, which usually blocks the upper respiratory tract, is eliminated with the help of nasal instillation of herbal juices, oils, or powders. Herbal smoke (dhooma) is also used for inhalation through the nose to remove sticky phlegm from the channels. [6] Nasya has a definite role in treatment of CP because it is said to be beneficial in various shiro roga’s (diseases of head / brain) according to Acharya Charaka. Pratimarsa nasya (nasya of small dose / nasya used for daily purpose) may have beneficial effects in patients of CP as it provides strength to shira (head) and shirogata indriyas (sense organ in head). [19]

Vasti:

Vasti is the procedure where the medicines in suspension form are administered through rectum or genitalurinary tract using Vasti yantra (enema can or specific apparatus). Among all therapeutic procedures, vasti is superior because it is like amruta (nectar) for child patient and the most appropriate remedial measure for vata dosha. Vasti is prepared by using various medicated oils, kwatha (decoction) & kalka (paste prepared by herbs), madhu (honey) and saimdhava (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 netro 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, vairata vasti, mustadi yapana vasti, tikta kshira vasti etc are commonly used vasti preparations. Matra vasti 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. Matra vasti can be used irrespective of age and not much precautionary measures are required. The usual dosage is 60 ml. For infants the quantity of matra vasti is 20 ml [15] (Figure 6).
with purisha and dosha (impurities) [3]. 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), Varma (complexion), Harsha (sense of exhilaration), Mardavatva (tenderness) and Snehana (unctuousness) of the body [4]. 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. [9]

Matravasti (oil enema in small dose) is said to be Balya (strengthening), Brimhana (nourishing) and Vataragahara (eliminates neurological disorders). Pakwashaaya (large intestine) is the moola sthana (main seat) of vata dosha. Vasti by its action on the moola sthana gets control on vata all over the body. Rectum has a rich blood and lymph supply and drugs can cross the rectal mucosa like other lipid membrane and by entering general circulation, vasti acts on whole body. Vasti may block neuromuscular transmission by binding to receptor sites on motor or sympathetic nerve terminals, entering the nerve terminals, and may inhibit the release of acetylcholine [10]. Matra vasti provides more nourishment to deeper dhatu’s (tissues) [11]. Vasti improves fine motor functions, general motor functions like crawling, sitting, standing, walking and clasping hands in CP patients. When compared with internal medicines, Vasti has improved fine and gross motor functions in CP cases. Vasti found beneficial in spastic diplegia [14].

Sneha vasti improves overall nutrition. Vasti is having two actions, expelling the Dosha & nourishing the body as it is indicated in Gambhiragata vata (neurological conditions chronic and deep seated) also. Action of vasti is related with the facilitation of excretion of morbid substances responsible for the disease process into the colon, from where they are evacuated. Vasti drugs in Pakwashaaya acts on whole body in a same way that of sun, which though placed in the sky, causes evaporation of water on the earth. Vasti drayyas when administered into rectum may stimulate the sensory system due to its chemical composition and pressure effects over the bowel. As the total nervous system is interrelated, the regular stimulation on enteric nervous system has positive effects over central nervous system also. When vasti drayyas 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 [12].

Matra vasti (Figure 6) is a sub type of 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 [17]. Shodhana (detoxification) karma is performed mainly by niruha or asthapana basti (decocion enema) (Figure 5). The protocol is determined according to the disease and the patient’s condition [6]. Vasti is restricted till the child has attained a crawling age. But anuvasaana vasti (oil enema) is promoted from early infancy. As far as possible shodhana therapies (cleansing and purifying therapy) should be avoided in children [19]. In children compared to niruha vasti, anuvasana and matra vasti’s are used commonly in the management of various neurological conditions. By considering all the above facts, vasti seems to be beneficial in children with CP.
Some Efficacious Ayurvedic Panchakarma Procedures in Children with Cerebral Palsy

According to the authors personal observations (Figures 7-10), udwarta 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 mobility or flexibility of joints, improves gross and fine motor functions, and quality of life in children with CP. Further studies on large sample with accurate methodology are required to substantiate these claims.

Conclusion

Various panchakarma procedures have proved their efficacy in the management of CP. Udwarta 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 mobility or flexibility of joints, improves gross and fine motor functions, 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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Conflict of Interest

None.

References