IJAYUSH
International Journal of AYUSH
AYURVEDA, YOGA, UNANI, SIDDHA AND HOMEOPATHY
http://internationaljournal.org.in/journal/index.php/ijayush/

International Journal
Panacea
Research library
ISSN: 2349 7025

Original Research Article | Volume 12 Issue 3 | May-June 2023

AMH VALUE IS JUST A NUMBER, NOT A CRITERIA FOR CONCEPTION: A CASE STUDY

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ABSTRACT

Women of reproductive age are frequently exposed to physical, physiological and psychological stress that may affect the reproductive health. Due to this stress, it may have negative effects on ovaries and oocytes. Oocyte apoptosis may deplete ovarian germ cells and reduce oocyte quality after ovulation and it directly affecting the reproductive outcomes also.

The antimullerian hormone is produced by the granulosa cells surrounding each oocyte in the developing ovarian follicle. Many studies demonstrated that AMH levels decline across the reproductive life span. Measuring the AMH level thus very quickly became a part of a basic infertility workup. But now a days AMH is not as a important factor for conception because AMH levels seemed to vary when repeated in the same patient. Young patients with low AMH levels have been shown to have a fairly good chance of getting pregnant naturally.

In this case study, patient aged 34 years with marital life of 8 years came to the opd with the complaints of anxious to conceive since 7 years who has low AMH value got conceived through the ayurvedic management. We administered *Dashamoola ksheera basti, Uttarabasti* for 3 days and 3 months oral medicines given as shamanoushadhis.

Key words: - AMH, Infertility, Uttarabasti, Shamanoushadi

INTRODUCTION:

Anti mullerian hormone, also known as mullerian inhibiting hormone, is a glycoprotein hormone structurally related to inhibin and activin from the transforming growth factor beta superfamily. This hormone is produced by the granulosa cells of primordial follicles(<6mm). It causes mullerian duct regression during male sexual differentiation. AMH levels are indicative for the size of the growing follicle pool and considered as marker of ovarian aging. Hence decline in AMH levels may be the earliest marker of ovarian aging. There is strong correlation of serum AMH levels with AFC (Antral follicle count). Similarly, AMH is marker of ovarian responsiveness in women undergoing treatment for infertility. It helps to predict outcome of IVF (in vitro fertilization) procedure.

Pregnancy is very precious and joyful moment in every woman's life. But now a days infertility rate is more, because it is not a physically disabling disorder has far reaching psychological and social consequences. A woman with low AMH has poor success rate in IVF and the couple is left with the only option of IVF with the donor egg.

Because of decreasing ovarian reserve, female fertility starts to decline from the early twenties. Many women are facing with unexpected fertility problems. The rate at which the ovarian reserve declines varies greatly among women. Women with PCOS are known to have an excessive amount of preantral and small antral follicles in the ovaries and to have increased plasma AMH concentrations. The major inhibitory role of AMH during folliculogenesis may contribute to anovulation in PCOS. The reason for raised AMH in PCOS women is still unknown and it might give clues concerning the mechanism of anovulation in PCOS

In *Ayurveda,* with the help of *Shamana, Shodhana* and *Rasayana* treatment, we are able to improve the quality of the ovum in low AMH women, can balance the hormones and help to correct the ovarian response to those hormones. Some of the common ayurvedic medicines like *Shatapushpa choorna, Shatavari choorna, Dadimadi ghrita, Sukumara kasaya, Amruta prasha ghrita, Nagakesara choorna* etc will help to improve the AMH level and help to increase the chance of pregnancy.

AIMS AND OBJECTIVES

To know the efficacy of ayurvedic medicine to improve the ovarian reserve.

To know how ayurvedic management is helping for infertile women who has low AMH value.

CASE REPORT

A female patient aged 34 years with marital life of 8 years came to the opd of *Prasuti tantra* and *Stree roga*, S.S.C.A.S.R.& H. Bengaluru with the complaints of anxious to conceive since 7 years.

PERSONAL HISTORY

Diet: vegetarian (weekly once junk food)

Sleep: 8 hours

Appetite: normal

Bowel: 1-2 times per day (no constipation).

Micturition: 4-5 times per day

Habits: nil

MENSTRUAL HISTORY:

Age of menarche: 13 years

Lmp:25/10/2022

Flow: 3-4 days

D1- 2 pads (70% soakage)

D2- 3 pads (80% soakage)

D3- 2 pads (40-50% soakage)

D4- 1 pad (spotting)

Interval: 30-35 days

Pain: present on D1 and D2 over lower abdomen and thighs.

Clots: absent

Colour: dark reddish

Obstetric history: P0A0L0D0

SAMSTHANIKA PAREEKSHA (SYSTEMIC EXAMINATION)

CVS- S1 S2 heard, no murmer, sound heard.

RS- NVBS heard, no added sound.

CNS- patient is well oriented to time, place and person.

INVESTIGATIONS

Blood test (hormonal assay) dated on 6/11/22

LH-37.14mIU/ml

FSH-52.06mIU/ml

AMH-0.13Ng/ml

ESTRADIOL (E2)- 25.2 pg/ml

TSH- 2.25uIU/ml

DIAGNOSIS: *Apraja vandhyatva*

TREATMENT

Treatment planned	Medicines	Duration
Yoga basti	*Dashamoola ksheera basti* *Niruha basti* with *[Dashamoola ksheera kasaya*-250ml *Mahanarayana taila*-80ml *Shatapushpa kalka*-20gm *Madhu*-50ml *Saindhava*-10gm*]*	5 days

	Anuvasana basti with *mahanarayana taila*- 60 ml	
Uttara basti	*Shatapushpa taila* – 5ml	3 days
Internal medicines given	*Amrutha prasha ghrita* 1tsp BD (before food) *Nagakesara choorna + pippali churna* 1tsp BD with hot water (After food) Tab. Aloes compound 1TID (After food) *Sukumara kasaya* 2tsp BD with equal water. (Before food)	3 months

FOLLOW UP

After 3 months patient came for the follow up with the UPT test positive. Her LMP was on 03/01/2023.

INVESTIGATION

Early pregnancy scan dated on 21/02/2023

A single intra uterine gestation corresponding to 5-6 weeks

Yolk sac present.

DISCUSSION:

Anti mullerian hormone is critical for physiologic involution of the mullerian ducts during sexual differentiation in the male fetus. In women, AMH is a product of the small antral follicles in the ovaries and serves to function as an autocrine and paracrine regulate of follicular maturation. It is produced by the granulosa cells surrounding each oocyte in the developing ovarian follicle. The causes for low AMH are age, hormonal disorders, stress, vit D deficiency, unhealthy habits like alcohol or smoking, autoimmune attack on ovaries and other environment causes.

Our ayurvedic treatment not only focus on the level of hormones, but also to improve the health of reproductive and endocrine system. The signs and symptoms of low AMH person can be compared to *Dhatukshayajanya vandhyatva* or *Rajohina vandhyatva*. *Artava* is the *Upadhatu* from the *Rasa dhathu*. We can correlate *Artava* as menstrual blood, ovum and all hormones or components related to menstruation. *Rasa dhatu* majorly nourishes the *Rakta dhatu* and it nourishes the *Artava* in small proportion and in slow time. So, it takes long one month for the *Artava* to get properly nurtured and get manifested during monthly periods. When there is *Kshaya* for *Rasadhatu* due to *Agni mandhya* or by other factors, the *Artava upadhatu kshaya* also occur. Thus anovulation, *Artava kshaya* or *Vandhyatva* occur in women. If we correct the *Rasa dhatu* level, automatically the *Artava* dhatu level also corrected and helps for conception. With ayurvedic management, conception is possible in low AMH women also.

The ayurvedic treatment protocol including the improvement of *Agni, Shamana , Shodhana* and *Rasayana* therapies were helpful for conception. All these treatment helps to improve the quality of ovum, balances the hormones and correct the ovarian responses to those hormones. With *Shamanoushadhis*, we can improve the metabolisms, balance the doshas and improve hormonal balance. Special treatments like *Uttara basti* and *Yoni pichu* also can be used for the treatment to improve AMH and fertility. Some common ayurvedic medicines like *Shatapushpa choorna*, *Shatavari choorna, Dadimadi ghrita, Ashwagandha choorna, Saraswatharista* etc will help to increase the chance of pregnancy in low AMH women.

Mode of action of *Basti*

Dashamoola kasaya is mainly *Tridosha hara* and having effect on various dhatus like *Rasa, Rakta* etc. *Basti* stimulates the enteric nervous system which generates the stimulatory signals for CNS which causes stimulation of hypothalamus for GnRH and the pituitary for LH and FSH with the help of neurotransmitters. It also stimulate para sympathetic nerve supply which is responsible for *Apana vayu* activity helps for the release of ovum from the follicles in the ovary.

Uttara basti is one among the *Basti* given in *Uttaramarga* and it helps in balancing *Vata dosha*. It is one of the potent *Chikitsa* for *Vandhyatva*. This procedure will help to stimulate

the secretion of mucus in cervical region and it helps for the movement of sperms after receving the *Brumhana* drugs. It helps in rejuvenating the endometrium lining and balances the processes of reproductive system like ovulation.

In *kasayapa Samhita*, he mentioned that *Shatapushpa* is good for *Artavakshaya* and *Kashtartava* with *Anupana* of *Go ghrita*. It is having *Katu, Tikta rasa, Laghu- Teekshna guna, Ushna veerya* and it will increase the *Pitta*. It act as *Vrushya* and *Agni deepana*. According to *Sushruta, Artava* is *Agneya*. So, *Shatapushpa* due to its *Ushna , Teekshna* quality it will increase the *Artava* or it will help to produce good quality of ovum for conception. Similarly, it is having *Brumhaniya* properties also so it will increase the *Bala* of the patient.

Amrutaprasha ghrita is having *Madura ,Snigdha* and *Brimhana guna*. It act as *Rasayana* and *Putradha*. it helps to improve strength and fertility. It will balance the *Vata* and *Pitta*. Similarly, it will help to regulate the hormonal balance. Almost all ingredients in this *Ghrita* is having the property of aphrodisiac and rejuvenating.

Nagakesara choorna is having *Kasaya, Tikta rasa, Laghu, Teekshna guna* mainly used as a styptic. It is used in the treatment of female infertility. It has proven effect in regularizing the menstrual cycle. It is having antioxidant, hepatoprotective, immunostimulant action. *Pippali* is also having *Katu rasa, Laghu-Teekshna guna* and *Maduravipaka* properties it balances *Kapha* and *Pitta doshas*. It is *Deepana, Rasayana, Vrushya* action.

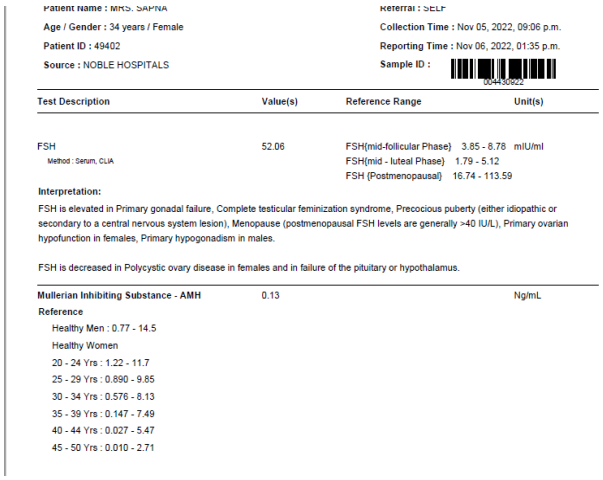
Tab. Aloes compound is a non hormonal medicine that helps to regulate menstrual cycles, stimulate ovulation and promote overall health. It contain *Kumari* and it is a natural estrogen hormone regulator that is beneficial in the treatment of menstrual irregularity. This tablet ensures proper quality and quantity of cervical mucous and it enhances receptivity for conception upto 50-60%.

Sukumara kasaya is useful in case of delayed periods associated with PCOS and prolonged menstrual cycles. It acts as *Yoni rogahara, Vrishya, Vajikarana, Pushtidayaka* and *Sarvakalopayogi.* It is having antistress and estrogenic properties so it promotes conception if taken regularly.

CONCLUSION

Now a days, infertility problems are increasing due to mismanagement in lifestyle. In modern system of medicine, they won't try and give medicines to increase the quality of ovum. Instead of that, they will send the low AMH patients for assisted reproductive technique like IVF and those women have poor success rate in IVF and the couple is left with the only option of IVF with the donor egg. Ayurvedic management include both *Shodhana* and *Shamana* therapies and it enhances the body systems participating in the process of fertilization and helps for conception normally in low AMH women. But still more clinical studies are required to know how ayurvedic management will helpful in conception with low AMH value.

BEFORE TREATMENT – AMH VALUE



Patient Name : MRS. SAPNA — Referral : SELF
Age / Gender : 34 years / Female — Collection Time : Nov 05, 2022, 09:06 p.m.
Patient ID : 49402 — Reporting Time : Nov 06, 2022, 01:35 p.m.
Source : NOBLE HOSPITALS — Sample ID :

Test Description	Value(s)	Reference Range	Unit(s)
FSH Method : Serum, CLIA	52.06	FSH(mid-follicular Phase) 3.85 - 8.78 FSH(mid - luteal Phase) 1.79 - 5.12 FSH (Postmenopausal) 16.74 - 113.59	mIU/ml

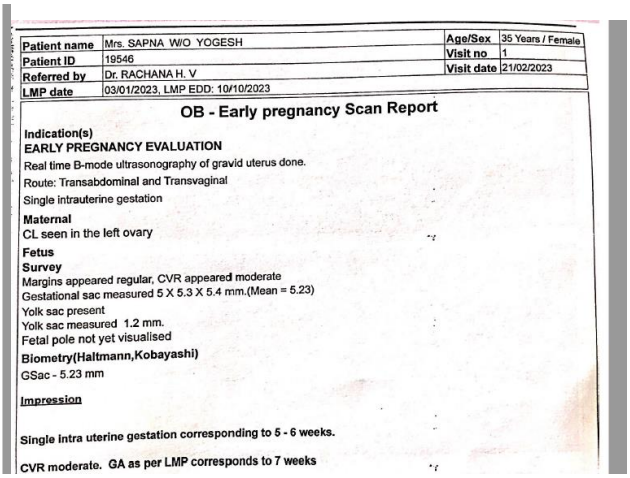
Interpretation:
FSH is elevated in Primary gonadal failure, Complete testicular feminization syndrome, Precocious puberty (either idiopathic or secondary to a central nervous system lesion), Menopause (postmenopausal FSH levels are generally >40 IU/L), Primary ovarian hypofunction in females, Primary hypogonadism in males.

FSH is decreased in Polycystic ovary disease in females and in failure of the pituitary or hypothalamus.

Mullerian Inhibiting Substance - AMH	0.13		Ng/mL

Reference
Healthy Men : 0.77 - 14.5
Healthy Women
20 - 24 Yrs : 1.22 - 11.7
25 - 29 Yrs : 0.890 - 9.85
30 - 34 Yrs : 0.576 - 8.13
35 - 39 Yrs : 0.147 - 7.49
40 - 44 Yrs : 0.027 - 5.47
45 - 50 Yrs : 0.010 - 2.71

AFTER TREATMENT- EARLY PREGNANCY SCAN



Patient name	Mrs. SAPNA W/O YOGESH	Age/Sex	35 Years / Female
Patient ID	19546	Visit no	1
Referred by	Dr. RACHANA H. V	Visit date	21/02/2023
LMP date	03/01/2023, LMP EDD: 10/10/2023		

OB - Early pregnancy Scan Report

Indication(s)
EARLY PREGNANCY EVALUATION
Real time B-mode ultrasonography of gravid uterus done.
Route: Transabdominal and Transvaginal
Single intrauterine gestation
Maternal
CL seen in the left ovary
Fetus
Survey
Margins appeared regular, CVR appeared moderate
Gestational sac measured 5 X 5.3 X 5.4 mm.(Mean = 5.23)
Yolk sac present
Yolk sac measured 1.2 mm.
Fetal pole not yet visualised
Biometry(Haltmann,Kobayashi)
GSac - 5.23 mm

Impression

Single intra uterine gestation corresponding to 5 - 6 weeks.

CVR moderate. GA as per LMP corresponds to 7 weeks

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