



STUDY OF ARTAVAVAHA SROTAS W.S.R. TO MADHUMEHA

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ABSTRACT

Ayurveda is a practical science that deals with physiological and pathological status of human being. Ancient prophet of Ayurveda have classified the elements of the body under three fundamental components *Dosa*, *Dhatu* and *Mala*, they are basics of Ayurveda.^[1] Entire body physiology functions according to *Dosh*, *Dhatu*, and *Mala* so, for achieving Ayurveda's *Prayojana Dosh*, *Dhatu*, *Mala* needs to be *Prakrut*. Therefore as being *Vaidya* it is our responsibility to watch for *Prakrutavastha* of *Dosh*, *Dhatu*, *Updhatu*, *Mala* & every aspect related to these that is *Koshth*, *Srotas*, *Agni*, etc. *Madhumeha* is one of the leading diseases found in India. It is a very complex disease in which there are many *dushyas* were *Artav Upadhatu* is one of them. On the basis of classical signs and symptoms of *Madhumeha* and *Artavavaha Srotas Dushti Lakshanas*, *Artav Kshaya* and *Vruddhi Lakshanas*, USG finding in 30 diabetic (single group) subjects were observed. Our study indicated that *Artavavaha Srotas* is definitely got vitiated in patients suffering from *Madhumeha*. *Artav Updhatu* shows significantly reduced both qualitatively as well as quantitatively in *Madhumeha*.

KEYWORDS: *Updhatu*, *Madhumeha*, *Artavavaha Srotas*, *Kshaya*, *Vruddhi*.

INTRODUCTION

The living body is the resultant of aggregation of innumerable structures called *Srotas*. *Srotamsi* of pleural from of *Srotas*, which mean minute individual cells that is *Anu Srotas* and it also mean different organ system that is *Sthula Srotas*. The word etymologically derived from the Sanskrit root *Stu- Stravane Dhatu* which has different meanings – exudation, oozing, filtration, to flow, to move etc. According to *Charakacharya Srotas* is a structure through which *Sravanam* occurs. Manifestation of a disease occurs in the body as a result of the defective *Srotas*. Hence, any defect of *Srotas* must be corrected quickly, for the restoration of normal health. *Sushrutacharya* has described eleven pairs of *Srotas* same as *Charakacharya* but he has left out *Ashivaha*, *Majjavaha* and *Swedavaha* and included *Artavavaha Srotas*.^[2]

आर्तववहेव्देतयोमूलमगर्भाशयआर्तवाहिन्यश्चधमन्यः ।

तत्रविध्दायां वन्ध्यत्वमैथुनासहिष्णुत्वमार्तवनाश्च ॥ सु. शा. ९/१२

Artavavaha Srotas are two in number, having roots in *Garbhashaya* and *Artavavahi Dhamanis* and are responsible to carry the *Artava*. Injury to these produces *Vandhyatva* (*Infertility*), *Maithuna Asahishnuta* (*dyspareunia*) and *Artavanasha* (*Amenorrhea*). The word

Artava denotes two meanings one of them is *Antah Pushpa* and another one is *Bahir Pushpa*. Both *Antah Pushpa* and *Bahir Pushpa* are interrelated. *Bahir Pushpa* is outward manifestation of appropriate work of *Antah Pushpa* which is necessary for conception. Here, the present studies deal with *Bahir Pushpa* that is Menstrual Blood.^[3]

रक्तलक्षणमार्तवगर्भकृच्च । सु.सू. १५/१९

The *Artav* (menstrual blood) is endowed with the same properties as its arterial namesake, and is one of the essential factor in a women which makes impregnation possible. The fetus or impregnated matter (*Garbha*) serves to make patent the features characteristic of pregnancy.^[4]

Now a day's *Madhumeha* is most common and annoying disease. As it is said *Asadhya* by *Acharya's* observing changes in *Artavavaha Srotas* due to *Madhumeha* will be helpful for *Chikitsa* also. For that we can also observe the *Artavavaha Srotas* and *Artav*.

Madhumeha could be correlated with Diabetes mellitus type 2. The insulin / insulin like growth factor (IGF) Pathways and glucose metabolism act as mediators of human ovarian function and female fertility. In normal insulin action, insulin binds to its own receptors in the

ovary to mediate steroidogenesis and act as a gonadotropin. Insulin with other factors may influence ovarian growth and cyst formation. The IGF pathway also seems to influence normal ovarian function. Insulin signaling affects reproductive function. Deregulation of this pathway leads to altered puberty, ovulation, and fertility.

According to the World Health Organization (WHO) 2018 report, the number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014. The global prevalence of diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. Diabetes prevalence has been rising more rapidly in middle and low income countries. In 2016, an estimated 1.6 million deaths were directly caused by diabetes. Another 2.2 million deaths were attributable to high blood glucose in 2012. Healthy diet, regular physical activity, maintaining a normal body weight and avoiding tobacco use are ways to prevent of type 2 diabetes.^[5]

Considering *Madhumeha* is *Vataj* type of *Prameha* which majorly causes *Ojokshaya*.^[6] As *Oja* is nothing but *Prakrut Kapha*.^[7], there is Naturally *Kshaya* of *Kapha* also which further causes *Rasa Kshaya*.^[8] Even *Dushyasangraha* of *Madhumeha* includes *Rasa Dhatu*.^[11] *Artava* is *Updhatu* of *Rasa*^[9] definitely there is a some vitiations in *Artavavaha Srotas* also.

AIMS AND OBJECTIVES

The present study aimed that studying the *Artavavaha Srotas*, *Artav Updhatu* in patients suffering from *Madhumeha*. To achieve the objectives were, to review the assessment of *Artavavaha Srotas* w.s.r. to *Madhumeha*.

MATERIALS

- Classical sign and symptoms of *Madhumeha*.
- Classical *Lakshanas* of *Artavavaha Srotas Dushti*, *Artava Kshaya-Vridhhi*.
- Investigations according to Ayurvedic and Modern parameters.

METHODS

Patients had classical signs and symptoms of *Madhumeha* was selected for the study from O.P.D. and I.P.D. of our Hospital, of age group 30 years to 50 years only female patients. The known cases of *Madhumeha* female patients were subjected for the study.

Single group study – 30 diabetic patients

INCLUSIVE CRITERIA

1. Age – Patients between ages of 30 – 50 years.
2. Gender – Only female Patients will be selected on the basis of classical signs & Symptoms of *Madhumeha*.
3. Female Patients having hyperglycemia confirmed by laboratory investigation.
4. All Patients of Type 2 Diabetes mellitus. Know case of DM at list 2 years ago.

EXCLUSIVE CRITERIA

1. Age of female patient less than 30 years and more than 50 years.
2. Person suffering from any severe systemic diseases.
3. Chronic complications will be discarded e.g. Retinopathy, Nephropathy etc.
4. Patient having a Fasting blood sugar > 250 & Post Prandial Blood Sugar > 350

INVESTIGATIONS

- 1) CBC
- 2) Blood Sugar level - a. Fasting
b. Post prandial
- 3) Urine examination - a. Routine examination
b. Microscopic examination
- 4) USG of pelvis

METHOD OF DATA COLLECTION

Criteria for Diagnosis of *Madhumeha* by classical sign & symptoms:

1) Subjective Parameters

Prabhutnutrata (Polyuria)
Avilmutrata (Turbidity in urine)
Pipasaadhikya (Polydipsia)
Kshudaadhika (polyphagia / Increase in appetite)
Karpadasuptata (Numbness in palm and foot)
Swedaadhikya (Excessive perspiration)
Daurbalya (Weakness)
Alasya (General debility)

According to sign and symptoms of *Madhumeha* is correlated with DM. So according to modern science criteria for Diagnosis of *Madhumeha*, by WHO is followed

- Above Sign & Symptoms of *Madhumeha*
- Patients having random blood sugar level > 200 mg/dl.
- Fasting Blood Sugar > 126 mg/dl or
- Post Prandial Blood Sugar > 200 mg/dl.

Artav Upadhatu Parikshan

2) Objective parameters

a. *Artavavaha Srotas Dushti*Table no. 1: Criteria for Diagnosis of *Artavavaha Srotas Dushti* by classical sign & Symptoms.

Sr. N	Lakshana	Questions	Answer	Grades
1.	<i>Aartavanasha</i> (Amenorrhoea)	Are you suffering from amenorrhoea?	0 No 1 Since 3 months 2 Since 4 months 3 More than 4 months	
2.	<i>Maithuna</i> <i>Asahishnuta</i> (Difficulty in sex)	Do you have difficulty during coitus?	0 No 1 Yes	
3.	<i>Vandhyatva</i> (Infertility)	How many children do you have and after how many years of marriage?	0 No infertility 1 Primary infertility 2 Secondary infertility	

b. *Artavakshaya*Table no. 2: Criteria for Diagnosis of *Artavakshaya* by clinical sign & symptoms.

Sr. N	Lakshana	Questions	Answer	Grades
1.	<i>Yathochitkala</i> <i>Adarshanam</i> (Irregular menses)	Do you have monthly menstruation every month?	0 Yes 1 prehend menses (less than 24 days) 2 Postponed menses (more than 32 days)	
2.	<i>Alpata</i> (Scanty menstruation)	Is your menstrual bleeding reduced? Amount of blood loss is---/per day	0 Two pads 1 One 2 Only spotting	
		Duration of blood flow is--	0 In between 3 to 7 days 1 Two days 2 One day	
3.	<i>Yonivedana</i> (Pain in vagina)	Do you have pain at vaginal site?	0 No 1 During menses 2 Before menses 3 After menses	

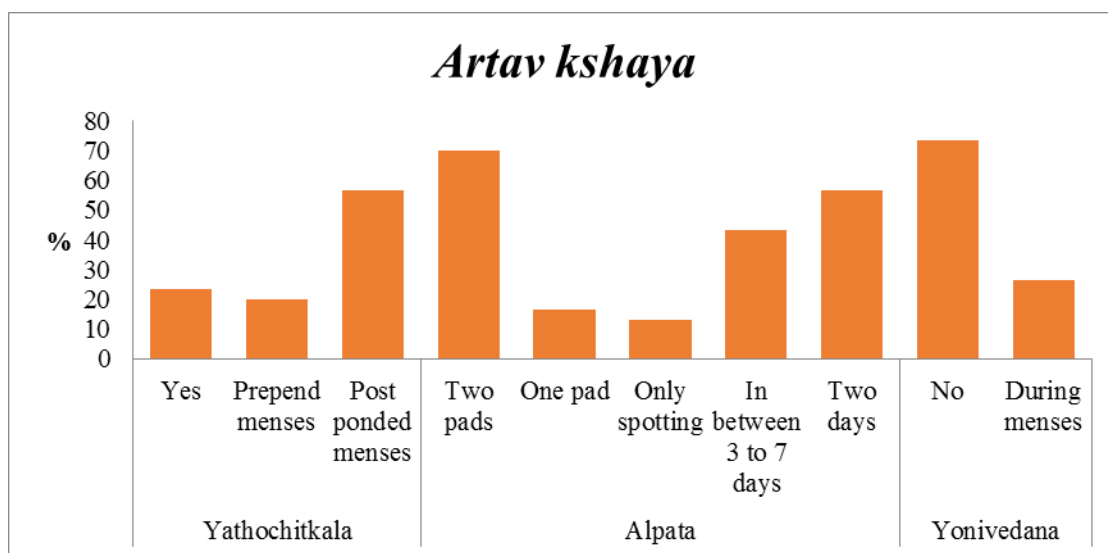
c. *Artavavruddhi*Table no. 3: Criteria for Diagnosis of *Artavavruddhi* by clinical sign & symptoms.

Sr. N	Lakshana	Questions	Answer	Grades
1.	<i>Aangmarda</i> (Body ache)	Do you have body ache?	0 No 1 During menses 2 Before menses 3 After menses	
2.	<i>Aatipravrutti</i> (Over menstrual flow)	Is your quantity of menstrual bleeding increased? Amount of blood loss is ---/per day	0 Two pads 1 three pads 2 Four pads 3 More than 5 pads	
		Duration of blood flow is ---	0 In between 3 to 7 days 1 Eight days 2 Nine days 3 More than 10 days	
3.	<i>Daurgandhya</i> (Foul smelling)	Is the menstrual flow foul smelling?	0 No 1 Yes	

- *Artav Kshaya* Symptoms wise distribution

Table no. 4: *Artav Kshaya*.

Lakshana	Information	Response	No. of females	Percentage	Test statistic	P value
<i>Yathochitala Adarshanam</i>	Monthly menstruation every month	Yes	07	23.3	$X^2=7.4, DF=2,$	P<0.01
		Prepend menses	06	20.0		
		Post ponded menses	17	56.7		
<i>Alpata</i>	Amount of blood loss/day	Two pads	21	70.0	$X^2=18.2, DF=2,$	P<0.01
		One pad	05	16.7		
		Only spotting	04	13.3		
	Duration of blood flow	In between 3 to 7 days	13	43.3	$X^2=0.53, DF=1,$	P>0.05
Two days		17	56.7			
<i>Yonivedana</i>	Pain at vaginal site	No	22	73.3	$X^2=26.53, DF=1,$	P<0.01
		During menses	08	26.7		

Figure no. 1: *Artav Kshaya* Symptoms wise distribution.

In *Yathochitkala Adarshanam lakshana* post ponded menses is found to significantly high in females (P<0.01) while in *Alpata lakshana* amount of blood loss per day is about two pads is found to be highly significantly (P<0.01).

In *Yonivedana lakshana* females found to have no pain on vaginal site which is statistically highly significant (P<0.01).

- *Artav Vruddhi* symptoms wise distribution

Table no. 5: *Artav Vruddhi*.

Lakshana	Information	Response	No. of females	Percentage	Test statistic	P value
<i>Aangmarda</i>	Have Body ache	No	13	43.3	$X^2=12.6, DF=2,$	P<0.01
		During menses	16	53.3		
		Before menses	01	3.3		
<i>Aatipravrutti</i>	Amount of blood loss/day	Two pads	26	86.7	$X^2=38.6, DF=2,$	P<0.01
		Three pads	03	10.0		
		Four pads	01	3.3		
	Duration of blood flow	In between 3 to 7 days	26	86.7	$X^2=38.6, DF=2,$	P<0.01
		Eight days	03	10.0		
		Nine days	01	3.3		
<i>Daurgandhya</i>	Menstrual flow foul smelling	No	29	96.7	$X^2=26.1, DF=1,$	P<0.01
		Yes	01	3.3		

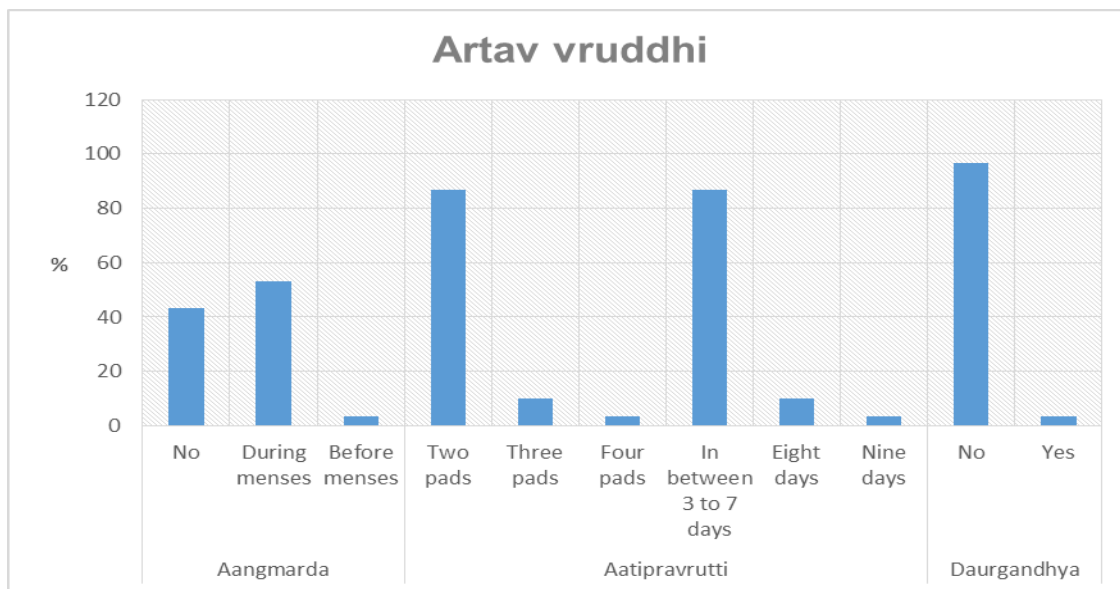


Figure no. 2: Artav Vruddhi symptoms wise distribution.

In *Aangmarda lakshana* females found to have body ache during menses which is statistically highly significant ($P < 0.01$) and in *Aatipravrutti lakshana*, duration of blood flow is in between 3 to 7 days and amount of blood loss per day is about two pads is found to have statistically highly significant ($P < 0.01$).

While in *Daurgandhya lakshana*, during menstrual flow foul no smelling is found to have highly significant in females ($P < 0.01$).

• Artavavaha Srotas Dushti symptoms wise distribution

Table no. 6: Artavavaha Srotas Dushti.

Lakshana	Information	Response	No. of females	Percentage	Test statistic	P value
Artav Adarshanam	Suffering from amenorrhea	No	13	43.3	$X^2=0.53, DF=1,$	$P > 0.05$
		Since 3 months	17	56.7		
Maithuna Asahishnuta	Difficulty during coitus	No	24	80.0	$X^2=10.8, DF=1,$	$P < 0.01$
		Yes	06	20.0		
Vandhyatya	No. of children have	No infertility	28	93.3	$X^2=22.53, DF=1,$	$P < 0.01$
		Primary infertility	02	06.7		

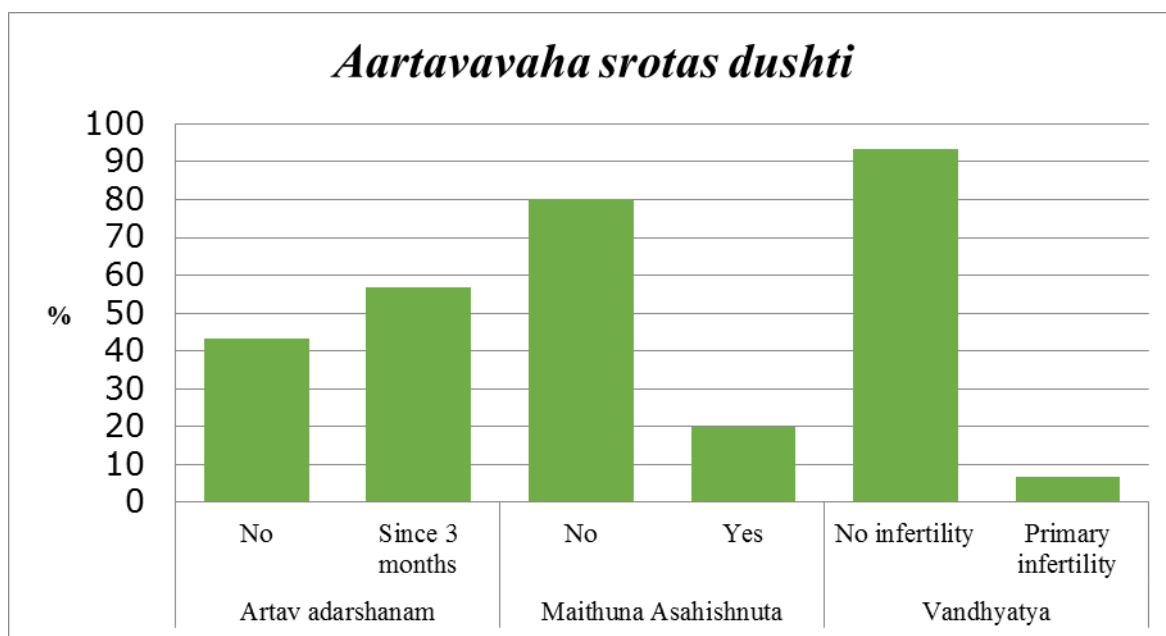


Figure no. 3: Artavavaha Srotas Dushti symptoms wise distribution.

In *Artav adarshanam lakshana*, some females do not suffering from amenorrhea while some female suffering since three months this difference is statistically not significant ($P>0.05$).

In *Maithuna Asahishnuta lakshana*, there is no difficulty during coitus which is statistically highly significant ($P<0.01$) and also in *Vandhyatya lakshana* no infertility in females is found to have highly significant ($P<0.01$).

- **USG finding wise distribution**

Table no. 7: USG finding of females.

Sr. No.	USG finding	No. of females	Percentage	Test statistic	P value
1.	Polycystic Ovarian Disease	17	56.7	Chi square test = 14.64, DF=2 Highly significant	P<0.01
2.	Ovarian Cyst	01	3.3		
3.	Endometriosis	02	6.7		
4.	Leiomyoma	02	6.7		
5.	Fibroid	01	3.3		
6.	Bulky Uterus	01	3.3		
7.	Normal	06	20.0		
	Total	30	100.0		

The present study shows that maximum number of patients i.e. 56.7% had PCOD, 13.4% had endometriosis

and leiomyoma, 9.9% had Ovarian cyst, bulky uterus and Fibroid.

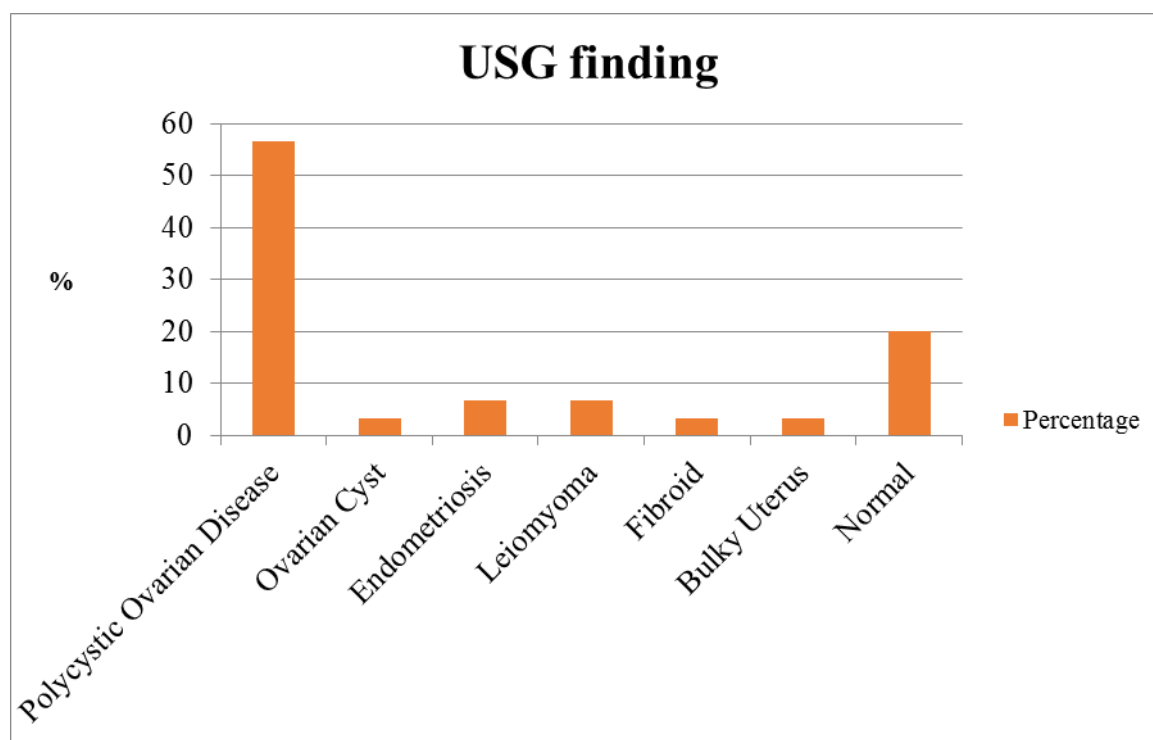


Figure no. 4: USG finding wise distribution.

Polycystic Ovarian Disease is most common in females which is statistically highly significant than other diseases ($p<0.01$).

STATISTICAL ANALYSIS

This study was aimed to study the *Artav* and *Artavavaha Srotas* in patients suffering from *Madhumeha*. *Artav Kshaya* symptoms, *Artav Vriddhi* symptoms, *Artavavaha Srotas Dushti* symptoms and USG findings was done in all 30 patients.

Ho – There is no vitiation in *Artavavaha Srotas* of patients suffering from *Madhumeha*.
i.e Ho is null hypothesis

H1 – *Artavavaha Srotas* is get vitiated in patients suffering from *Madhumeha*.

i.e H1 is alternative hypothesis

Further to find the vitiation of *Artavavaha Srotas* in 30 individual patient's chisquare test (χ^2) to the quantitative data was applied.

INTERPRETATION

There is significant difference in *Artavavaha Srotas* i.e. *Artav Kshaya* Symptoms i.e. *Yathochitkala Adarshanam* specifically post pond menses and *Alpata* specifically two days bleeding has seen than *Artav Vriddhi* Symptoms. Mostly Amenorrhea was seen in *Artav vaha*

Srotas Dushti symptoms and PCOD has seen in USG findings. We should reject the null hypothesis H₀ and accept the alternate hypothesis H₁ i.e. *Artavavaha Srotas* is get vitiated in patients suffering from *Madhumeha*.

DISCUSSION

In our Ayurveda *Madhumeha* is a type of *Vataj Prameha* and various *Dushyas* described in *Prameha* are *Rasa*, *Rakta*, *Mansa*, *Meda*, *Majja*, *Shukra*, *Kleda*, *Lasika* and *Oja*. *Artavavaha Srotas* is responsible for reproduction. Therefore vitiation of *Artavavaha Srotas* leads to Amenorrhea, PCOD, primary infertility and impotency in the patient of *Madhumeha*. *Acharya Sushruta* has also mentioned that *Vyana* and *Apana* are the causative factors for *Artavavaha Srotas* and *Madhumeha*.

In *Madhumeha Rasa Dhatu* is get vitiated. Main place of *Artavavaha Srotas* is *Garbhashaya* (Uterus) and its main function is *Garbha-uthpadana* i.e. reproduction. The secretion of *Artav* (Menstrual blood flow) is the main function of *Artavavaha Srotas*. *Artav* is also consider as *Streebheej* (ovum).

Causes of vitiation of *Artav*, *Artavavaha Srotas* in *Madhumeha* are remarkable

1. *Rasa Dhatu* is one of the *Dushya* in *Madhumeha*. *Artav* is an *Upadhatu* of *Rasa*. Due to vitiation in *Rasa Dhatu*, the *Artav* is indirectly vitiated. Thus vitiation in *Artav* is represented by *Artav Kshaya* i.e. irregular menses (*Yathochitkalam Adharshanam*), decrease menstruation bleeding (*Alpata*) and infertility (*Vandhyatva*).
2. Since, *Madhumeha* is a type of *Vataj Prameha* there is vitiation in *Apana Vayu*. The main function of *Apana Vayu* is *Artav Nishkraman* (proper secretion of menstrual blood flow) it's get disturbed. This leads to vitiation in *Artav* and *Artavavaha Srotas*.
3. Considering *Madhumeha* is *Vataj* type of *Prameha* which majorly causes *Ojokshaya*. As *Oja* is nothing but *Prakrut Kapha*, there is Naturally *Kshaya* of *Kapha* also which further causes *Rasa Kshaya*. Even *Dushyasangraha* of *Madhumeha* includes *Rasa Dhatu*. *Artava* is *Updhatu* of *Rasa* definitely there is a some vitiations in *Artavavaha Srotas*.

CONCLUSION

The study entitled "Study of *Artavavaha Srotas* W.S.R. to *Madhumeha*" was undertaken for study. Following conclusions are drawn-

- In present study maximum i.e. 47% of patients were from age group 40-44, so probably Diabetes affects the middle aged group people living a sedentary life and unhealthy lifestyle.
- In this study, 60% patients having positive family history these plays an important role and also in *Ayurvedic* text *Madhumeha* was mentioned as *Kulaj Vikara*.
- Patients having Diabetes history for minimum 5 years shows maximum symptoms of *Artavavaha Srotas Dushti* specially *Artav Kshaya*. Out of 30

diabetic patients shows 56.7% postponed menses, 20% preponed menses, 53.3% body ache during menses and 57% amenorrhea since 3 month.

- There is no significant difference in Ayurvedic parameters of *Artav Vruddhi Lakshanas*.
- The present study shows that maximum number of patients i.e. 56.7% had PCOD.

Our study indicated that *Artavavaha Srotas* is definitely got vitiated in patients suffering from *Madhumeha*. *Artav Updhatu* shows significantly reduced both qualitatively as well as quantitatively in *Madhumeha*.

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