

RANDOMISED, STANDARD CONTROL CLINICAL TRIAL -TO STUDY THE EFFICACY OF MADHUMALINIVASANT ON UPAVISHTAK

Dr. Kadam Sujata

HOD Department of Streerog and Prasutitantra, Tilak Ayurved Mahavidyalaya, Pune, Maharashtra, India

ABSTRACT

Upvishtak is one of the *Garbhavyapadas* where fetal growth gets restricted. In modern science this condition is stated as intrauterine growth restriction i.e. IUGR which has many neonatal and adulthood complications. Still all are searching for effective remedy on it. In *phalashruti* of *Madhumalanivasant* the drug is said to be *Garbhavidhhikar*. The ingredients of *Madhumalanivasant* are *Hingul*, *Marich*, *Priyangu*, *Shathi*, hen's eggs, *Nimbuka* and *Dadhimras*. They have all are *madhura*, *Jeevaniya*, *bruhaneeya* drugs having the properties required for the treatment of *Upvishtak*; it is easily available, palatable.

Clinical study was done on 101 diagnosed IUGR patients divided in two groups. Assessment parameters were Weight of the patient, Height of the uterus in cm, USG, Other associated symptoms, mode of delivery, gestational age at the time of delivery, & Weight of the baby. Conclusions found at the end of the study were- There is significant increase in weight of mother and height of uterus with *Madhumalini-Vasant* as compared to control group. Weight of the fetus is significantly increases with *Madhumalini-vasant* over control group. *Madhumalinivasat* is found effective treatment in IUGR.

Keywords: *IUGR, Upvishtak, Fetal growth, Fetal nutrition.*

INTRODUCTION:

Upvishtak is one of the *Garbhavyapadas* where fetal growth gets restricted¹. In modern science this condition is stated as intrauterine growth restriction i.e. IUGR. The incidence in India is 15-20%². It is seen that IUGR babies leads to increased neonatal mortality and morbidity. Incidence of IUD and still births increases with IUGR. The IUGR babies suffers from certain problems like hypoglycemia, hypothermia, micro-coagulation, DIC, pulmonary hemorrhage etc. Which needs intensive care and it is very expensive. Also with this the chances of delayed complications like delayed de-

velopmental milestones, mental retardation and cardiovascular problems in adulthood increases with IUGR.³ Lot of research work is going on worldwide to have effective solution on such a great problem. Aware of all above facts it was decided to work on *Upvishtak*.

While describing treatment of *Upvishtak* Ayurvedic classics have emphasized on drugs having *jeevaniya*, *Bruhaniya*, *Vataghna* properties, drugs having *Madhura* and *Vipak*, use of *amgarbh* (hen's egg) and *srotovikasidravayas*. The ingredients of *Madhumalanivasant*(MMV) are *Hingul*, *Marich*, *Priyangu*, *Shathi*, hen's eggs, *Nimbuka*

and *Dadhimras*.⁴ They have all the properties required for the treatment of *Upvishtak*; it is easily available, palatable and cost effective also. So it was decided to assess the efficacy of *MMV* on *Upvishtak*.

AIM: To assess the efficacy of *MMV* in *Upvishtak*.

OBJECTIVES:

1. To review the available Ayurved literature on *upvishtak* its correlation with IUGR.
2. Assess the effect of *MMV* on maternal well-being.
3. Assess the side effects of *MMV* if any.

MATERIALS & METHODOLOGY:-

Drug preparation & standardization- All the ingredients of the drug were collected from genuine source and were authenticated with the help of experts.

Contents of the drug are-*Hingul – Deepan, Rasayan, Sukshmasrotogamitwa, Dadim – is Pittashamak, Raktavardhak, Deepan and Hridya, Priyangu – Tridoshaghna, Rakta-prasadan, Deepan and Anuloman, Kachora – Deepan, Pachan, Anuloman, Marich – It is potent Deepak, Suksmasrotogami and laghu, Snehapachan, Pramathidravya, Nimburas – Deepan, Pachan, Anuloman. Hen's egg – Bruhan, Balya, Snidha*.⁵

All raw material standardization was done as per WHO guidelines. Parameters found within normal limits of API. Tablets of 125 mg. of *MMV* were prepared according to given in *Rasachandachujwaradhikar* & according to GMP norms and standardized for Hardness, Disintegration etc. done at IDRAL.

Cap. Amino acids. BD Amino acids are the standard available treatment to improve fetal bulk.^{6,7}

Clinical study: - NOC from Institutional Ethical Committee was obtained before conducting the study. Study conducted at Streerog – Prasutitantra Dept. of Seth Tarachand Ramanath Hospital, Rastha Peth, Pune. 11. On 101 diagnosed IUGR cases. Patients enrolled on following inclusion & exclusion criteria.

Inclusion criteria–Diagnosed patients of IUGR with the help of ultrasound were selected irrespective of age, caste, religion, economical status, parity and gravidity with no weight gain in successive two weeks of pregnancy & Fundal height of uterus is less than the period of amenorrhea. (Minimum difference of 2 week)

Exclusion criteria–Pregnancy with Diabetes, severe Anemia (Hb% < 7gm%), PIH, Eclampsia, Twin Pregnancy, Rh incompatibility & whose gestational age above 35 weeks.

Investigations–Investigations done were Haemogram, Blood group, BSL – F – PP, VDRL, HIV, Sr. proteins, Urine ®, USG (obstetric).

Grouping:- 101 patients of *Upavishtak* from outdoor and indoor department were selected for clinical trials and divided into two groups by lottery method.

Study Group - 50 patients-treated with Tab. *MMV*. 125 mg. BD early in the morning and at bed time with water.

Control Group - 51 Patients – treated with Cap. Amino acids. BD

Regular ANC treatment (i.e. Iron & calcium supplementation supplied by government) continued to both the groups.

Two cases dropped out from control group.

Duration: - Treatment started on the diagnosis of *Upvishtak* and continued up to delivery.

Assessment parameters

Detail history & examination done with case record pro forma prepared for the study including through clinical and ANC examination. Informed consent form was prepared & assigned before starting of the treatment.

1. Weight of the patient.
2. Height of the uterus in cm.
3. USG for diagnosis and after 1 month of treatment.
4. Other associated symptoms, mode of delivery and gestational age at delivery were noted.
5. Weight of the baby.

Patient assessed every 7th day and records kept up to the delivery.

Statistics adopted: - t test and z test analysis is done by SPSS version 10 software.

RESULTS: Results found during study:- Incidence of IUGR was more in 29 – 34 weeks of amenorrhea i. e. 60.39%. Incidence of IUGR found was mainly seen between age group of 20 – 25 yrs., about 57.26 % cases belongs to this group. Average increase in weight of the patient is 0.33 Kg in control group and 0.4 kg in study group. 'P' value is significant. It is found that patients of *Vatapradhanprakruti* are more prone for IUGR. Incidence of *Upvishtak* is mainly seen in primigravida patients in both study groups. 45.54 % cases are primigravida. Percentage of secondgravid is 33.66 %.(**Table no. 1**). Total average time period for which the treatment is given for both the groups is six weeks. (**Table no. 2**). Increase in height of the uterus per week is 0.86 cms in control group while in Trial group 1.08 cms which is highly significant (**Table no. 3**) Increase in gestational age by USG done after one month of treatment is 2.95 weeks in control group and 3.34 weeks

in study group. P value is significant which shows there is significant increase in gestational age in trial group i.e. group 1(**Table no. 4**) Gestational age at delivery is 38 weeks in group I and 37 weeks in group II.(**Table no. 5**). 68 cases delivered normally, 25 cases with LSCS, majority of them were with previous LSCS (19). 3 cases have preterm delivery and 3 cases delivered with preterm LSCS. Mean birth weight of baby in control group is 2330 gms and in study group it is 2676 gms. Comparison of both groups shows very significant result in Trial group P value is <0.0001(**Table no. 6**). After treatment the rise in Hemoglobin is highly significant in both the groups. After treatment the rise in serum protein level is significant in both the groups but in group I it is highly significant.(**Table no.7**). Symptoms like *Agnimandya*, *Adhman*, *Urodaha*, *Udarshool*, *Malavshambha*, *Dravmal*, and *Katishool* were decreased in study group after treatment while in control group some symptoms like *Adhman*, *Urodaha*, *Malavshambha*, and *Dravmal* were increased in some percent. Total three neonate's required NICU management. Two patients required preterm induction due to Oligohydramnios and IUGR in control group. Oligohydramnios was present in total 48.45% cases, in control group it was increased in 4% cases. Etiological factors found in study are stale food dry and spicy foods, late night sleep, sleep during day time, *vegadharan*, over exertion mental stress and *rajksheenata* In study group's 11 cases have history of abortion and 8 cases have history of neonatal deaths, still birth in previous pregnancies. Any side effects were not found during study (**Table no.8**).

DISCUSSION-

Upvishtak occurs in *Mahati-Sanjatsar-garbha* that is in late second or third trimester. *Upvishtak*, *garbhashosh*, *Nagodar*, (*Upshushkak*)^{8,9,10} these are the resembling conditions which can be correlated with intra uterine growth restriction.

As the dietary factors are most important for the foetal growth, the dietary regimen should be followed meticulously during pregnancy. Physician must emphasize on proper diet and behavioral habits of the patient during pregnancy to reduce *Upvishtak*. Mental stress & strain should be avoided during pregnancy.

Prenatal counseling & checking is necessary to avoid *Upvishtak*. Problems like *rajksheenata* or any other disorder should be treated in pre – pregnant state.

Screening of at risk patients should be done & preventive measures should be taken to reduce *Upvishtak*. *Vatapradhanprakrutipatients* found more prone for IUGR. For *poshan* and *pushtikaphapradhanata*, *snigdha*, *shlakshna*, *sthira* and *sandraguna* of *Kapha* are required. In *Vatapradhanprakruti* patients due to lack of above *gunas* and excessive *ruksha*, *tanu*, *chala* and *shighraguna* of *Vata* these patients are *apachitsharir* and more prone for *Upavishtak*. *Vatapradhan* patients are more prone as *Upvishtak* occurs due to vitiation of *Vata*. *Rutu*, *Kshetra*, *Ambuand Beeja* are four essential factors required for *garbhanirmiti* and *garbhaposhan*. Any defect in one or more factors can cause abortions, IUD or IUGR. In study groups total 11 cases are having previous history of abortion and 8 cases have history of IUD or neonatal death, so disorders in these factors should be treated in pre-pregnant state.

Upvishtak is the condition occurring in *Mahati-Sanjatsar-garbha*, maximum cases are found in between group 29 - 34 weeks of pregnancy. *Garbhavruddhikar* effect of *MMV* is mainly seen with the USG done after 1 month. Average gestational age at delivery is increased with *MMV* this may be due to *garbhashayabalya* effect of the drug. There is no significant difference in mode of delivery in both the group.

Average baby weight is 2676.3 gms in trial group shows the *garbhavruddhikar* effect of *MMV*. In cases where IUGR occurs at early trimester the weight gain of babies found less. In cases where mental stress was more weight gain of fetus is less.

Probable mode of action of drug: -

Agnideepan, *pachan* and *rasadhatwagnivardhan* → *Sar-rasdhatuutpatti*.

Raktaprasadan and *Hridiya* → Proper *rasvikshepan*.

Sukshmastrotogamitwa, *Pramathi* → Increases *upsnehan* in *Apara* and *Garbhanabhinadi*.

Krimighna → Prevents uterine and vaginal infection.

Artavajanan → Increases uterine circulation.

Amagarbha (hen's egg) → Like improves like → *Garbhavrudhi*. With all its content *MMV* is effective in *garbhavruddhi*.

CONCLUSION

weight of mother and height of uterus increases significantly with *MMV* in IUGR cases. Weight of the fetus is significantly increases with *MMV*. *MMV* is proved as effective medicine in treatment of *Upvishtak* that is IUGR.

REFERENCES

1. *AhtangaSamgraha - InduTika* edited by A.D.Athawale, Published by *Atreyaprakashan*– 1980.
2. Textbook of obstetrics neonatology & reproductive & child health education 16th edition by C.S. Dawn.
3. William’s obstetrics by Garry Cunningham, Norman F. Gant, Kenneth J. Leveno, Larry C. Gilstrap, John C. Hauth, Vatharine D. Wenstrom, 21st edition.
4. *RasRatnaSamucchaya* with ‘*Rasprabha*’ Commentary by Dr. IndradevaTripathi, published by *Chaukhambha Sanskrit Sansthan* Varanasi, 3rd edition 2006.
5. *Bhavprakashaby Bhavmishrapublished Chaukhambha Sanskrit Sansthan*– 5th edition.
6. IUGR – The role of amino acids supplementation – J. obstetGynecol Ind. Vol. 54, No. 3, May/June 2004 Pg. 243 – 245.
7. Amniotic fluid Amino acids are modified by maternal dietary glucose, Gestational age & fetal growth – Christine N. Gurekian& Kristine G. Kuski – The American society for Nutritional sciences. J. Nutr. 135: 2219 – 2224, Sept. 2005.
8. CharakSamhita – Shri chakrapaniduttakrutaAyurveddepika published by Ashtanga Hridaya by Vagbhata with the commentary SarvangaSundara by Arundatta& Ayurveda Rasayan by Hemadri published by PandurangjajawajiNirayasagara press 1939.
9. SushrutaSamhita with Nibandhasanagraha Commentary of Shri Dalhana-charya, Chaukhambaorientalia – 8th edition

Table 1: Gravida wise distribution of cases in study groups

Gravida	Gr. I (%)	Gr. II (%)	Total (%)
1	17 (16.83)	29 (28.71)	46 (45.54)
2	22 (21.78)	12 (11.88)	34 (33.66)
3	8 (7.92)	7 (6.93)	15 (14.85)
4	0 (0)	3 (2.97)	3 (2.97)
5	2 (1.98)	0 (0)	2 (1.98)
6	1 (0.99)	0 (0)	1 (0.99)
Total	50 (49.50)	51 (50.49)	101 (100)

Parameters	Gr. I (n=50)	Gr. II (n=49)	Z Value	P Value
	(Mean ± SD)	(Mean ± SD)		
Treatment for no of weeks	6.67 ± 2.95	6.32 ± 2.9	0.60	>0.05

Table 2: Comparison of Mean Treatment for no of weeks in study groups

Table 3: Increase in Height of Uterus per week in study groups

Height of Uterus (Cms)	Gr. I (n=50)	Gr. II (n=49)	Z Value	P Value
	(Mean ± SD)	(Mean ± SD)		

	1.08 ± 0.35	0.86 ± 0.27	3.51	<0.001
--	-------------	-------------	------	--------

Table 4: Increase Gestational Age by USG after one month in study groups

Gestational Age by USG after one month	Gr. I (n=42) (Mean ± SD)	Gr. II (n=42) (Mean ± SD)	Z Value	P Value
	3.34 ± 1.05	2.95 ± 0.93	1.96	<0.05

Table 5: Comparison of Mean Gestation at delivery in study groups

Parameters	Gr. I (n=50) (Mean ± SD)	Gr. II (n=51) (Mean ± SD)	Z Value	P Value
Gestation at delivery	38.51 ± 1.07	37.87 ± 1.31	2.69	<0.01

Table 6: Comparison of Mean Birth weight of baby in study groups

Parameters	Gr. I (n=50) (Mean ± SD)	Gr. II (n=49) (Mean ± SD)	Z Value	P Value
Birth weight (gms)	2676.3 ± 251.44	2330 ± 320.58	6.05	<0.0001

Table 7: Comparison of Mean Serum Protein before and after treatment in study groups

Serum Protein (gm%)	Gr. I (n=50) (Mean ± SD)	Gr. II (n=49) (Mean ± SD)	Z Value	P Value
Before	6.50 ± 0.45	6.47 ± 0.47	0.27	>0.05
After	6.90 ± 0.40	6.67 ± 0.35	2.98	<0.001
't' Value	8.11	4.86		
P-Value	<0.0001	<0.001		

Table 8: Symptoms wise distribution of cases before and after treatment in study groups

Symptoms	Gr. I (n=50)		Gr. II (n=49)	
	Before (%)	After (%)	Before (%)	After (%)
Agnimandya	13 (26)	6 (12)	11 (22.45)	9 (18.37)
Adhman	7 (14)	2 (4)	5 (10.20)	16 (32.65)
Urodana	7 (14)	2 (4)	6 (12.24)	7 (14.29)
Udarshool	5 (10)	2 (4)	6 (12.24)	5 (10.20)
Malavstambu	3 (6)	0 (0)	5 (10.20)	7 (14.29)
Dravmal	4 (8)	0 (0)	3 (6.12)	5 (10.20)
Katishool	12 (24)	4 (8)	7 (14.29)	4 (8.16)

CORRESPONDING AUTHOR

Dr. Sujata D. Kadam

HOD PG Department of Streerog and Prasutitantra,
Tilak Ayurved Mahavidyalaya, Pune, Maharashtra, India