

Use of Kalyanleha in Speech Impairment

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Abstract: Ayurveda originated from India. There are many more benefits of Ayurvedic treatment for every disease. So here Kalyanleha going to study in Ayurvedic approach. The main objective did with the study, Speech Impairment as per Ayurvedic classics and Modernviews. To assess the effect of Kalyanleha in Speech Impairment in children. Kalyanleha was prepared by using ingredients viz Haridra, Vacha, Kushtha, Pippali, Nagar, Jirak, Ajmoda, Yashtimadhu, Saindhav, Goghru mentioned in Bhaishajyaratnavali. Here, made with two groups given with Kalyanleha for 21 days of follow-up with Speech Therapy. Kalyanleha with Speech Therapy effectively reduced the signs and symptoms of Speech impairment.

Keywords: Ayurveda, Kalyanleha, Speech Impairment, children, Speech Therapy

1. Introduction

Ayurveda, the science of life or longevity is the holistic alternative science from India and is more than 5, 000 years old. Ayurveda addresses the importance of uncovering and treating the root cause of illness [1]. Kaumarabhritya, the Indian Pediatrics is the branch of Ayurved that emphasizes the importance of child care that has to be started even before the conception [2]. The horizon of Kaumarabhritya, dealing with child health care is vast. How we nurture our children today, will determine the quality of our human resources tomorrow. The incidence of speech disorders affecting preschool children is up to 8 %, and in the meantime, nearly 20% of children of 2 years are thought to have delayed onset of speech [3]. Any impairment can thus affect the overall development, especially if it is a communication disorder. Children with speech difficulties may have trouble in school or with peers [4]. Ayurvedic classics gave importance to speech and its related disorders. VakIndriyas is one of the karmendriya attributed to speech. Concepts of Mooka, Minmina, Gadgadatwa, Vaksang are also explained in our science which can be related to speech disorders [5]. Sushruta has explained the manifestation of Speech Disorders as Vata gets Avarana by Kapha in ShabdavahaDhamani and produces Mooka, Minmina, and Gadgada [6]. Speech disorders though are not properly mentioned in our classics. It can be understood by applying the basic principles of Ayurveda based on which the entire system was designed [7]. So a scientific study on Speech

Impairment from an Ayurvedic point of view is a possible solution for this momentous problem using the Ayurvedic principle was intended.

2. Materials and Methods

Kalyanleha mentioned in Bhaishajyaratnavali in the context of Vatvyadhichikitsadhyaya was used as a study drug for internal administration (Bha. Ra. 20/90-92).

Sr. No	Drug Name	Ratio
1	Haridra	1 part
2	Vacha	1 part
3	Kushtha	1 part
4	Pippali	1 part
5	Nagar	1 part
6	Jirak	1 part
7	Ajmoda	1 part
8	Yashtimadhu	1 part
9	Saindhav	1 part
10	Goghru	4 times of above mixture

Preparation of Kalyanleha:

All churna used in the preparation of KalyanLeha was taken from G. M. P. approved pharmacy. Goghrita was taken from AGMARK certified Company. All the drugs are taken in above mention quantity and mixed well.



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Dose

Table 1: KalyanlehaChurna’s Dosage age-wise.

Age	Kalyanleha Churna’s Dosage
3 years	500 mg
Above 3 years & below 6 years	1000mg
Above 6 years & below 9 years	1500mg
Above 9 years & below 12 years	2000mg

Aushadhsevankal: Sayam Paschadbhakt. (After Dinner)

Study Design

Location: Patients were selected in O. P. D. of Kaumarbhritya, as well as the Hearing & Speech Center.

Type of study: It was a clinical trial in which patients were selected in a simple random sampling method.

Sampling: All patients were randomly divided into two groups with 30 patients in each group.

Trial group: 30 Patients were given Kalyanleha for 21 days.

Control group: 30 Patients were given Speech Therapy, the intervention as control according to schedule fixed by Speech-language pathologist (SLP’s) for 21 days.

Follow up - 7th, 14th, 21st day.

Inclusion

- Patients with age group 3 years to 12 years were taken.
- Children with clinical manifestations of Speech Impairment. Stuttering was included in the study.
- Patients were selected irrespective of sex, religion, socio-economic status.
- Patients with delayed development of speech.

Exclusion

- Patients below 3 years and above 12years.
- Children suffering from Brain defects, systemic disorders ex. Sensory Aphasia, Dysphasia.
- Patients suffering from cleft palate & cleft lip or the conditions where the surgical intervention isrequired.
- Patients suffering from Dysphonia &Dysarthria.
- Speech disorders are complicated with other systemic disorders.

Assesment Criteria

The assessment was done before and after the study by observing, scale for rating severity of stuttering given by TSHA (Texas speech and hearing association) Guidelines 2010 for Speech impairment.

Table 2: Scale and Gradation

Scale	Gradation	Stuttering Episodes	Duration of Disfluency	Physical Concomitants
0	None	No stuttering	No Disfluencies	No Physical concomitants
1	Very mild	Stuttering on less than 1% of words	Disfluencies less than 1 second	No apparent associated movements of body, arms, legs or head
2	Mild	Stuttering between 1 to 2% of words	Disfluencies last as long as a full second	No conspicuous associated movements of body, arms, legs or head
3	Mild to Moderate	Stuttering between 2 to 5% of words	Disfluencies do not last longer than a full second	No distracting associated movements
4	Moderate	Stuttering between 5 to 8% of words	Disfluencies average about 1 second	An occasional distracting associated movements like sniffing, blowing
5	Moderate to Severe	Stuttering between 8 to 12% of words	Disfluencies average about 2 seconds	A few distracting associated movements like facial grimaces
6	Severe	Stuttering between 12 to 25% of words	Disfluencies average 3 to 4 seconds	Conspicuous distracting associated movements like headmovements
7	Very Severe	Stuttering more than 25% of words	Disfluencies average more than 4 seconds	Very conspicuous distracting associated movements like the movement of extremities

Subjective Parameters

- Stuttering episodes.
- Duration of Dysfluency inspeech.
- Physical concomitants.

3. Observation and Result

These were analyzed by using 1. Wilcoxon Signed RanksTest. 2. Mann-WhitneyTest.

Table 3: Illustration showing the result on stuttering episodes:

Stuttering Episodes	BT		AT		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	SD	Mean score	SD			
Trial group	2	0.91	1.1	0.548	45	4.208	<0.001 HS
Control group	2.13	0.86	1.23	0.817	42.3	4.354	<0.001 HS

Table 4: Comparison of treatments in two groups as per change in stuttering episodes

Stuttering Episodes	Mean difference score	SD	Mann-Whitney Z	P
Trial group	0.9	0.712	0.024	0.98
Control group	0.9	0.662		NS

Table 5: Illustration showing the result on Duration of disfluency.

Duration of Disfluency	BT		AT		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	SD	Mean score	SD			
Trial group	1.83	0.648	1.03	0.718	43.7	4.347	<0.001 HS
Control group	1.97	0.615	1.17	0.913	40.6	4.179	<0.001 HS

Table 6: Comparison of treatments in two groups as per change in Duration of Disfluency.

Stuttering Episodes	Mean difference score	SD	Mann-Whitney Z	P
Trial group	0.8	0.61	0.05	0.960
Control group	0.8	0.664		NS

Table 7: Illustration showing the result on Physical concomitants

Physical Concomitant	BT		AT		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	SD	Mean score	SD			
Trial group	1	0.788	0.63	0.765	37	3.317	<0.001 HS
Control group	0.87	0.819	0.5	0.572	42.5	3	<0.001 HS

Table 8: Comparison of treatments in two groups as per change in Physical Concomitants

Stuttering Episodes	Mean difference score	SD	Mann-Whitney Z	P
Trial group	0.37	0.49	0.169	0.866
Control group	0.37	0.556		NS

Table 9: Percentage of relief in Trial group & Control group

Parameter	% of Relief	
	Trial group	Control group
Stuttering Episode	45%	42.30%
Duration of Disfluency	43.70%	40.60%
Physical Concomitants	37.00%	42.50%
Total	42.70%	41.60%

4. Discussion

The trial was intended to study Speech Impairment in an

Ayurvedic point of view and a possible solution for it using Ayurvedic treatment principles. Moreover, studies on Speech Impairment in children with Ayurvedic interventions were least common. In this study, the effect of Kalyanleha in Speech Impairment in children of age 3 to 12 years was assessed. Sixty (60) patients were selected for the clinical trial. Selected treatment drug that includes internal administration of Kalyanleha was given for trial group and speech therapy was given for control group. Data were collected before treatment and after treatment. All these data were statistically analyzed and discussed in detail.

Kalyanleha contains ten drugs. The most important drug is Vacha. Other drugs are also equally important and have a different mode of action in managing Speech Impairment. Some are improving intelligence and some are considered to neutralize the complications of other drugs. Vacha is a time-old drug mentioned since Vedic periods as improving speech and memory. The ingredients of Kalyanleha have predominantly Laghu, Tikšana, and Snigdha guna. These will lead to Anulomana (carminative) and Strotoshodhana (clearing the channels). Ruksha & tikshnaguna dispel the obstruction created by Kapha and increase the sattva (poise). Brain tissue is exceptionally rich in lipid, especially in complex essential fatty lipids. Snigdha guna is similar to these lipids and thus it can be assumed that these drugs having Snigdha guna nourish the brain. Analysis of the rasas present in the individual drugs, reveals that maximum drugs have Katu, Tikta, and Madhura rasa in this combination. Tikta rasa being predominant in Akashamahabhuta and laghuguna, increases the sattva part of the mind. Agnideepana (Appetizer) function of tikta rasa increases the metabolism of the body and neutralizes the complications of other drugs.

Considering the pharmacological evaluation of vipaka of all the ingredients of the study drug, madhuravipaka and katuvipaka are dominating. Madhuravipaka is said to increase all the body elements, including the brain tissue. It also alleviates the vitiated pitta and vatadoshas. Katuvipaka on the other hand increases the overall metabolism in the body including the brain, helps in the absorption of nutrients, and neutralizes the complications of other drugs.

Pharmacological evaluation of Virya of drugs shows that Ushnavirya is dominating. Ushnavirya pacifies the vitiated vatadosha in the condition of speech impairment. At the same time ushnavirya also increases the blood circulation in the brain.

Kalyanleha and Speech Therapy effectively reduced the signs and symptoms of Speech impairment. The trial group and Control group provide highly significant relief (p<0.001) with 45.0% and 42.3% in stuttering episodes respectively. The trial group with 43.7% and Control group with 40.6% were significant in Duration of disfluency. In Physical concomitants trial group and control group were highly significant at 37.0% and 42.5% respectively. Concerning stuttering episodes & Duration of disfluency, Kalyanleha showed better results compared to Speech therapy while concerning Physical concomitant, Speech Therapy showed better results compared to Kalyanleha. It was observed that in both the groups patient were relieved of

symptoms of Speech Impairment within 21 days after the commencement of treatment.

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