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ROLE OF SHODHAN KESHARI LEPA AND SAPTANGA GUGGULU IN THE MANAGEMENT OF DUSHTVRANA (CHRONIC WOUND)

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ABSTRACT

Trauma is so universal that the declaration of Alma Atta, included the common injuries as an essential part of primary care.As we know, in modern medicine soframycin is well known antiseptic for traumatic wounds so, we compared our trial Ayurvedic medicine with soframycin, as the used drugs have both *shodhan* and *ropan*properties required for proper management of *dushtvrana*. Here in present clinical study,30 patients of *dushtavrana* were taken in two groups of 15 each. Control group was treated with soframycin tulle (local application) and *saptangaguggulu* oral 1000 mg bid while trial group was treated with *shodhankesarilepa* (local application) and *saptangaguggulu* oral 1000 mg bid for one month. Study was done on the basis of subjective parameter (pain) and objective parameters (tenderness, discharge, size, depth and floor). The statistical data was analyzed by applying student't' test. The results were, relief in pain in trial group (85.71%)was better than control group (56.55%). Relief in tenderness was better in trial group (92.85%) than control group (55.55%). Improvement in discharge was better in trial group (83.33%) than control group (56%). Reduction in size was better in trial group (30.76%) than control group (27.27%). Reduction in depth was more in trial group (37.50%) than control group (31.81%). Improvement in floor was better in trial group (84.09%) than control group (52.50%). Overall effect of drug on Improvement in floor was only statistically significant (0.01>) suggesting that the combined effect of ingredients of trial group are better debriding agent.

Keywords: *Dusht Vrana,Shodhan, lekhan*, Soframycin.

INTRODUCTION

Vrana which discharges foul smelling pus/blood has sinuses inside, non-healing and not possessing any features of a *ShuddhaVrana* is designated as *Dusht vrana*[1]. Simple wounds get healed up automatically as a natural process, but a wound which refuses to heal or heal up slowly in spite of best effort is called *dushtvrana*.

Vranaropan is a natural process. *Dushtvrana* requires some additional efforts for healing. The factors which affects the Healing are unavailability of rest, tension in wound edges, Infection, Presence of foreign body, Persistent irritation Ischemia, Hypoxia, Deficient nerve supply, Nutritional deficiency, Anemia, Hypo proteinemia, Vitamin-C deficiency, Raised Serum bilirubin, Uremia, Raised blood sugar level, Improper treatment, Malignancy. *AcharyaSushruta*also described the factors affecting *vranaropana* in *krityakritya adhyaya*[2.]

An ideal debriding agent should not produce damage to the healthy surrounding tissue in a *Dushtvrana*. It should not produce any undesirable side effects and at the same time should be capable of performing debridement effectively. It is evident that the modern methods employed in routine for debridement are not free from their draw back which limits their use.

The problem and the shortcoming in the management of wound, contaminated with dead tissue or slough, have promoted us to look back to the ancient *AyurvedicSamhita*.Considering all these facts the present work entitled "*Role of ShodhanKeshariLepa And SaptangaGuggulu In the Management of DushtVrana"*was undertaken with a hope to find out an appropriate approach to solve this problem. The reference of the trial drug was selected from *Bhaishajya Ratnawali*[3].*Shodhan kesharilepa* contains 6 contents having*Madhur, katu, tikta*and*kashayarasa; laghu,Ruksh,SnigdhaTikshna,* and *Guru guna;* both *ushna* and *sheet virya*and having *Shodhan,Putihar, Shoshan, Lekhan, Shothhar, Vishghna, Ropan,Vednasthapan, Sandhaniya,Kshatrakshak karma.*[4]*Saptangaguggulu* contains 8 contents having*katu, tikta,amla*and*kashaya rasa; laghu,Ruksh,SnigdhaTikshna,Vishghna*and *Guru guna;* both *ushna* and *sheet virya*and having *Shodhan,Ropan, Lekhan, Shothhar, jantughna,vednahar karma* so, the overall function of the *gugguluisVranaShodhanaVrana Ropana.*[5]

Material and Method

In the present study, the 30 diagnosed patients of *DushtaVrana* were randomly selected and subjected to clinical trial at Uttarakhand Ayurveda University RishikulCampus, Haridwar, Uttarakhand,India. The study has been approved by the Institutional Ethics Committee and consent from each patient was obtained before starting the course of treatment.

Criteria for selection of patient-

Inclusion criteria:

1. Patients of all age group.
2. Both sexes.
3. Patients suffering from *DushtVrana* (nonspecific ulcers).
4. Exclusion criteria includes specific ulcers i.e. Tuberculousulcers, ulcers with gangrenous changes, malignantulcers, PregnantWomen, uncontrolled Diabetes Mellitus,Arterial and venous ulcers.

Diagnostic Criteria:

- Patients with wound complaining of non-healing after several measures.
- The wound with discharge and slough

Investigations:

Routine examination of blood, Routine urine examination, Blood sugar-fasting and post-prandial.

Grouping and Posology-

After cleaning the wound of both Group patients;

Group A- topical application of soframycin tulle with oral administration of *SaptangGuggulu* 2 tab1000mg Twice Daily.

Group B-sterile dry gauze impregnated with *ShodhanKeshariLepa* is applied on the wound surface with oral administration of *SaptangGuggulu2tab*1000mg Twice Daily.

All the cases were treated up to the period of healing. Weekly assessment of the patient was carried out for one month period.

Preparation of *Saptang Guggulu*-All the contents of *SaptangaGuggulu* (1part of *Harad*(Terminalia-Chebula),*Baheda*(Terminalia-Belerica),*Amalki*(Terminalia-Officinale),*Shunthi*(Zinziber-Officinale),*Marich*(Piper-nigrum),*Pippali*(PiperLongum) and *Vidang*(EmbeliaRibes) were cleaned, dried and powdered separately.7 parts of *ShuddhGuggulu* (BalsamodendronMukul) was dissolved in *Triphlakwatha* along with binding agent (Gum Acacia was used as binding agent). Now whole mixture was put on a burner and made concentrated by heating to make *avleha*,fine powder of the rest medicines were mixed properly in the *Guggulu* when it came to normal temperature. The dried mixture, was put into pulvariser and fine powder was made. Now 500 mg. Tablets of *SaptangaGuggulu*were prepared from the fine powder with tablet forming machine.

PreprationOf *ShodhanKeshriLepa*-

*Trivrat, Danti, Saindhav*and *Til* were cleaned, dried and powdered finely and kept in air tight containers in equal quantity.

Fresh *kalka* of freshly picked and cleaned *NeemPatra* was taken and mixed with equal quantity of driedpowder. Now *Madhu* was added in the mixture to make it paste like.

Parameters of assessment:

The patients were assessed on the basis of Pain(subjective parameter) and Size,Tenderness, Discharge, Depth of the ulcer, Granulation tissue and floor(objectiveparameters) before and after thetreatment. All the cases were treated up to the period of healing. Weekly assessment of the patient was carried out for one month period.

Subjective Parameter-

1. **Pain**

S. No.	Scoring	Criteria
1.	0	No pain
2.	1	Localised pain during movement & not during rest
3.	2	Localised pain during rest but no disturbed sleep because of it
4.	3	Continuous pain in the vicinity of the ulcer, not relieved.

Objective parameters:

1. **Size**

S. No.	Scoring	Criteria
1.	0	No ulcer
2.	1	Less than 5cm

3.	2	Within 5-10 cm
4.	3	More than 10 cm

2.Tenderness

S. No.	Scoring	Criteria
1.	0	No tenderness
2.	1	Little response on sudden pressure
3.	2	Wincing on face on superficial slight touch
4.	3	Resists to touch

3.Discharge-

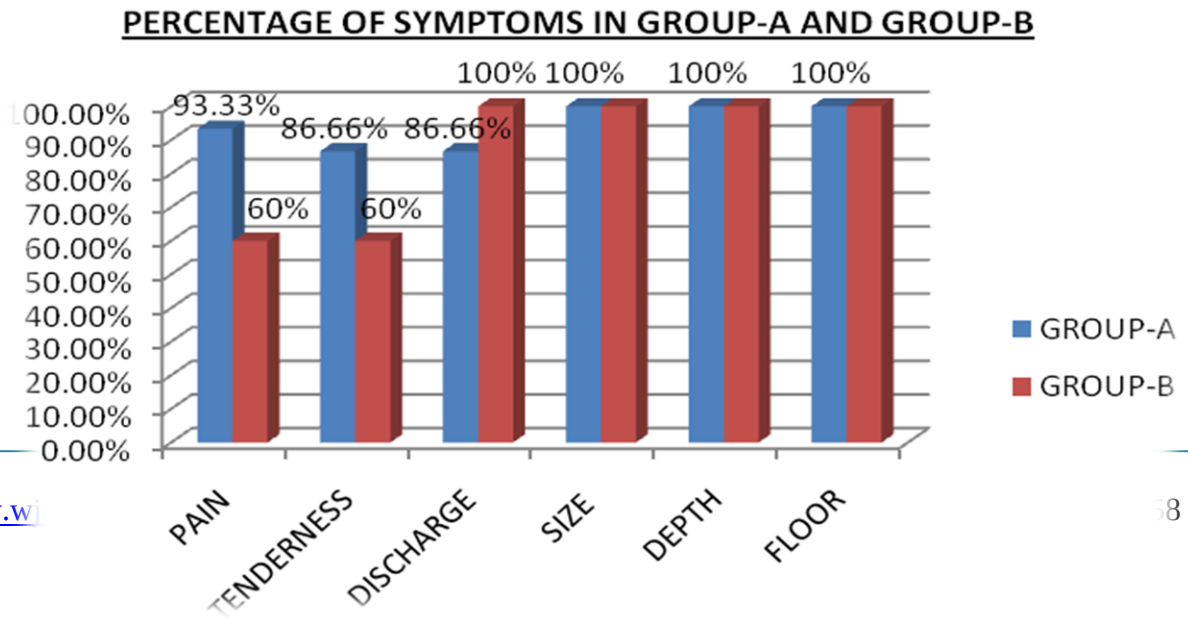
S. No.	Scoring	Criteria
1.	0	No Discharge
2.	1	Scanty Occasional
3.	2	Sometimes Serosanguinous Discharge
4.	3	Profuse, Continuous discharge

4.Depth of ulcer-the depth was measured with the help of sterile probe. -

S. No.	Scoring	Criteria
1.	0	healed
2.	1	Less than 0.5 cm
3.	2	Within 0.5-1.5 cm
4.	3	More than 1.5 cm

5. Floor and granulation tissue

S. No.	Scoring	Criteria
1.	0	Red granulation tissue
2.	1	Pale and smooth granulation tissue
3.	2	Patchy granulation tissue
4.	3	slough



Statistical Methods:
The data generated in the clinical study was analyzed by applying student 't' test. The obtained results were interpreted as –
• Not significant (NS): $p>0.05$
• Significant (S): $p<0.05$ or $p<0.01$
• Highly significant (HS): $p\leq0.001$.

Results:Effect on Pain:

Table no.1:Comparative effect of therapy on pain:

Group	n	Mean score		Mean Diff	% of Relief	SD	SE	t value	P value	Significant
		BT	AT							
A	15	2.14	0.92	1.21	56.55	0.89	0.23	5.09	0.001>	HS
B	15	1.55	0.22	1.33	85.71	0.70	0.23	5.65	0.001>	HS
Comparison								0.337	0.05<	NS

Effect on Tenderness:

Table No.2:Comparative effect of therapy on tenderness:

Group	n	Mean score		Mean Diff	% of Relief	SD	SE	t value	p value	Significant
		BT	AT							
A	15	2.07	0.92	1.15	55.55	1.06	0.29	3.89	0.01>	S
B	15	1.55	0.11	1.44	92.85	0.72	0.24	5.96	0.001>	HS
Comparison								0.708	0.05<	NS

Effect on Discharge:

Table No.3:Comparative effect of therapy on discharge:

Group	n	Mean score		Mean Diff	% of Relief	SD	SE	t value	p value	Significant
		BT	AT							
A	15	1.92	0.84	1.07	56	0.86	0.23	4.50	0.001>	HS
B	15	2	0.33	1.66	83.33	0.89	0.23	7.17	0.001>	HS
Comparison								1.763	0.05<	NS

Effect on Size:

Table No. 4:Comparative effect of therapy on size:

Group	n	Mean score		Mean Diff	% of Relief	SD	SE	t value	p value	Significant
		BT	AT							
A	15	2.2	1.6	0.6	27.27	0.50	0.13	4.58	0.001>	HS

B	15	2.6	1.8	0.8	30.76	0.86	0.22	3.59	0.01>	S
Comparison								-0.775	0.05<	NS

Effect on Depth:

Table No. 5:ComparativeEffect of Therapy on Depth:

Group	n	Mean score		Mean Diff	% of Relief	SD	SE	t value	p value	Significant
		BT	AT							
A	15	1.46	1	0.46	31.81	0.51	0.13	3.5	0.05>	S
B	15	2.13	1.33	0.8	37.5	0.56	0.14	5.52	0.001>	HS
Comparison								-1.694	0.05<	NS

Effect on Floor:

Table No.6:Comparative effect of therapy on floor:

Group	n	Mean score		Mean Diff	% of Relief	SD	SE	t value	p value	Significant
		BT	AT							
A	15	2.66	1.26	1.4	52.5	0.98	0.25	5.50	0.001>	HS
B	15	2.93	0.46	2.46	84.09	0.91	0.23	10.43	0.001>	HS
Comparison								3.071	0.01>	S

In group-A(control) floor was reduced by 52.5% in last follow up which is statistically ($t = 5.50$, $p<0.001$) highly significant.In group-B(trial) floor was reduced by 84.09%which is statistically ($t = 10.43$, $p<0.001$) highly significant.

In Floor, the comparison of groups yielded significant difference both percentage wise and statistically ($p = 3.071$).

Table No. **35**: Estimation of Weekly Response of therapy in 15 patient ofgroup-A

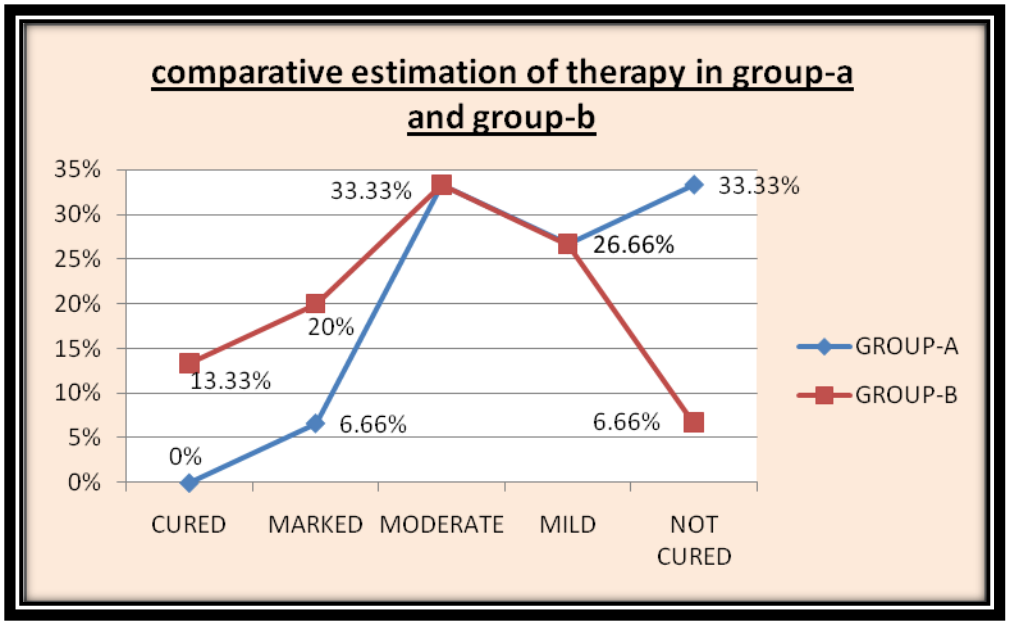
Assessment of Therapy	After 7days		After 14 days		After 21 days		After 28 days	
	No. of pts	%	No. of pts	%	No. of pts	%	No. of pts	%
Cured (100%)	00	00%	00	00%	00	00%	00	00%
Markedly Improved (76-99%)	00	00%	00	00%	01	6.66%	01	6.66%
Moderately improved (51-75%)	00	00%	00	00%	02	13.33%	05	33.33%

Mildly improved (26-50%)	00	00%	05	33.33%	07	46.66%	04	26.66%
No Cured (< or = 25%)	15	100%	10	66.67%	05	33.33%	05	33.33%

Result Showing Overall Effect of Therapy in two study Groups.

After completion of the treatment Group A showed that none patient got cured while in Group B showed that 13.33% patients got cured. In Group A 6.66% patients and in Group B 20% patients got markedly improvement. Moderate improvement was achieved in 33.33% of the patients in both groups.Mild improvement was achieved in 26.66% of the patients in both groups.33.33% of the patients in group-A and 6.66% of the patients in group-B were not cured.

S.No.	Effect of Therapy	GroupA Patients (15)	Improvement Percentage	Group B Patients (15)	Improvement Percentage
1.	Cured	0	0%	2	13.33%
2.	Marked Improvement	1	6.66%	3	20%
3.	Moderate Improvement	5	33.33%	5	33.33%
4.	Mild Improvement	4	26.66%	4	26.66%
5.	Not cured	5	33.33%	1	6.66%



DISSCUSSION:

Pain subsides by 85.71% in trial group by *ushnavirya,madhur rasa* and *guru-snigdhaguna*of *til*and *danti*of *shodhankesharilepa*and also *haritaki, baheda, shunthi, guggulu*of *saptangaguggulu.* With the effect of *ushnavirya, madhur rasa* and *guru-snigdhaguna*these drugs have *vednashamak*property.Analgesic action of *haritaki*is by shikimic acid, gallic acid, ascorbic acid [6]; *shunthi*is by 6-gingerol, 6-shogaol .

Pain subsides by 56.66% in control group by *ushnavirya* of *haritaki,baheda, shunthi, guggulu*of *saptangaguggulu*supported by analgesic action of *haritaki* by shikimic acid, gallic acid, ascorbic acid[6] ; *shunthi*is by 6-gingerol, 6-shogaol somehow Soframycin tulle due to its bactericidal effectlessen the slough formation, inflammation and hence the pain.

Tendernesssubsides by 92.85% in trial group by *shothhar*property of *trivrat*due to *tikta rasa* supported by anti-inflammatory action of *trivrat*[7] ,*danti*due to *katurasa,saindhav*due to *madhur rasa* in *shodhankesharilepa*and also *katu-tiktarasa* in *haritaki* supportedby anti-inflammatory action of *haritaki*due to corilagin, ellagic acid, gallic acid, linoleic acid, ascorbic acid[6] ,*kashaya rasa* and *rukshaguna*in *baheda* ,*katu rasa* in *shunthi* supported by anti-inflammatory property of *shunthi*due to beta sitasterol, alpha and beta pinene, 1,8-cineole, 10-gingerdione [6] ,*katu-tikta rasa* in *guggulu* supported by anti-inflammatory property of *guggulu*[8.]

Tenderness subsides by 55.55% in control group by *shothhar*property of *katu-tikta rasa* in *haritaki* supported by anti-inflammatory action of *haritaki*due to corilagin, ellagic acid, gallic acid, linoleic acid, ascorbic acid[6] ,*kashaya rasa* and *rukshaguna*in *baheda,katu rasa* in *shunthi*supported by anti-inflammatory property of *shunthi*due to beta sitasterol, alpha and beta pinene, 1,8-cineole, 10-gingerdione [6],*katu-tikta rasa* in *guggulu* supported by anti-inflammatory property of guggulu[8] and due to reduction of slough formation and inflammation by Soframycin tulle.Discharge subsides by 83.33% in trial group by *tikta-kashayarasa,laghuguna*so, *pootihar*property of *neem ; krimighna*property of *neem*by *tikta rasa* and *danti*by*katu rasa* supported by antimicrobial activity of *danti*[9]*; vishghna*property of *danti*due to *prabhav ; shodhan*property of *neem*due to *tiktarasa,til*due to *tiktaanurasa, saindhav*due to *laghuguna,madhu*due to *laghu*and *rukshaguna*supported by antimicrobial activity due to its ability to generate hydrogen per oxide, ability to autolytically debride and deodourize, its pH help to restrict microbial growth[10]in *shodhankesharilepa*and also *krimighna*property of *vidanga*by *katu rasa* supported by antibacterial activity of *vidanga*in[11].1,*haritaki*by *katu-tikta rasa* supported by antibacterial activity of *haritaki*due to ellagic acid, gallic acid, pectin[6] ,*marich*by *katu rasa* and *tikshnaguna*supported by antibacterial and antiseptic property of *marich*by piperin, 1-8cineolone, alpha-terpinol, eugenol,citral[6] *pippali*by*katu rasa* and *tikshnaguna,guggulu*by *katu-tikta rasa ; shodhan*property of *haritaki*due to *laghu-rukshaguna*supported by antiulcer property of *haritaki*[6],*guggulu*due to *tiktarasa,laghu-ruksha-tikshna-vishadguna*in *saptangaguggulu.*

Discharge subsides by 56% in control group by *krimighna*property of *vidanga*by*katu rasa* supported by antibacterial activity of *vidanga*[11] ,*haritaki*by *katu-tiktarasa* supported by antibacterial activity of *haritaki*due to ellagic acid, gallic acid, pectin[6],*marich* by *katu rasa* and *tikshnaguna* supported by antibacterial and antiseptic property of *marich*by piperin,1-8 cineolone, alpha-terpinol, eugenol,citral[6]*katu rasa* and *tikshnaguna,guggulu*by *katu-tikta rasa ; shodhan*property of *haritaki*due to *laghu-rukshaguna* supported by antiulcer property of *haritaki*due to ascorbic acid[6] ,*guggulu*due to *tiktarasa,laghu-ruksha-tikshna-vishadguna*in *saptangaguggulu*and also due to bactericidal property of Soframycintulle.Size reduces by 30.76% in trial group is due to *ropan*property of *til*due to *madhur rasa* and *guru-snigdhaguna*supported by its antioxidant property, reducing period of epithelialisation, wound contraction, increases breaking strength,dry weight and hydroxyproline content of the granulation tissue in[12],*saindhav* due to *madhurrasa,madhu*due to *madhur-kashaya rasa* supported by its action on promotion of angiogenesis and formation of granulation tissuein tissue viability for worcestershire primary care trusts and university of worcester in*shodhankesharilepa*and also *ropan*property of*haritaki*by *kashaya rasa* supported by its immunostimulant property due to ascorbic acid[6]*amalki*by *amla rasa* supported by its antioxidant, antisecretory and antiulcer property[13]*guggulu* by *vishadguna*in *saptangaguggulu.*

Size reduces by 27.27% in control group (A) is due to *ropan*property of *haritaki bykashaya rasa* supported by its immune-stimulant property due to ascorbic acid [6]*amalki*by *amla rasa*supported by its antioxidant, anti-secretory and antiulcer property[13], *guggulu*by *vishadguna*in *saptangaguggulu* and also due to healing after the bactericidal action of Soframycin tulle.

Depth reduced by 37.5% in trial group (B) is due to *ropan*property of *til*due to *madhurrasa,guru-snigdhaguna* supported by its antioxidant property, reducing period of epithelialisation, wound contraction, increases breaking strength,dry weight and hydroxyproline content of the granulation tissue in [12],*saindhav* due to *madhurrasa,madhu*due to *madhurkashaya rasa* supported by its action on promotion of angiogenes and formation of granulation [10]in *shodhankesharilepa*and also *ropan*property of *haritaki*by *kashaya rasa* supported by its immunostimulant property due to ascorbic acid [6],*amalki* due to *amla rasa* supported by its antioxidant, antisecretory and antiulcer property[13].

Depth reduced by 31.81% in control group (A) is due to *ropan*property of *haritaki*by *kashaya rasa* supported by its immunostimulant property due to ascorbic acid[12] ,*amalki*due to *amla rasa* supported by its antioxidant, antisecretory and antiulcer property ,*guggulu*by *vishadguna*in *saptangaguggulu*and also by healing after the bactericidal action of Soframycin tulle.

Floor improved by 84.09% in trial group (B)is due to *shodhan*property of *til*by *tiktaanurasa,neem*by *tiktarasa,saindhav*by *laghuguna,madhu*by *laghu-rukshaguna*supported by antimicrobial activity due to its ability to generate hydrogen per oxide, ability to autolyticallydebride and deodourize, its pH help to restrict microbial growth[10]*; lekhan*property of *trivrat*by *tikta rasa* and *laghuguna*supported by its antiseptic and antiulcer property[7],*saindhav*by *laghuguna ; krimighna*property of *neem*by *tiktarasa,danti*due to *katu rasa* supported by antimicrobial activity of *danti*[13]*;*

*vishaghna*property of *danti*by*prabhav*in *shodhankesharilepa*and also *shodhan*property of *guggulu*by *tiktarasa,laghu-ruksha-tikshna-vishadguna,haritaki*due to *ruksha-laghuguna*supported by its antiulcer property[6]*; krimighna*property of *harada*by*katu-tikta rasa* supported by antibacterial activity of *haritaki*due to ellagic acid, gallic acid, pectin[6],*vidanga* by *katu rasa* supported by antibacterial activity of *vidang*[11],*marich*by *katu rasa* and *tikshnaguna* supported by antibacterial and antiseptic property of *marich*by piperin,1-8 cineolone, alpha-terpinol, eugenol,citral[6]*pippali*by *katu rasa* and *tikshnaguna,guggulu*by *katu-tikta rasa ; lekhan*property of *marich*is due to*laghuguna*supported by its antiulcer property due to AR curcumene, eugenol,citral and ascorbic acid[6].

Floor improved by 52.5% in control group (A)is due to *shodhan*property of *guggulu*by *tiktarasa,laghu-ruksha-tikshna-vishadguna,haritaki*due to *ruksha-laghuguna*supported by its antiulcer property[6]*krimighna*property of *harada*by*katu-tikta rasa* supported by antibacterial activity of *haritaki*due to ellagic acid, gallic acid, pectin[6], *vidanga*by *katu rasa* supported by antibacterial activity of *vidanga*[11] *,marich*by *katu rasa* and *tikshnaguna* supported by antibacterial and antiseptic property of *marich*by piperin,1-8 cineolone, alpha-terpinol, eugenol,citral[6],*pippali* by *katu rasa* and *tikshnaguna,guggulu*by*katu-tikta rasa ; lekhan*property of *marich*is due to*laghuguna*supported by its antiulcer property due to AR curcumene, eugenol,citral and ascorbic acid[6].

CONCLUSION

Both percentage wise and statistically data are better in trial group. So, the combination of herbal drugs (oral and topical) is more effective in the management of *dushtavrana.* It does not require any culture and sensitivity test.The test is not available in the remote medical relief centers and it is very costly and obviously not affordable by all patients of the society.

As we used *Saptangaguggulu* in both the groups, it becomes quite difficult to say that how much effect of *Saptangaguggulu* and how much that of soframycin tulle acts onthe management of healing. So, it is better to work on herbal drugs separately and allopathic medicines separately so that the rational conclusion can be drawn from the study.The culture and sensitivity test should be one of the criteria in the study of *dushtvrana*.

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