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A COMPARATIVE STUDY OF KASEESADI AVACHURNANA AND JATYADI GHRITA APPLICATION IN THE MANAGEMENT OF DUSHTA VRANA

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ABSTRACT

The Dushta Vrana is an unsolved problem faced by health care professionals in India and abroad. A clean wound in normal body heals earlier with minimum scar as compared to contaminated wound. Therefore in present concept all efforts are directed to keep the wound clean, during various stages of its healing. Such healing process is called Vrana Shodhana and ropana. The objective of the study was to evaluate the effect of kaseesadi avachurnana in the management of dushta vrana compared with standard jatyadi ghrita application.

Clinically diagnosed 90 patients of dushta vrana were randomly assigned into three groups with 30 patients in each group. Group A- control group was treated with jatyadi ghrita application, Group B- trial group was treated with kaseesadi avachurnana and Group C was treated with combination of both the drugs.

On the basis of assessment criteria and on the overall result of treatment, the patients of Kaseesadi Avachurnana group B and combination group C showed better relief when compared to jatyadi ghrita application group A.

The sensitivity pattern of the drug Kaseesadi Churna showed bacteriostatic effect. Kaseesadi Churna by its Chedana, Amapachana, Kapha-Vata Shamana, Rukshata, Kledashoshaka, Sthambhana, Shoolahara, Jantughna, Varnya and Lekhana property checks the Vrana pathogenesis thus facilitate Vrana Shodhana and ropana.

Kaseesadi avachurnana group B and combined group C had better relief in maximum signs and symptoms of the patients of dushta vrana in comparison to jatyadi ghritra application group A. Kaseesadi avachurnana reduces infection, facilitate wound debridement and healing of dushta vrana.

Keywords: Dushtavrana, Avachurnana, Kaseesadi churna, Jatyadi ghrita.

INTRODUCTION

The knowledge of wound is known since antiquity. Since ages the new evolution in wound and its management is going on in each era. A wound which refuses to heal or heals very slowly in spite of best efforts is known as Dushta Vrana. Advancement in science, technology and antibiotics has improved a lot in wound healing but still understanding its pathology and management is in phase of evolution.

Ayurveda the age old and holistic system of medicine offers various tools for management of Dushta Vrana. In Ayurveda Acharya Sushruta, pioneer surgeon, have mentioned various types of wound and their management. The conditions have changed over the period of time along with advanced technologies but the basic principles remain same. The concepts and principles of Vrana such as causes, classification, examination, treatment, bandaging, complications etc told by Acharya Sushruta remain unchanged even in this 21st century also.

The Dushta Vrana is an unsolved problem faced by health care professionals in India and abroad. The hope of these patients is limited to PHC (Primary Health Center) or town hospitals. These centers are already crowded with other common diseases and do not find money and materials to investigate and manage the Dushta Vrana properly. Many times patients remain untreated and that may lead to death due to secondary and systemic infections.

Under these circumstances it is a great need of hour to reproduce the modalities for patients of Dushta Vrana, which will be available everywhere, with minimum cost. Hence a search for more effective and safe method of Vrana Shodhana and Ropana is a demand for management of Vrana.

To achieve good approximation, early healing and acceptable scar, without complications Acharya Sushruta has elaborately explained sixty types of procedures[1], among them Vrana Shodhana is one. Acharya Sushruta[1], Charaka[2], Vagbhata[3], Bhavaprakasa, Yogaratnakar, and Sharangadhara have described different remedies like Kvatha, Churna and Lepa having Vrana Shodhana properties. However sushrutha has specifically indicated kaseesadi avachurnana for shodhana and ropana of dushta vrana[4]. So the present study is planned to evaluate the effects of kaseesadi avachurnana in dushta vrana in comparison to jatyadi ghrita application.

MATERIALS AND METHODS

Source of data

The patients of dushta vrana were selected irrespective of their age, sex, cast, creed etc, from outpatient and inpatient department of Shalya Tantra, N.K.J. Ayurvedic Medical College and Hospital, Bidar, Karnataka, India (Ethical Clearance Proposal Number: NKJ/AMC/2007-08/131 Date:07/07/2007).

Method of collection of data

Clinically diagnosed 90 patients of dushta vrana were randomly assigned into 3 groups with 30 patients in each group. The results were assessed on comparative studies of features of BT (Before Treatment) and AT (After Treatment) of all groups. A special Performa was designed for this study.

Group- A (Control group)- treated by Jatyadi ghrita application.

Group- B (Trial group)- treated with Kaseesadi avachurnana.

Group- C (Combined group)- was treated with combination of Jatyadi ghrita and Kaseesadi churna.

Duration of treatment

1 month.

Diagnostic Criteria

Patients having lakshanas of Dushtavrana like Nana Varna, Puti, Puya Mamsa, Sira, Snayu, Amanogna Darshana and Gandha, Ati Vedana, Daha, Paka, Raga, Kandu, Dushta Shonita Srava, Dhirgakala Anubhandha, Medojusta, Agambheera and Durgandha Vrana[5].

Inclusion Criteria

- Patients suffering from non healing ulcer/wound were selected for this study.
- Patients were selected irrespective of sex, age, religion, occupation, economic and educational status.

Exclusion Criteria

Patients with disorders like Malignancy, Tuberculosis, Leprosy and underlying bony lesions were excluded.

Investigations

- Routine investigations.
- Culture and Sensitivity test of discharge
- Histopathological examination wherever necessary.

Intervention

Vrana was exposed properly, cleaned with normal saline, dried with sterile gauze and the sterile gauze was prepared to the shape of wound. Sterile gauze impregnated with Jatyadi ghrita in Group A, Kaseesadi Avachurnana in Group B and combination of both in Group C was kept over the Dushtavrana and a sterile pad was placed on it, dressing was done. All these procedures were performed while wearing a sterile glove.

Time of dressing

Bandaging was done every day once in the morning. If the bandage become wet completely in-between then re-bandaging was carried out.

Observation Period

The patients were observed for shuddha vrana lakshanas or up to 30 days whichever is earlier. Assessment of relief in the signs and symptom was recorded weekly for a period of 1 month.

Assessment Criteria

The patients' responses were assessed on the basis of subjective and objective criteria by assigning the suitable grade to each parameter. The method adopted for grading was as follows.

Table 1: Parameters with Grading

SN	Subjective parameter	Grading
1.	**Vedana**	
	Severe	3
	Moderate	2
	Mild	1
	Nil	0
	Objective parameters	
1.	**Varna**	
	Krishna	3
	Shwetarakta	2
	Kapota varna	1
	Twak samavarna	0
2.	**Srava**	
	Profuse	3
	Moderate	2
	Mild	1
	Nil	0
3.	**Granulation Tissue**	
	Absent	3
	Unhealthy	2
	Moderate	1
	Healthy	0
4.	**Size of Wound**	
	Within 9-12cm	3
	Within 5-8cm	2
	Within 1-4cm	1
	Healed	0

Area of Vrana in square cms

Group A, Group B and Group C patients wound square cm area was compared with the following formula

$$\text{Unit healing time} = \frac{\text{Total no. of days of wound healing}}{\text{Initial length x Width x height}}$$

$$= \ldots\ldots \text{ days / square cm}^2$$

Overall effect of treatment

Uttamma upashaya (marked improvement)- Healed within 2 weeks of treatment.

Madhyama upashaya (moderate improvement) – Healed within 3-4 weeks of treatment.

Alpa upashaya (mild improvement) – Symptomatic relief at the end of 4 weeks of treatment.

Anupashaya (no improvement) – No response.

Follow-Up Study

After completion of treatment duration, the patients were advised to attend Shalya O.P.D for follow- up at the interval of every 1 month up to 3 months.

RESULTS

The study was carried out on 90 patients of dushta vrana. Out of which first group of 30 patients were treated with jatyadi ghrita application. The second group of 30 patients were treated with Kaseesadi avachurnana for period of 1 month or till the appearance of shuddha vrana lakshanas, whichever is earlier. The third group of 30 patients were treated with a mixture of kaseesadi churna and jatyadi ghrita application for a period of 1 month. The effects obtained in each group are being presented here under separate headings

Varna

In Group A: Reduction of mean score after treatment was 6.67%.

To Test the effectiveness of treatment,'t' – test was applied, its value was 2.408 and it was significant at p =

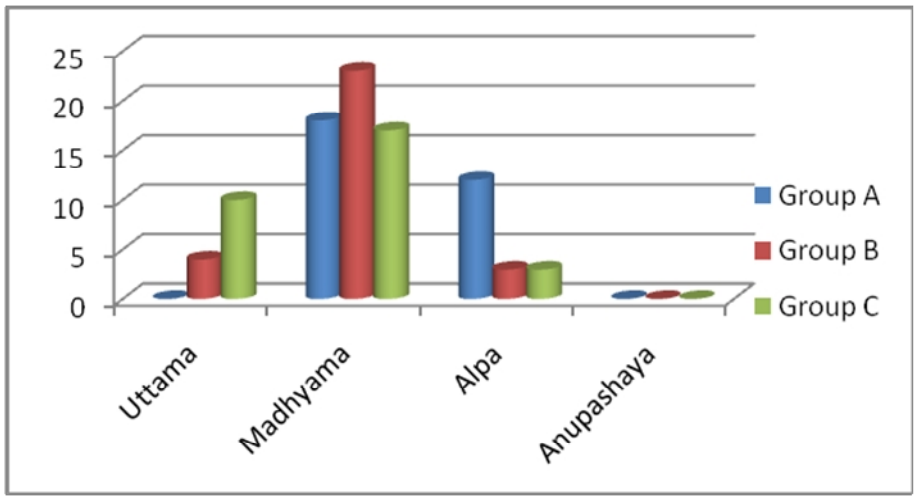
0.023. Correlation coefficient between before treatment and after treatment was 0.795, it was highly correlated.
After applying ANOVA test, 'F' Value was 48 and it was highly significant.
In Group B: Reduction of mean score after treatment was 23%.
To Test the effectiveness of treatment,'t' – test was applied, its value was 5.525 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.419, it was highly correlated.
After applying ANOVA test, 'F' Value was 5.968 and it was significant at P = 0 .021
In Group C : Reduction of mean score after treatment was 95.2%.
To Test the effectiveness of treatment, 't' – test was applied, its value was 21.108 and it was significant at p = 0.0001. Correlation coefficient between before treatment and After treatment was 0.143, it was low correlated.
After applying ANOVA test, 'F' Value was 0.586 and it was significant at P = 0.451
Group B and Group C shows improvements after treatment.

Table 2: Effect of treatment on Varna, Srava, Vedana and Granulation of Dustha Vrana in all groups

	Effect of Groups	No. of cases	Before treatment	After treatment	% of reduction in mean score	S.D. of Mean Difference	S.E of Mean Difference	't' Value	P value
Effect of treatment on Varna	A	30	2.5	2.333	6.67%	0.37905	0.06920	2.408	<0.023
	B	30	2.9	2.23	23%	0.66089	0.12066	5.525	<.0001
	C	30	2.73	0.13	95.2%	0.67466	0.12318	21.108	<0.0001
Effect of treatment on Srava	A	30	1.1667	0.8667	25.7%	0.46609	0.08510	3.525	<0.001
	B	30	1.6667	0.8000	52%	0.62881	0.11480	7.5490	<0.0001
	C	30	1.2333	0.0333	97.3%	0.40684	0.0728	16.155	<0.0001
Effect of treatment on Vedana	A	30	2.1333	1.6333	23.4%	0.50855	0.09285	5.385	<0.0001
	B	30	2.2333	0.3667	83.6%	0.62881	0.11480	16.260	<0.0001
	C	30	2.2000	0.1667	92.4%	0.66868	0.12208	16.655	<0.0001
Effect of treatment on Granulation	A	30	2.6333	1.5667	40.5%	0.73968	0.13505	7.899	<0.0001
	B	30	2.6667	0.8000	70%	0.73030	0.13333	14.000	<0.0001
	C	30	2.9333	0.3000	89.8%	0.49013	0.08949	29.427	<0.0001
Effect of treatment on Size of wound	A	30	1.5000	0.8333	44.4%	0.5467	0.`0998	6.679	<0.0001
	B	30	1.6667	0.3666	78%	0.5349	0.0976	13.310	<0.0001
	C	30	1.4000	0.2666	81%	0.7303	0.1333	8.500	<0.0001

Table 3: Overall results of all groups

Results	No. of Patients and Percentage							
	Group A		Group B		Group C		Total	
Uttama	00	00%	04	13.33%	10	33.33%	14	15.55%
Madhyama	18	60%	23	76.67%	17	56.67%	58	64.45%
Alpa	12	40%	03	10%	03	10%	18	20%
Anupashaya	00	00%	00	00%	00	00%	00	00%



Graph 1: Distribution of patients based on upashaya and anupashaya

Srava

In Group A : Reduction of mean score after treatment was 25.7%.

To Test the effectiveness of treatment,'t' – test was applied, its value was 3.525 and it was significant at p = 0.001. Correlation coefficient between before treatment and after treatment was 0.175, it was highly correlated.

After applying ANOVA test, 'F' Value was 0.889 and it was significant p = 0.354

In Group B : Reduction of mean score after treatment was 52%.

To Test the effectiveness of treatment,'t' – test was applied, its value was 7.549 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.000, it was not correlated.

After applying ANOVA test, 'F' Value was 0.000 and it was significant at P = 1.000

In Group C: Reduction of mean score after treatment was 97.3%.

To Test the effectiveness of treatment,'t' – test was applied, its value was 16.155 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.0.333, it was low correlated.

After applying ANOVA test, 'F' Value was 3.578 and it was significant at P = 0.0.069

Group B and Group C show improvements after treatment.

Vedana

In Group A : Reduction of mean score after treatment was 23.4%.

To Test the effectiveness of treatment,'t' – test was applied, its value was 5.385 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.298, it was low correlated.

After applying ANOVA test, 'F' Value was 2.738 and it was significant at p = 0.109

In Group B: Reduction of mean score after treatment was 83.6%.

To Test the effectiveness of treatment, 't' – test was applied, its value was 16.260 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.071, it was low correlated.

After applying ANOVA test, 'F' Value was 0.141 and it was significant at P = 0 .710

In Group C: Reduction of mean score after treatment was 92.4%.

To Test the effectiveness of treatment, 't' – test was applied, its value was 16.655 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.143, it was low correlated.

After applying ANOVA test, 'F' Value was 0.000 and it was significant at P = 1.000

Group B and Group C show improvements after treatment.

Granulation Tissue

In Group A: Reduction of mean score after treatment was 40.5%.

To Test the effectiveness of treatment 't' – test was applied, its value was 7.899 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.029, it was low correlated.

After applying ANOVA test, 'F' Value was 0. 023 and it was significant at p = 0.880

In Group B : Reduction of mean score after treatment was 70%.

To Test the effectiveness of treatment, 't' – test was applied, its value was 14.000 and it was significant at p = 0.0001. Correlation coefficient between before treatment and After treatment was 0.302, it was low correlated.

After applying ANOVA test 'F' Value was 2.810 and it was significant at P = 0 .105

In Group C : Reduction of mean score after treatment was 89.8%.

To Test the effectiveness of treatment 't' – test was applied, its value was 29.427 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.1750, it was low correlated.

After applying ANOVA test, 'F' Value was 0.884 and it was significant at P = 0.355

Group B and Group C shows improvements after treatment.

Size of Wound

In Group A: Reduction of mean score after treatment was 44.4%.

To Test the effectiveness of treatment, 't' – test was applied, its value was 6.679 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.692, it was highly correlated.

After applying ANOVA test, 'F' Value was 25.70 and it was highly significant.

In Group B : Reduction of mean score after treatment was 78%.

To Test the effectiveness of treatment,'t' – test was applied, its value was 13.31 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.541, it was highly correlated.

After applying ANOVA test, 'F' Value was 11.607 and it was significant at P = 0 .002

In Group C : Reduction of mean score after treatment was 81%.

To Test the effectiveness of treatment,'t' – test was applied, its value was 8.500 and it was significant at p = 0.0001. Correlation coefficient between before treatment and after treatment was 0.330, it was low correlated.

After applying ANOVA test, 'F' Value was 0.3.413 and it was significant at P = 0.75

Group B and Group C show improvements after treatment.

Case 1: Application of Kaseesadi avachurnana

Figure 1: Before Treatment

Figure 2: During Treatment

Figure 3: During Treatment

Figure 4: After Treatment

Case 2: Application of Kaseesadi churna + Jatyadi ghrita

Figure 5: Before Treatment

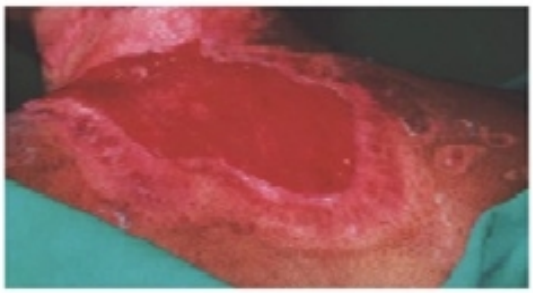
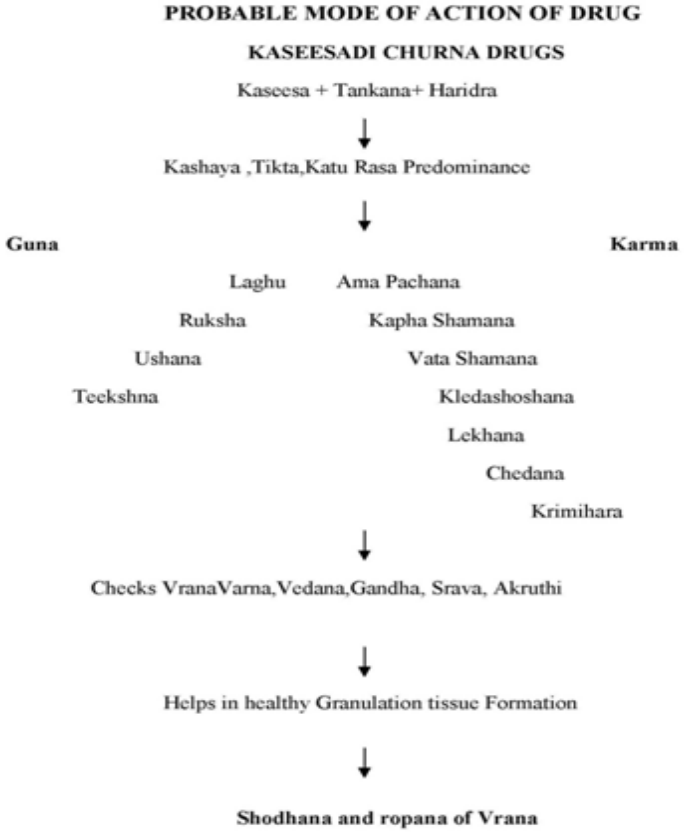


Figure 7: During Treatment

Figure 6: During Treatment

Figure 8: After Treatment



DISCUSSION

Effect on varna of dushtavrana

In the jatayadi ghrita group A 6.67% of varna was relieved, in kaseesadi avachurnana group B 23.00% of varna was relieved and in combined group C 95.02% of varna was relieved and the relief was statistically significant p <0.0001(Table 1). It is thus inferred that the effect of B and C group was better in comparison to group A.

The ingredients of Kaseesadi Churna has Madhura Rasa, Varnya, Krimihara and Lekhaneeya properties hence it does the Raktashodhaka and Raktaprasadhaka action. It purifies Rakta and also removes local dosha which imparts Prakrutha Varna to the Vrana.

The cause of discolouration of the wound site is due to local infection, slough and impaired circulation. The ingredients of drug Kaseesadi Churna have antibacterial, antiplatelet aggregation and vasodilating activity which help to break the pathogenesis and impart normal colour to the healing wound[6-8].

Effect on Srava of dushtavrana

In the jatayadi ghrita group A 25.07% of srava was relieved, in kaseesadi avachurnana group B 52.00% of srava was relieved and in combined group C 97.03% of srava was relieved and the relief was statistically significant p <0.0001(Table 1). It is thus inferred that the effect of B and C group was better in comparison to group A.

The Pakakriya in the Vrana was responsible for Srava, Puya in the Dushta Vrana and mainly Pitta Dosha was responsible for this. The ingredients of Kaseesadi Churna have Kashaya, Tikta, Katu Rasa, Lekhana, Krimihara, Kleda Shoshana Guna and Karma which elevates Pitta Dosha and reduces Srava.

Suppurative infection in the wound gradually leads to cell death. The toxins of pyrogenic organisms kill the tissue cells and exudates. Liquefaction of the dead tissue is caused by proteolytic enzyme released from the dead polymorphonuclear leukocytes. The resulting yellowish fluid is pus. The ingredients of drug Kaseesadi Churna inhibits prostaglandins and has antiinflamatory, antihistaminic, antibacterial, antihelmentic, antiseptic, antimicrobial[6-8] hence reduces the Srava.

Effect on Vedana of dushtavrana

In the jatayadi ghrita group A 23.04% of vedana was relieved, in kaseesadi avachurnana group B 83.06% of vedana was relieved and in combined group C 92.04% of vedana was relieved and the relief was statistically significant p <0.0001(Table 1). It is thus inferred that the effect of B and C group was better in comparison to group A.

The severity of Vedana was mainly due to Pravruddha Vata Dosha. The ingredients of drug Kaseesadi Churna have Vata Shamana and Shoolahara properties hence there will be relief in the vedana of Vrana.

The pain in the wound is mainly due to the inflammatory changes and infection. The ingredients of drug Kaseesadi Churna has the antibacterial, analgesic, antiinflamatory, antihelmenthic, antiseptic action which helps to stop the formation of pus and subsides pain. By anti-inflammatory property; it reduce edema thereby relives pain[6-8].

Effect on Granulation of dushtavrana

In the jatayadi ghrita group A 40.05% of granulation was improved, in kaseesadi avachurnana group B 70.00% of

granulation was improved and in combined group C 89.08% of granulation was improved and the relief was statistically significant p <0.0001(Table 1). It is thus inferred that the effect of B and C group was better in comparison to group A.

The slough was due to increase in collagen and decrease in vascularity and it is main hindrance for formation of healthy granulation tissue along with infection in a Wound/ Dushta Vrana. The ingredients of Kaseesadi Churna has Kashaya, Tikta Rasa, Ushna Veerya, Teekshna, Lekhana, Krmihara, Amasoshana, Chedana properties this leads Shodhana of Vrana. Thus increases the vascularity and does the proliferation of fibroblasts and neovascularisation which helps in formation of granulation tissue[6-8].

Effect on Size of the wound of dushtavrana

In the jatayadi ghrita group A 44.04% of size of wound was improved, in kaseesadi avachurnana group B 78.00% of size of wound was improved and in combined group C 81.00% of size of wound was improved and the relief was statistically significant p <0.0001 (Table 1). It is thus inferred that the effect of B and C group was better in comparison to group A.

The Dushta Vrana will have different Aprakritaakruti. The ingredients of Kaseesadi Churna by Kashaya Rasa,Vatahara, Sodhana, Krimihara properties it does improvement in Akruthi.

The action of the myofibrils does the wound contractions along with inward healing of margins leading to wound healing , the ingredients of Kaseesadi Churna has bacteriostatic , anti microbial, anti inflammatory property; due to which there is reduction in edema and debridement of necrotic tissue occurs, which helps in improving the wound shape[6-8].

DISCUSSION

On the basis of grades of remission in jatyadi grita group A none of the patients had uttamma upashaya (marked improvement), 60% patients had madyama upashaya (moderate improvement), 40% of patients had alpa upashaya (mild improvement) and none of the patients had anupashaya.

In kaseesadi avachurnana group B 33.33% patients had uttama upashaya (marked improvement), 76.67% patients had madhyama upashaya (moderate improvement), 10.00% patients had (mild improvement) and none of the patients had anupashaya (no relief).

In combination group C 33.33% patients had uttama upashaya (marked improvement), 56.66% patients had madhyama upashaya (moderate improvement), 10% patients had alpa upashaya (mild improvement) and none of the patients had anupashaya (no relief). Hence can be inferred that Group B and Group C had better results when compared to Group A.

Culture and Sensitivity of the Drug Kaseesadi churna

The drug was subjected to the sensitivity pattern and its observations over the Nutrient Muller hinton agar plate showed no growth of organisms at the drug smeared area and no contamination of the drug area , but no zone of inhibition seen it means the drug is not killing existing bacteria but arresting its growth hence the drug Kaseesadi churna was found to have bacteriostatic effect .

It can be concluded that Kaseesadi churna inhibit bacterial growth and help in prevention and arrest of infection and thus help in wound debridement i.e. Shodhana and keeps wound area away from infection.

CONCLUSION

It was observed that kaseesadi avachurnana Group B and combination Group C had better effect in relieving the vrana varna, srava, vedena, granulation, akriti and gandha. Hence can be inferred that total effect of Group B and C was better when compared to Group A.

Thus it can be concluded that kaseesadi avachurnana is not only a safe and simple debridementing phytogenic agent, but also effective vrana ropana drug formulation.

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