

CO-RELATION OF ERYTHROCYTE SEDIMENTATION RATE IN SANDHIGATA VATA AFFECTING JANU SANDHI-A CROSS-SECTIONAL STUDY

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Abstract: Ayurveda is an alternative medicine system and the most ancient science of life which covers all the aspects of human being's health.¹ Ayurveda is the system of medicine which deals with physical, psychological as well as spiritual wellbeing.² Acharyas of Ayurveda have advocated certain fix lifestyle in their Samhitas. In modern era, there is a lot of changing in lifestyle and food habits, which creates several disharmonies in his biological system. The Tridosha theory of Ayurveda, explains about the physiological and pathologically traits Vata, Pitta and Kapha. The normal functions of the body are carried out by these three principles co-operating each other to maintain the positive health. Acharyas are explained the Vyadhi as Sandhigatanile with clinical sign and symptoms of Shotha (Oedema), Vatapurnadritisparsha (on palpation revealed as air filled bag) and pain with Prasarana and Akunchana (movement)^{3,4}. The description of Sandhigata Vata in the classical ayurvedic text is similar to the condition of Osteoarthritis in modern science. In old age, all Dhatus undergo Kshaya (degeneration), in this study total 69 patients having the complaints of Janusandhigata Vata were randomly enroll.

Keywords: Erythrocyte Sedimentation Rate, Sandhigata Vata, Janu Sandhi,

INTRODUCTION:

Sandhigata Vata is the common form of articular joint disorder. It is a type of Vatavyadhi which mainly occurs in old age due to Dhatushaya, which limits everyday activities such as walking, dressing, bathing etc. thus making patient disabled / handicapped. Its Vatavyadhi, found in Marmasthisandhi sthanagata (vital area of body) and its occurrence in old age makes it Kashtasadhya. The main feature of the disease is Shoola Pradhana Vedana (pain) associated with Sandhishotha and Vata Purna Druti Sparsha, lack of mobility of the joints or painful movement of the joints. In modern medical science correlate with medical Osteoarthritis, it is a chronic, progressive disease that causes deterioration of the joint cartilage and the formation of new bone (bone spurs) at the edges of the joints. Cartilage and synovial fluid are signify to provide a smooth, low-friction transition between the ends of bones. When cartilage loses its elasticity and wears down, joint gesture becomes less smooth. Eventually, cartilage can fully break down and the opposing bone ends rub together. This leads to joint pain that may be spasmodic or chronic, to stiffness in the morning and after rest, to small pieces of bone and fragments of cartilage in the remaining synovial fluid and to a loss of coordination, posture, and movability. Erythrocyte sedimentation rate is nonspecific test of evaluating disease.⁵ It is seldom used for diagnosis purpose but its use is limited to monitoring the prognosis of disease. Its value is raised in various condition, like inflammation, infection, metabolic diseases, autoimmune disorders etc.⁶ In various Ayurvedic texts classical symptoms of Sandhigata Vata affecting Janu Sandhi has been described and so many studies have been done so for but till now no such study on clinical relevance have been done.⁷ So, the current study is proposed to establish the relation between classically defined Sandhigata Vata affecting Janu Sandhi symptomatology with Erythrocyte Sedimentation Rate.⁸

AIM AND OBJECTIVES:

To assess the co-relation of Erythrocyte Sedimentation Rate in Sandhigata Vata affecting Janu sandhi.

MATERIALS AND METHODS:

- Study design: Single Centre, Cross-sectional study.
- Sample size: 69 Patients.
- Study setting: OPD and IPD of Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, Najafgarh, New Delhi.
- Study duration: The study was completed in six month.

ELIGIBILITY CRITERIA**INCLUSION CRITERIA**

1. Patient of age between 30-60 years.
2. Patients of either gender were selected.

EXCLUSION CRITERIA:

1. Patients with joint disorder other than *Sandhigata Vata* affecting *Janu Sandhi*.
2. Patients exposed to trauma on knee joint.
3. Patients with any other systemic disorders.
4. Pregnant women and lactating mothers.

CRITERIA FOR WITHDRAWAL: Patient who are not willing for trial.

STATISTICAL METHOD: Co-relation coefficients.

CLINICAL ASSESSMENT TABLE AS PER STANDARD SYMPTOMS SCORING**Subjective criteria:****1. Sandhishool**

No pain	0
Mild pain	1
Moderate pain but no difficulty in walking	2
Slight difficulty in walking due to pain	3
Much difficulty in walking due to pain	4

2. Sandhi-shotha

No Swelling	0
Slight Swelling	1
Moderate Swelling	2
Severe Swelling	3

3. Sandhi-sphutana (Atopa)

No Crepitus	0
Palpable Crepitus	1
Audible Crepitus	2

4. Akunchana Prasaranayoh Pravrettisch Savedana

No pain	0
Pain without winching of face	1
Pain with winching of face	2
Prevent complete flexion	3
Does not allow passive movement	4

5. Vatapurna-dhrtisparsha.

Absent	0
Present	1

Objective criteria:

ESR

Grading	Male	Female
0	< 15mm at the end of 01 hr	<20 mm at the end of 01 hr
1	16–25 mm at the end of 01 hr	21–30 mm at the end of 01 hr
2	26- 35 mm at the end of 01 hr	31- 40 mm at the end of 01 hr
3	>36 mm at the end of 01 hr	>41 mm at the end of 01 hr

Observation & Result:

Distribution of study subjective content according to chief complaint

Chief Complaint	Yes	No	Total
<i>Sandhi Shoola</i>	69	0	69
<i>Sandhi Sopha</i>	48	21	
<i>Akunchana Prasaranayoh Pravrettisch Savedana</i>	47	22	
<i>Atopa</i>	38	31	
<i>Vatapura Dhrutisparsha</i>	10	59	

INVESTIGATION		
ESR	Mean Value	46.73
	Grade 0	21 Patients
	1	15 Patients
	2	7 Patients
	3	26 Patients

Out of 69 patients was mean value of ESR is 46.73

CLINICAL ASSESSMENT - SUBJECTIVE CRITERIA WITH GRADING

<i>SANDHISHOOL (0-4)</i>	0	0
	1	26
	2	18
	3	13
	4	12
<i>SANDHI SHOTHA (0-3)</i>	0	22
	1	19
	2	13
	3	15
<i>SANDHI SPHUTANA (0-2)</i>	0	25
	1	34
	2	10
<i>AAKUNCHANA PRASARANAYOH PRAVRETTISCH SAVEDANA (0-4)</i>	0	24
	1	19
	2	13
	3	11
	4	2
<i>VATAPURANA DHRUTISPARSHA (0-1)</i>	0	63
	1	6

Correlation between ESR and different chief complaint of *Sandhi Shoola*

Source	Sum of Squares Ss	Degrees of Freedom df	Mean Square MS	F-Statistic	P-Value
<i>Sandhi Shoola</i>	30,018.7210	1	30,018.7210	12.6585	1.792e-05*
Error	90,634.5833	67	1,627.2326		
Total	120,653.3043	68			

*p-value<0.05 is significant.

F-statistic is correlation coefficient; p-value is significant value. Correlation is derived between ESR and different chief complaint of *Sandhi shoola* using Anova statistical analysis, and it was found to be statistically highly significant.

Correlation between ESR and different chief complaint of *Sandhi Sopha*

Descriptive statistics:

<i>Sandhi Sopha-</i>	NO	YES	Pooled /Total
observations N	21	48	69
sum $\sum x_i \sum x_i$	287.0000	2,938.0000	3,225.0000
mean \bar{x}	13.6667	61.2083	46.7391
sum of squares $\sum x_i^2 \sum x_i^2$	4,357.0000	277,030.0000	281,387.0000
sample variance s^2	21.7333	2,068.0833	1,921.3721
sample std. dev. Ss	4.6619	45.4762	43.8335
std. dev. of mean $SE \bar{x} = \frac{S}{\sqrt{n}}$	1.0173	6.5639	5.2769

One-way ANOVA:

Source	sum of squares SS	degrees of freedom vv	mean square MS	F statistic	p-value
<i>Sandhi Sopha</i>	33,018.7210	1	33,018.7210	22.6585	1.0732e-05*
Error	97,634.5833	67	1,457.2326		
Total	130,653.3043	68			

*p-value<0.05 is significant

Correlation is derived between esr and different chief complaint of *sandhi sopha* using anova statistical analysis, and it was found to be statistically highly significant.

Correlation between ESR and different chief complaint of *Akunchana prasaranayoh Pravrettisch Savedana*

Descriptive statistics:

<i>Akunchana prasaranayoh Pravrettisch Savedana</i>	NO	YES	Pooled Total
observations N	22	47	69
sum $\sum x_i \sum x_i$	303.0000	2,922.0000	3,225.0000
mean \bar{x}	13.7727	62.1702	46.7391
sum of squares $\sum x_i^2 \sum x_i^2$	4,613.0000	276,774.0000	281,387.0000
sample variance s^2	20.9459	2,067.6660	1,921.3721
sample std. dev. Ss	4.5767	45.4716	43.8335
std. dev. of mean $SE \bar{x} = \frac{S}{\sqrt{n}}$	0.9757	6.6327	5.2769

One-way ANOVA

Source	sum of squares SS	degrees of freedom vv	mean square MS	F statistic	p-value
<i>Akunchana prasaranayoh Pravrettisch Savedana</i>	35,100.8024	1	35,100.8024	24.6122	5.0701e-06*
Error	95,552.5019	67	1,426.1567		
Total	130,653.3043	68			

Correlation is derived between ESR and different chief complaint of *Akunchana prasaranayoh Pravrettisch Savedana*. Using Anova statistical analysis and it was found to be statistically highly significant.

Correlation of ESR with different chief complaint of *Vatapurna Dhrutisparsha*.

Descriptive statistics:

<i>Vatapurna Dhrutisparsha</i>	NO	YES	Pooled Total
observations N	59	10	69
sum $\sum x_i \sum x_i$	2,489.0000	736.0000	3,225.0000
mean \bar{x}	42.1864	73.6000	46.7391
sum of squares $\sum x_i^2 \sum x_i^2$	197,907.0000	83,480.0000	281,387.0000
sample variance s^2	1,601.8095	3,256.7111	1,921.3721
sample std. dev. Ss	40.0226	57.0676	43.8335
std. dev. of mean $SE \bar{x}$	5.2105	18.0464	5.2769

One-way ANOVA:

Source	sum of squares SS	degrees of freedom vv	Mean square MS	F statistic	p-value
<i>Vatapurna dhrutisparsha</i>	8,437.9552	1	8,437.9552	4.6258	0.0351*
Error	122,215.3492	67	1,824.1097		
Total	130,653.3043	68			

*p-value<0.05 is significant

Correlation is derived between esr and different chief complaint of *Vatapurna dhrutisparsha*. Using Anova statistical analysis, and it was found to be statistically highly significant.

DISCUSSION

Sandhigata Vata is inflammatory degeneration of joint cartilage and the underlying bone, most common from middle age onward. It causes pain and stiffness, especially in the weight bearing joints. Inflammation in underlying tissues may cause raised ESR in *Sandhigata Vata* affecting *Janu sandhi*. In this study observed that ESR was raised in the patients with acute pain. The level of ESR was more elevated in females compared to men because inflammatory changes were more in them. The symptoms like *Sandhi Soola*, *Sandhi Sopha*, *Vatapurna Dhrutisparsha*, *Akunchana Prasaranayoh Pravrettisch*, *Atopa* are found more commonly in females. This is because of more intake of *Vataja Ahara Vihara*. Also due to house hold works they generally follow *Vishmashana*, *Alpashana* etc which along with causing *Vata* and *Asthi Dhatu* vitiation, vitiates *Agni* too.

In this part, various finding will be discusses under following headings -

1. Discussion on Demographic.
2. Discussion on Erythrocyte Sedimentation Rate.
3. Discussion on Result.

DISCUSSION ON RESULT –

Correlation between ESR and different chief complaint of *Sandhi Shoola*

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CONCLUSION

Following conclusions were carried out from the present cross sectional study which was conducted on 69 patients of *Janusandhigata Vata Vyadhi-*

- *Sandhigata Vata* can be correlated with Osteoarthritis (OA) on the basis of similarity in the clinical presentation of symptoms.
- Correlation is derived between ESR and chief complaint of, *Sandhi Shoola, Sandhi Sopha, Akunchana Prasaranayoh Pravrettisch Savedana, Atopa* and *Vatapurna Dhruvisparsha* using ANOVA statistical analysis and it was found to be statistically highly significant.
- Mostly patients were found with knee joint swelling and got their ESR increased.

Results of this study show the importance of ESR Test in diagnosed cases of *Janu Sandhigatavata*.

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