STANDARDIZATION OF BINDU AS DROP W. S. R. PANCHENDRIYAVIVARDHNA TAILA

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ABSTRACT
Ayurveda is an ancient lifestyle practice which aims to create harmony within the human body, based on naturalistic approach. Nasya is one amongst the five shodhana karma. Sira is the site of eleven indriyas (Cognitive & Conative organ) and then occupies the first place in the list of vital organs. Hence Nasa should be chosen as the path to administer various drugs which are supposed to act over the structure of Sira. Keeping this in mind volatile, slightly water soluble and highly lipid soluble substance like Taila and Ghrita is used for Nasya.

Dose is a very important factor in any of the Panchakarma procedures to get optimum efficacy of the therapy. Bindu is the unit of measurement explained for the dose of Nasya. Bindu is not equal to drop as mentioned in classics that it is the quantity of Drava that dribbles down when the first two digits of index finger are dripped into it and taken out. In routine Ayurvedic practice one Bindu is considered as one drop (0.05ml), but according to the definition of Bindu and standardized quantity mentioned by Acharayas, it is 1 Shana which is ten times more than routinely practiced dose. So, in current attempt one pilot study was conducted in 10 subjects before starting the clinical trial on Cerebral Palsy in which Panchendriyavivardhna Taila was used for Nasya Karma in dose of 2 Bindu as Pratimarsa Nasya. Quantity of one Bindu for Panchendriyavivardhna Taila was 0.52ml.

KEYWORDS: Nasya, Panchendriyavivardhna Taila, Bindu, Cerebral Palsy.

INTRODUCTION
Cerebral palsy is the second commonest cause for the disability in children, making them physically, mentally and socially handicapped. Cerebral palsy (CP) is not a specific disease but it is a symptom complex. It is an umbrella term encompassing a group of non progressive, non contagious condition that causes motor impairment syndrome characterized by abnormalities of movement, posture and tone.\(^1\) In Ayurveda classics there is no exact description of the disease entity which exactly matches the feature of CP. Few conditions and diseases that have some similarity in etiopathogenesis and clinical presentation. Cerebral Palsy is huge burden of medical society, it is incurable debilitating condition. In this condition, Ayurvedic protocol of management can enhance the quality of life of the suffering child. It has been proved in earlier studies that Panchakarma therapy has a great role in the management of CP. It increases the muscular strength and nourishes the full body.

Nasya is one amongst the five shodhana karma. Sira is the site of eleven indriyas (cognitive & Conative organ) and then occupies the first place in the list of vital organs. Acc. to Aacharya Vagbhata.

Nasa hi sirso dwaram.\(^2\) Hence nasa should be choosen as the path to administer various drugs which are supposed to act over the structure of sira. Keeping this in mind volatile, slightly water soluble and highly lipid soluble substance like taila and ghrita is used for nasya.\(^3\) In classics dose of Nasya Procedure was in form of Bindu. Bindu is the unit of measurement for Drava Nasya medicine and it is defined as the quantity of Drava that dribbles down when the first two digits of index finger are dripped into it and taken out. In context of food\(^4\), Purifactory procedures\(^5\), medicine Acharyas Gave prime importance to dose. If dose is less we can’t get proper effect of medicine and if dose of medicine is more complications can occur. Change in dose can change the result. Acharya Charak has mentioned features of efficient medicine\(^6\), one of them is optimum dose. So, it is important to ensure efficient dose of medicine.

So, in current attempt one pilot study was conducted in 10 subjects before starting the clinical trial on Cerebral Palsy in which Panchendriyavivardhna Taila was used for Nasya Karma in dose of 2 Bindu. Quantity of one Bindu for Panchendriyavivardhna Taila was 0.52ml.
AIM
To standardize the dose of Bindu for Panchendriyavivardhna Taila.

MATERIAL AND METHOD
Material
Panchendriyavivardhna Taila.
Beaker.
Measuring 1ml syringe/pipette.

Method
Healthy subjects were recruited for the study. 10 clients were asked to immerse the two digits of index finger and total drops fallen after dipping, were counted separately and the average was calculated. Sum of each and every single drop which dribbles down from the first two parts of index finger is considered as one Bindu.

CLASSICAL CONCEPT OF BINDU IN NASYA
In the context of dose of Sneha Nasya the term Bindu was first coined by Acharya Sushruta. Only for Anutaila, Acharya Charaka mentioned the dose as ½ Pala. Other Acharyas used the term Bindu as the unit of measurement for any medicine in liquid form used for Nasya. Commentary of Arundatta on Bindu clears the doubt that not just the first drop is one Bindu, but it is the total quantity dribbling down from the index finger when immersed in the liquid should be considered as one Bindu.

CALCULATION
It is evident from the observations that the quantity of one Bindu may vary from person to person as the size of the index finger is different. The quantity of Bindu also varies according to the Drava dravya used for the Nasya. It would be practically convenient if standard or fixed quantity of one Bindu can be decided for any of the Drava dravya used for Nasya. Such an attempt of Standardization of Bindu for Nasya was at first successfully done by Acharya Sharangadhara in 14th century.

Acharya Sharangadhara calculated and cleared all the doubts by mentioning exact quantitative calculation of one Bindu as follows,
According to Sharangdhara:\n1 Shana = 4 Maasha.\n4 Maasha = 4 gm = 4ml (Ayurvedic Formulary of India).\nThus, 8 Bindu = 1 Shana = 4 ml.\n1 Bindu = 0.5 ml.\nAccording to Ayurvedic Formulary of India,\n1 drop = 0.05ml.\n10 drops = 0.5 ml\nFrom above explanation it can be stated that standardized quantity of one Bindu for Nasya is 0.5 ml (10 drops).

OBSERVATION AND RESULT
The study was conducted in 10 subjects to assess the quantity of one Bindu of Panchendriyavivardhna Taila. Following observations were made.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Measurement in ml</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>.4ml</td>
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<tr>
<td>2</td>
<td>.5ml</td>
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<td>3</td>
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</tr>
<tr>
<td>8</td>
<td>.4ml</td>
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<tr>
<td>9</td>
<td>.7ml</td>
</tr>
<tr>
<td>10</td>
<td>.6ml</td>
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</tbody>
</table>

Average 1Bindu =.52ml for Panchendriyavivardhna Taila

DISCUSSION
From the present pilot study, it is clear that dose for Nasya differs from person to person and for every Nasya medicine. But it is complex to count dose of Nasya for every age group. The dose of Sneha for Nasya can’t be fixed for each Sneha, as every Sneha (oil or ghee) has different viscosity. Hence, the dose standardization in form of Bindu for Taila will be different from other sneha and vice versa. So, for all patients amount of one Bindu will not be the same. One can now easily carry out Acharya Charaka’s way of dose explanation for Nasya.

CONCLUSION
Quantity of one Bindu for Panchendriyavivardhna Taila was 0.52 ml. It’s states that Bindu is not equivalent to drop. Routinely practiced dose is 10 times lesser when compared to classical dose. Measurement of Bindu should be defined in millilitre in standard literature so as to avoid the misinterpretation of quantity of Bindu. According to classics, Dose of Sneha for Nasya is taken as 2 Bindu, which is equal to 1ml (1Bindu=0.5ml) as per pilot study. So, 0.10 ml dose of Panchendriyavivardhna Taila was fixed to be administered in each nostril for clinical study on Cerebral Palsy.

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