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## Full Length Research Article

### THERAPEUTIC EVALUATION OF DRESSING WITH *YASHTIMADHU GHRIT* IN POSTOPERATIVE WOUND FOR ANALGESIC EFFECT

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#### ABSTRACT

Pain creates uneasiness in human, compel him to rest. Postoperative pain can cause restlessness & that's why many times damage to suturing material, wound dehiscence causing incisional hernia or recurrent hernia. There are many methods to relieve pain like psycho prophylactic preparation, use of nerve blocks, continuous epidural analgesia and spinal opioids in major operatives. In postoperative period many times parenteral and oral analgesics are used which includes NSAIDS, morphin derivatives and central pain inhibitors. These drugs may cause side effects and hypersensitivity reactions. Sushruta, the father of surgery, mentioned *Yashtimadhu ghrith* for local use to get pain relief. So the study was carried out to get any alternative and cost effective management for pain relief which will have less or no any side effect. The results obtained are very encouraging. *Yashtimadhu* and *ghrit* both are very easily available around us and could be easily used without any fear of side effect.

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#### INTRODUCTION

Pain is a protective mechanism of body (Cassy, 1973). Pain can be defined as psychological adjunct to an imperative reflex (Sherrington, 1979). The incidence of postoperative pain varies with the individual patient. But it is largely governed by the site & nature of operation. In the history of modern medicine there are some references such as, since Stone Age man was looking for pain relief methods and using them with success, partially or completely. Operation like trephening of skull is well documented in California, India, Arab, Africa, Mexico natives 7000 yrs ago. Sushruta was doing surgery using herbal fumes to reduce pain & also advocated many herbs to relieve pain. In India, the knowledge of herbal medicine reached its zenith in that period. Above reference shows that, Ayurveda is being a mile stone in the progress of modern medicine.

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Sushruta is regarded as the father of surgery. Surgery is one of the advanced branch of modern medical science possess its roots in *Ayurveda*. It is basically known as *Shalyatantra* a branch of *ashtang Ayurveda*. According to *Sushruta* the postoperative pain is due to vitiation of *Vata dosha* caused by blood loss during operative procedure. All other *acharya* also supported this, so it naturally goes that the treatment is alleviation of *Vata*. In this regard, *Sushruta* advocated *Yashtimadhu Ghrith parishek* in postoperative wound as a pain relieving remedy.

Similar remedy is advocated in *Ashtangasangraha*, *Ashtangahridya*, *Chakradatta*, *Yogaratanakara*, *Bhaishajya-Ratnavali* for operative wounds as well as accidental injuries. It's need of present time to find effective economical procedure to relieve postoperative pain with minimum side effects; it would be in the form of first line treatment or as an adjuvant therapy. The main aim of this work is to see efficacy of *Yashtimadhu Ghrith* w.s.r. to postoperative pain.

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## MATERIALS AND METHODS

### Material

- Yashtimadhu Ghrit
- Dry Gauze
- Dressing Materials

All above material was used after Autoclaved.

### Methods

#### Type of study

Open randomized clinical control trial which will contain two groups

**Sample size** 50 patients in each group

**Group A-** Experimental group for dressing with Yashtimadhu Ghrit Gauze,

**Group B-** Control group for dressing with dry gauze.

#### Inclusive criteria

- All patients of both sexes having age group between 15 to 60 yrs.
- All operated patients of surgical OPD & IPD of Govt. Ayurved Hospital, Osmanabad
- All patients who have history of side effects of analgesics medicines like nausea, vomiting, hypersensitivity etc

#### Exclusive criteria

- Non co operative patients.
- Very hypersensitive patients
- Patients having DM, TB, Leprosy, Malignancy etc
- Infected incised wounds like drained abscess etc

#### Criteria for evaluation of PAIN

Grade 0	Patient has no pain
Grade 1	Patient has pain but not requires analgesic
Grade 1+	Patient has pain & relieve only after taking Analgesics
Grade 2+	Patient has pain even after taking analgesic

#### Study procedure

- Yashtimadhu Ghrit is prepared
- Random selection of patient was done
- Complete clinical & physical assessment of patient done along with routine investigation
- Patient operated as per surgical problem
- In group A dressing with gauze soaked in warm Yashtimadhu Ghrit was done, where as in group B dressing with dry gauze done.
- Follow up of patient of both groups was taken at 0,1,2,4,6,12,18,24 hours and pain gradation noted as mentioned above.

#### Preparation of Yashtimadhu Ghrit

*Yashtimadhu Ghrit* was prepared by using principles of *Snehapaka Kalpana* as described in the *Shharangadhar*

*Samhita. Snehapaka Kalpana* is a procedure in which active principles of any medicinal drug with *sneha dravya* (e.g. ghee, oil) by boiling the decoction of the drug with the *sneha dravya*. Therefore the *siddha sneha* maintains the properties of both *sneha* as well as the medicinal drug.

## RESULTS

This study was conducted on 100 patients of either sex belonging to age group of 15 to 60 yrs. All were operated for routine surgical procedures under local anaesthesia. The patients were randomly divided in two groups with 50 patients in each group. The drug under study was locally applied at postoperative wound just after operative procedure in the form of soaked gauze in group A & only dry gauze applied in group B. the intensity of pain was monitored at stipulated time intervals. During the study following are the observations & results of statistical tests applied to clinical data.

**Table 2. baseline pain parameter in both groups (i.e. pain at 0 hr.)**

Pain gradation	Group A		Group B	
	n	%	n	%
Grade 0	49	98	43	86
Grade 1	1	02	7	14
Grade 1+	0	00	0	00
Grade 2+	0	00	0	00
Total	50	100	50	100

**Table 3. Pearson Chi-Square Test to data of pain at 0 hr**

Chi-square	4.891
Df	1
Sig.	0.027

Chi-square test value at 0 hr is  $P < 0.05$ . At 0 hr, there was no pain in subjects 98% of group A & 86 % of group B. 14% patients of Group B had pain but not required the analgesic. Here, the difference was found to be statistically significant  $P < 0.05$ .

**Table 4. Pain parameter in each group at 1<sup>st</sup> hr**

Pain gradation	Group A		Group B	
	n	%	n	%
Grade 0	49	98	36	72
Grade 1	1	02	13	26
Grade 1+	0	00	1	02
Grade 2+	0	00	0	00
Total	50	100	50	100

**Table 5. Pearson chi-square test to data of pain at 1<sup>st</sup> hr**

Chi-square	13.274
Df	2
Sig.	.001

At 1<sup>st</sup> hr, there was no pain in patients of 98% of Group A & 72% of Group B. But 26% of the Group B subjects complain of pain without requirement of analgesic & 2% were having pain which was relieved by analgesic. This difference is statistically significant  $P < 0.05$ .

**Table 5. pain parameter in each group at 2<sup>nd</sup> hr**

Pain at 2 <sup>nd</sup> hr				
Pain gradation	Group A		Group B	
	n	%	n	%
Grade 0	48	96	33	66
Grade 1	2	04	16	32
Grade 1+	0	00	1	02
Grade 2+	0	00	0	00
Total	50	100	50	100

**Table 6 . Pearson chi-square test to data of pain at 2<sup>nd</sup> hr**

Chi-square	14.667
Df	2
Sig.	0.001

At 2<sup>nd</sup> hr, there was no pain in patients of 96% of Group A & 66% of Group B. But 32% of the Group B subjects complain of pain without requirement of analgesic & 2% were having pain which was relieved by analgesic. This difference is statistically significant  $P < 0.05$ .

**Table 7. Pain parameter in each group at 4<sup>th</sup> hr**

Pain at 4 <sup>th</sup> hr				
Pain gradation	Group A		Group B	
	n	%	n	%
Grade 0	48	96	33	66
Grade 1	2	04	16	32
Grade 1+	0	00	1	02
Grade 2+	0	00	0	00
Total	50	100	50	100

**Table 8. Pearson chi-square test to data of pain at 4<sup>th</sup> hr**

Chi-square	14.667
Df	2
Sig.	0.001

At 4<sup>th</sup> hr, there was no pain in patients of 96% of Group A & 66% of Group B. But 32% of the Group B subjects complain of pain without requirement of analgesic & 2% were having pain which was relieved by analgesic. This difference is statistically significant  $P < 0.05$ .

**Table 9. Pain parameter in each group at 6<sup>th</sup> hr**

Pain at 6 <sup>th</sup> hr				
Pain gradation	Group A		Group B	
	n	%	n	%
Grade 0	44	88	22	44
Grade 1	5	10	23	46
Grade 1+	1	02	5	10
Grade 2+	0	00	0	00
Total	50	100	50	100

**Table 10. Pearson chi-square test to data of pain at 6<sup>th</sup> hr**

Chi-square	21.571
Df	2
Sig.	0.0001

At 6<sup>th</sup> hr, there was no pain in patients of 88% of Group A & 44% of Group B. But 46% of the Group B and 10% of Group A subjects complain of pain without requirement of analgesic. Like that 10% of Group B & 2% of Group A were having pain

which was relieved only by analgesic. This difference is statistically significant  $P < 0.05$

**Table 11. Pain parameter in each group at 12<sup>th</sup> hr**

Pain at 12 <sup>th</sup> hr:				
Pain gradation	Group A		Group B	
	n	%	n	%
Grade 0	41	82	19	38
Grade 1	7	14	26	52
Grade 1+	2	04	5	05
Grade 2+	0	00	0	00
Total	50	100	50	100

**Table 12. Pearson chi-square test to data of pain at 12<sup>th</sup> hr**

Chi-square	20.292
Df	2
Sig.	0.0001

At 12<sup>th</sup> hr, there was no pain in patients of 82% of Group A & 38% of Group B. But 52% of Group B and 14% of Group A subjects complain of pain without requirement of analgesic. Like that 10% of Group B and 4% of Group A were having pain which was relieved by analgesic. This difference is statistically significant  $P < 0.05$ .

**Table 14. pain parameter in each group at 18<sup>th</sup> hr**

Pain at 18 <sup>th</sup> hr:				
Pain gradation	Group A		Group B	
	n	%	n	%
Grade 0	34	68	17	34
Grade 1	16	32	32	64
Grade 1+	0	00	1	02
Grade 2+	0	00	0	00
Total	50	100	50	100

**Table no 15. Pearson chi-square test to data of pain at 18<sup>th</sup> hr**

Chi-square	12.000
Df	2
Sig.	0.002

At 18<sup>th</sup> hr, there was no pain in patients of 68% of Group A & 34% of Group B. But 64% of the Group B & 32% of Group A subjects complain of pain without requirement of analgesic. Like that 2% of Group B was having pain which was relieved by analgesic. This difference is statistically significant  $P < 0.05$

**Table 16. Pain parameter in each group at 24<sup>th</sup> hr**

Pain at 24 <sup>th</sup> hr:				
Pain gradation	Group A		Group B	
	n	%	n	%
Grade 0	32	64	17	34
Grade 1	18	36	33	66
Grade 1+	0	00	0	00
Grade 2+	0	00	0	00
Total	50	100	50	100

**Table no 17. Pearson chi-square test to data of pain at 24<sup>th</sup> hr**

Chi-square	9.004
Df	2
Sig.	0.003

**Table 18. Pain gradation in both groups**

Pain gradation in Group A and Group B over 24 hours																	
Pain gradation	0hr		1hr		2hr		4hr		6hr		12hr		18hr		24hr		
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
Groups																	
Grade 0	49	43	49	36	48	33	48	33	44	22	41	19	34	17	32	17	
Grade 1	1	7	1	13	2	16	2	16	5	23	7	26	16	32	18	33	
Grade 1+	0	0	0	1	0	1	0	1	1	5	2	5	0	1	0	0	
Grade 2+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

At 24<sup>th</sup> hr, there was no pain in patients of 64% of Group A & 34% of Group B. But 66% of the Group B and 36% of Group A subjects complain of pain without requirement of analgesic. This difference is statistically significant P<0.05. Above tables shows that, in group A no of patients having no pain are maximum over 24 hr as compared to group B. in Group A no. of patients having pain but not required analgesics are less as compared to Group B. No of patients who required analgesic to alleviate their pains are very few in group A as compared to Group B. Both groups have not got patient having severe pain & not relieved by analgesic.

**DISCUSSION**

In the present study majority of the patients from both groups are in the range of 15-24 yrs of age. Base line pain was not found in 98% of experimental group & 86% of placebo group. At the end of 6<sup>th</sup> hr postoperatively, there was no pain in patients 88% of experimental group & 44% of placebo group. At 12<sup>th</sup> hr postoperatively there was no pain in patients 8% of experimental group & 38% of placebo group. At 24<sup>th</sup> hr postoperatively, there was no pain in patients 64% of experimental group and 34% of placebo group. Some patients experienced pain in both groups, a few required analgesics. 6% of experimental group & 28% of placebo group required analgesics at some time in 24hr. though some patients experienced pain in experimental group, the pain were tolerable compare to placebo group.

Among the patients required analgesics 4% of experimental group required it at 12<sup>th</sup> hr while in placebo group 10% required at 6<sup>th</sup> hr & 10% at 12<sup>th</sup> hr resp. this means that pain relief was seen for a longer duration in experimental group than placebo group. According to Ayurveda postoperative pain is due to vitiation of *Vata & Pitta dosha*, caused by trauma & bleeding at operated site. *Yashtimadhu & Ghrīt* are of *madhur rasa*, of *madhur vipaka & snigdha guna*, hence both are best for alleviation of *Vata & Pitta dosha*.<sup>10, 11</sup> *Ghrīt* has property of *Sanskaranuvarti* i.e. it follows the properties of the substance with which it is combined without leaving its own properties.<sup>12</sup> So the action of *Yashtimadhu & Ghrīt* is synergistic.

According to modern science postoperative pain is more severe during first two days. It is due to the cut nerve fibers, liberation of pain producing substances ( e.g. prostaglandins, proteolytic enzymes substance P, histamine, K-ions) & local inflammatory reaction produced by traumatized tissue at operated site. *Yashtimadhu* have properties of *vedanashaman, dāha prashaman, shothahar, sandhananiya, shonitasthapan*.

All these properties are responsible for alleviation postoperative pain. Some clinical trials showed that *Yashtimadhu* is a potent anti inflammatory & *Ghrīt* possess prostaglandin inhibiting activity. These may be the possible explanation for the result of above clinical trial regarding *Ayurveda* as well as Modern science.

**Conclusion**

*Yashtimadhu Ghrīt* has been found to be a potent local analgesic in postoperative pain. It provided moderate to profound degree of analgesia. No side effect was found in any patient. Very few patients required other analgesic medicine along with it to alleviate unbearable pain. Thus it is a superior agent in relation with the duration and quality of analgesia. It is easy to apply, cost effective, free from side effects compare to other oral or parenteral analgesic. It is also having additional qualities of better and faster wound healing, less scarring & less discolourations.

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