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AN OPEN LABELED RANDOMISED COMPARATIVE CLINICAL STUDY ON SHODANA AND ROPANA EFFECT OF GOMUTRA ARKA WITH POVIDONE IODINE SOLUTION IN BAHYA BHEDYA VIDRADI (EXTERNAL DRAINED ABSCESS)

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ABSTRACT

Wound healing is a natural process depends On local & systemic factors, "*Sheegravidahitavat*" word tells the destructive nature of *Vidradi*[1] So, Post operative wound management is important to avoid the extension of infection, here 40 patients were studied,20 patients in each group, *Gomutra arka* dressing was done in Group A and Povidone iodine Solution dressing in Group B for 20days and 2 follow ups & Result was Compared, **Results:-** There was significant difference within group therefore the drug shows improvement in all Parameters before treatment to after treatment and after second follow up, Between the group shows insignificant difference in Pain, Wound size, Discharge and Significant difference in Granulation tissue and Depth of the cavity.

KEYWORDS: *Bahya bhedya Vidradi, Gomutra Arka, Vrana Shodhana & Ropana*, External drained abscess.

INTRODUCTION

Ever since the life originated human being has been susceptible to injury which made him to think about healing from very early stage of development. Probably after being exposed to

injury, the first dressings ever used were leaves of trees, which were easily available and by his constant research he may have found leaves of some plants useful in wound management, Particularly Sushruta has mentioned various types of wounds and their management which is of prime importance in any surgical practice & mentioned *Shasti Upakrama* for wound management,[2] In abscess condition after Incision and drainage it should treated as wound, Once *vidradi* attains *pakwata* the line of treatment will *Bhedana* and *Visravana* later it should be treated as *Dusta Vrana*. For management of *Bahya bhedya Vidradhi*, he incorporated number of drugs broadly classified into *vrana shodana* and *vrana ropana* both the process.

Once the *Vidradi* attains *Pakvavasta* the first line of treatment is to drain the pus through *Bhedana karma* (Incision) later, it should be treated as *Vrana* and *Vidradi* is correlated to Abscess, Sometimes after incision and drainage abscess cavity persists which becomes firm and have sterile pus called as 'Antibioma' By this study we are making an attempt to see the Cleaning and Healing property of *Gomutra Arka* after *Bhedana karma*, In *Astavidha Mutra Gomutra* is superior[3] and it is proved that, Anti microbial, Anti cancerous[4] and Immuno-modulatory properties,[5] *Arka* preparations are mentioned for *Vrana shodana* and *Vrana ropana.*[6] *Gomutra has Krimigna,*[7] *teekshna, Ksharatva*[8] *and lekhana*[9] properties It is also *Tridoshagna*[10] where it help in *Vrana shodana* and *ropana.*

Objective

1) To Compare & Evaluate the *Shodana* and *Ropana* effect of *Gomutra Arka* in *Bahya bhedya vidradi* (External Drained Abscess)
2) To Compare and Evaluate the *Shodana* and *Ropana* effect of Povidine iodine solution in *Bahya bhedya vidradi* (External Drained Abscess)
3) To Compare and Evaluate the *Shodana* and *Ropana* effect of *Gomutra Arka* with Povidine iodine solution in *Bahya bhedya vidradi* (External Drained Abscess)

MATERIALS AND METHODS

Study design: Open labeled Randomised comparative clinical study.

Source of data: OPD and IPD of Shalya Tantra, SJGAM College Hospital Koppal.

Method of collection of data: 40 Patients were selected from an age group of 20-50 yrs Either of sex and randomly categorized into Group 'A' and Group 'B'

- **Group A** –Treated by Wound Cleaning & Dressing with *Gomutra Arka* for 20 days.
- **Group B** – Treated by Wound Cleaning & Dressing with Povidine iodine solution for 20 days.

Criteria for selection of patients

Inclusion criteria

1) Patient who underwent incision and draining of external Abscess & have wound size of >1cm
2) Age Group between 20-50 years, either of sex.

Exclusion criteria

1) Patients with HIV Positive, HBsAg Positive, Diabetes Mellitus, Tubercular ulcers and Malignant ulcers.

Study design

I. Materials

- The material taken for the Clinical trial to prepare *Gomutra Arka* is *Gomutra* of Indian Cow
- This was collected from Goshala of Gavimath at Koppal
- Medicine was prepared according to classical methods by using modern Distillation apparatus at Avishkara Central Research Laboratory of S.J.G.A.M.C Koppal.

II. Nature of the study

Research design

- Patients were assigned in two groups, Group A & Group B, consisting of 20 patients in Randomization in each group.
- The study design was an Open Labelled Randomised Comparative Clinical Study.

Interventional phase

- Group A –Treated by Wound Cleaning & Dressing with *Gomutra Arka* for 20 days.
- Group B – Treated by Wound Cleaning & Dressing with Povidine iodine solution for 20 days.

* Frequency of dressing- Once in Every day

Follow-up period

The 30th and 40th day in both groups, after treatment for observation

Regarding any infection, Arrest of healing due to debris & any complications.

Duration

Total treatment duration is 20 days in each group.

Total study duration is 40 days in each group.

Methodology

Assessment phase

Assessment will be done based on the Subjective and Objective parameters on the 0^{th} day (Before treatment), 5th day, 10th day, 15th day and 20th day.

Subjective parameter

i) Pain- Assessment done based on facial expression of the patient On palpation of wound by Visual analogue scale.

Objective parameter

i) Wound Size- Assessment done based on Bates Jenson wound Assessment tool.
ii) Depth of the Cavity- Assessed by using Bates Jenson Assessment tool. Depth of cavity measured by Copper Probe
iii) Granulation tissue- Grading done based on Status of the Granulation tissue.
iv) Discharge- Assessed based on soaked surface area of gauze piece.

RESULTS

Total 40 patients who had external wound & fulfilling all the inclusion criteria, were studied together in the present study after allotting randomly, Each patient was observed, examined and analysed thoroughly and details were noted later.

Assessment parameters

a) Pain

Comparison within the group on pain

Group A

Table: Effect of Treatment within the GROUP- A on PAIN

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	7.55	0.759	Test of Within and between Subjects Effects						
A1	6.50	0.827	Within-Subjects Effects	Time	874.17	145.70	386.52	<0.001	HS
A2	5.40	0.995		Residual	42.97	0.38			
A3	4.10	1.165	Within-Subjects Contrasts	Time	865.03	865.03	1207.23	<0.001	HS
AT	2.30	1.261		Error	13.61	0.72			
F1	1.15	1.309	Between-Subjects Effects	Intercept	2168.58	2168.58	363.73	<0.001	HS
F2	0.55	1.146		Error	113.28	5.96			

Pairwise Comparisons By: Bonferroni				Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change			Lower Bound	Upper Bound			
BT	A1	14%	14%	1.05	0.46	1.65	0.17	0.000	HS
	A2	28%	28%	2.15	1.34	2.97	0.233	0.000	HS
	A3	46%	46%	3.45	2.63	4.27	0.235	0.000	HS
	AT	70%	70%	5.25	4.45	6.05	0.228	0.000	HS
	F1	85%	85%	6.40	5.66	7.14	0.21	0.000	HS
	F2	93%	93%	7.00	6.24	7.76	0.218	0.000	HS
A1	A2	17%	17%	1.10	0.48	1.72	0.176	0.000	HS
	AT	65%	65%	4.20	3.50	4.90	0.2	0.000	HS
	F2	92%	92%	5.95	5.26	6.65	0.198	0.000	HS
A2	A3	24%	24%	1.30	0.73	1.87	0.164	0.000	HS
	AT	57%	57%	3.10	2.43	3.77	0.191	0.000	HS
	F2	90%	90%	4.85	4.21	5.49	0.182	0.000	HS
A3	AT	44%	44%	1.80	1.15	2.45	0.186	0.000	HS
	F1	72%	72%	2.95	2.21	3.69	0.211	0.000	HS
	F2	87%	87%	3.55	2.77	4.33	0.223	0.000	HS
AT	F1	50%	50%	1.15	0.77	1.53	0.109	0.000	HS
	F2	76%	76%	1.75	1.32	2.18	0.123	0.000	HS
F1	F2	52%	52%	0.60	0.13	1.07	0.134	0.005	S

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1) The mean score of parameter before treatment (BT) was 7.55 which reduced to 6.50 at the end of 1st Assessment (A1), SD 0.827 with 'f' value 386.52, showed highly significant difference at this level with "p" <0.001.
2) The mean score of parameter before treatment (BT) was 7.55 which reduced to 5.40 at the end of 2nd Assessment (A2), SD 0.995 with 'f' value 386.52, showed highly significant difference at this level with "p" <0.001.
3) The mean score of parameter before treatment (BT) was 7.55 which reduced to 4.10 at the end of 3rd Assessment (A3), SD 1.165 with 'f' value 1207.23, showed highly significant difference at this level with "p" <0.001.
4) The mean score of parameter before treatment (BT) was 7.55 which reduced to 2.30 at the end of after treatment (AT), SD 1.261 with 'f' value 1207.23, showed highly significant difference at this level with "p" <0.001.
5) The mean score of parameter before treatment (BT) was 7.55 which reduced to 1.15at the end of 1st Follow up (F1), SD 1.309 with 'f' value 363.73, showed highly significant difference at this level with "p" <0.001.

6) The mean score of parameter before treatment (BT) was 7.55 which reduced to 0.55 at the end of 2nd Follow Up (F2), SD 1.146 with 'f' value 363.73, showed highly significant difference at this level with "p" <0.001.

Within the group comparison at multiple levels showed following results:

i) The mean score BT at A1 showed 14% improvement of the parameter, 28% at A2, 46% at A3, 70% at AT, 85% at F1, 93% at F2.

ii) The mean score at A1 when compared with A2 showed 17% improvement of the parameter, 65% at AT, 92% at F2.

iii) The mean score at A2 when compared with A3 showed 24% improvement of the parameter, 57% at AT, 90% at F2.

iv) The mean score at A3 when compared with AT showed 44% improvement of the parameter, 72% at F1, 87% at F2.

v) The mean score at AT when compared with F1 showed 50% improvement of the parameter, 76% at F2.

vi) The mean score at F1 when compared with F2 showed 52% improvement of the parameter.

Group B

Table: Effect of Treatment within the GROUP -B on PAIN

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	7.05	1.146	Test of Within and between Subjects Effects						
A1	6.25	1.251	Within-Subjects Effects	Time	716.39	119.40	308.05	<0.001	HS
A2	5.25	1.164		Residual	44.19	0.39			
A3	4.10	1.210	Within-Subjects Contrasts	Time	706.50	706.50	565.24	<0.001	HS
AT	2.35	1.226		Error	23.75	1.25			
F1	1.35	1.226	Between-Subjects Effects	Intercept	2106.06	2106.06	285.08	<0.001	HS
F2	0.80	1.005		Error	140.36	7.39			

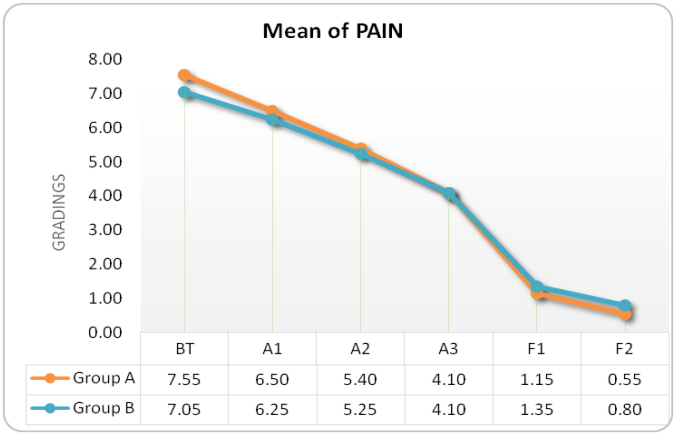
Pairwise Comparisons By: Bonferroni			Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change		Lower Bound	Upper Bound			
BT	A1	11%	0.80	0.15	1.45	0.186	0.008	S
	A2	26%	1.80	1.10	2.50	0.2	0.000	HS
	A3	42%	2.95	2.17	3.73	0.223	0.000	HS
	AT	67%	4.70	3.78	5.62	0.263	0.000	HS
	F1	81%	5.70	4.75	6.65	0.272	0.000	HS
	F2	89%	6.25	5.34	7.16	0.26	0.000	HS
A1	A2	16%	1.00	0.56	1.44	0.126	0.000	HS
	AT	62%	3.90	3.02	4.78	0.25	0.000	HS
	F2	87%	5.45	4.63	6.27	0.235	0.000	HS
A2	A3	22%	1.15	0.69	1.61	0.131	0.000	HS
	AT	55%	2.90	2.19	3.61	0.204	0.000	HS
	F2	85%	4.45	3.80	5.10	0.185	0.000	HS
A3	AT	43%	1.75	1.25	2.25	0.143	0.000	HS
	F1	67%	2.75	2.19	3.31	0.16	0.000	HS
	F2	80%	3.30	2.79	3.82	0.147	0.000	HS
AT	F1	43%	1.00	0.64	1.36	0.103	0.000	HS
	F2	66%	1.55	1.15	1.95	0.114	0.000	HS
F1	F2	41%	0.55	0.15	0.95	0.114	0.003	S

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1. The mean score of parameter before treatment(BT) was 7.05 which reduced to 6.25 at the end of 1st Assessment (A1), SD 1.251 with 'f' value 308.05, showed highly significant difference at this level with "p" <0.001.
2. The mean score of parameter before treatment(BT) was 7.05 which reduced to 5.25 at the end of 2nd Assessment (A2), SD 1.164 with 'f' value 308.05, showed highly significant difference at this level with "p" <0.001.
3. The mean score of parameter before treatment(BT) was 7.05 which reduced to 4.10 at the end of 3rd Assessment (A3), SD 1.210 with 'f' value 565.24, showed highly significant difference at this level with "p" <0.001.
4. The mean score of parameter before treatment(BT) was 7.05 which reduced to 1.35at the end of 1st Follow up (F1), SD 1.226 with 'f' value 285.08, showed highly significant difference at this level with "p" <0.001.
5. The mean score of parameter before treatment(BT) was 7.05 which reduced to 0.85 at theend of 2nd Follow Up (F2), SD 1.005 with 'f' value 285.08, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

a. The mean score BT at A1 showed 11% improvement of the parameter, 26% at A2, 42% at A3, 67% at AT, 81% at F1, 89% at F2.
b. The mean score at A1 when compared with A2 showed 16% improvement of the parameter, 62% at AT, 87% at F2.
c. The mean score at A2 when compared with A3 showed 22% improvement of the parameter, 55% at AT, 85% at F2.
d. The mean score at A3 when compared with AT showed 43% improvement of the parameter, 67% at F1, 80% at F2.
e. The mean score at AT when compared with F1 showed 43% improvement of the parameter, 66% at F2.
f. The mean score at F1 when compared with F2 showed 41% improvement of the parameter.

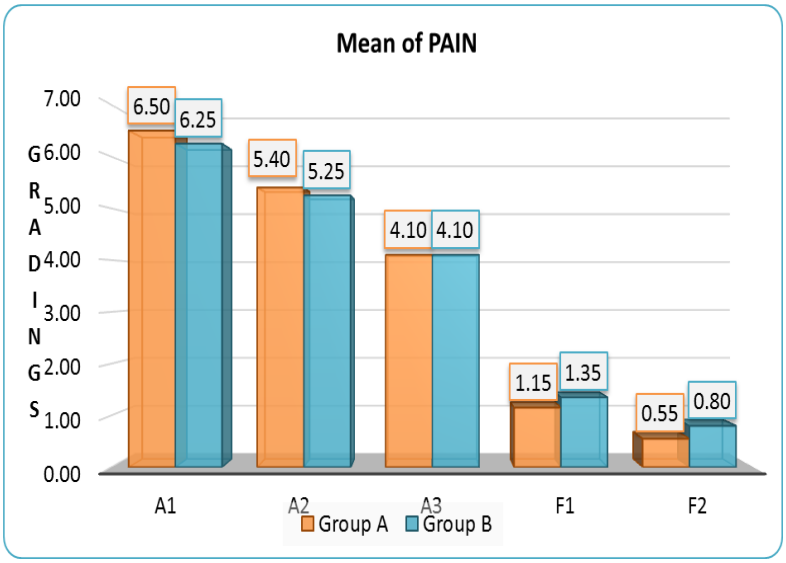


Comparision between the groups on pain

Table : Comparisons Between Groups A and B in PAIN

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
A1	Group A	6.50	0.83	20	21.75	435.0	175.0	0.71	>0.05	IS
	Group B	6.25	1.25	20	19.25	385.0				
A2	Group A	5.40	1.00	20	21.18	423.5	186.5	0.38	>0.05	IS
	Group B	5.25	1.16	20	19.83	396.5				
A3	Group A	4.10	1.17	20	20.43	408.5	198.5	0.04	>0.05	IS
	Group B	4.10	1.21	20	20.58	411.5				
AT	Group A	2.30	1.26	20	19.93	398.5	188.5	0.34	>0.05	IS
	Group B	2.35	1.23	20	21.08	421.5				
F1	Group A	1.15	1.31	20	18.78	375.5	165.5	0.99	>0.05	IS
	Group B	1.35	1.23	20	22.23	444.5				
F2	Group A	0.55	1.15	20	18.00	360.0	150.0	1.54	>0.05	IS
	Group B	0.80	1.01	20	23.00	460.0				

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.



Comparison between Group A and Group B of parameter Pain using Mann-Whitney U test Rank Showed following

i) At the end of A1 the mean score of group A was 6.50 and group B was 6.25 with sum of rank 435.0 in group A and 385 in group B, Z value 0.71 statistically showed insignificant difference between both group with P>0.05.

Comparison between Group A and Group B of parameter Pain using Mann-Whitney Utest Rank Showed following

ii) At the end of A1 the mean score of group A was 6.50 and group B was 6.25 with sum of rank 435.0 in group A and 385 in group B, Z value 0.71 statistically showed insignificant difference between both group with P>0.05.

iii) At the end of F1 the mean score of group A was 1.15 and group B was 1.35 with sum of rank 375.5 in group A and 444.5 in group B, Z value 0.99 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

iv) At the end of F2 the mean score of group A was 0.55 and group B was 0.80 with sum of rank 360 in group A and 460 in group B, Z value 1.54 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

v) At the end of F2 the mean score of group A was 0.55 and group B was 0.80 with sum of rank 360 in group A and 460 in group B, Z value 1.54 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

b) Wound size

Comparison within the group on wound size

Group A

Table: Effect of Treatment within the GROUP- A on WOUND SIZE

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	3.05	0.999	Test of Within and between Subjects Effects						
A1	2.80	1.056	Within-Subjects Effects	Time	148.60	24.77	128.50	<0.001	HS
A2	1.95	0.945		Residual	21.97	0.19			
A3	1.50	0.827	Within-Subjects Contrasts	Time	146.06	146.06	356.12	<0.001	HS
AT	0.90	1.071		Error	7.79	0.41			
F1	0.45	0.605	Between-Subjects Effects	Intercept	336.35	336.35	79.81	<0.001	HS
F2	0.20	0.410		Error	80.08	4.22			

Pairwise Comparisons By: Bonferroni			Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change		Lower Bound	Upper Bound			
BT	A1	8%	0.25	-0.10	0.60	0.099	0.441	IS
	A2	36%	1.10	0.60	1.60	0.143	0.000	HS
	A3	51%	1.55	1.08	2.02	0.135	0.000	HS
	AT	70%	2.15	1.69	2.61	0.131	0.000	HS
	F1	85%	2.60	2.01	3.19	0.169	0.000	HS
	F2	93%	2.85	2.27	3.43	0.167	0.000	HS
A1	A2	30%	0.85	0.39	1.31	0.131	0.000	HS
	AT	68%	1.90	1.55	2.25	0.1	0.000	HS
	F2	93%	2.60	2.01	3.19	0.169	0.000	HS
A2	A3	23%	0.45	0.05	0.85	0.114	0.018	MS
	AT	54%	1.05	0.51	1.59	0.153	0.000	HS
	F2	90%	1.75	1.25	2.25	0.143	0.000	HS
A3	AT	40%	0.60	0.21	0.99	0.112	0.001	HS
	F1	70%	1.05	0.58	1.52	0.135	0.000	HS
	F2	87%	1.30	0.93	1.67	0.105	0.000	HS
AT	F1	50%	0.45	-0.09	0.99	0.153	0.180	IS
	F2	78%	0.70	0.13	1.27	0.164	0.009	S
F1	F2	56%	0.25	-0.10	0.60	0.099	0.441	IS

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1) The mean score of parameter before treatment(BT) was 3.05 which reduced to 2.80 at the end of 1st Assessment (A1), SD 1.056 with 'f' value 128.59, showed highly significant difference at this level with "p" <0.001.
2) The mean score of parameter before treatment(BT) was 3.05 which reduced to 1.95 at the end of 2nd Assessment (A2), SD 0.945 with 'f' value 128.50, showed highly significant difference at this level with "p" <0.001.
3) The mean score of parameter before treatment(BT) was 3.05 which reduced to 1.50 at the end of 3rd Assessment (A3), SD 0.827 with 'f' value 356.12, showed highly significant difference at this level with "p" <0.001.
4) The mean score of parameter before treatment(BT) was 3.05 which reduced to 0.90 at the end of after treatment (AT), SD 1.071 with 'f' value 356.12, showed highly significant difference at this level with "p" <0.001.
5) The mean score of parameter before treatment(BT) was 3.05 which reduced to 0.45 at the end of 1st Follow up (F1), SD 0.605 with 'f' value 79.81, showed highly significant difference at this level with "p" <0.001.

6) The mean score of parameter before treatment(BT) was 3.05 which reduced to 0.20 at theend of 2nd Follow Up (F2), SD 0.410 with 'f' value 79.81, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

i) The mean score BT at A1 showed 8% improvement of the parameter, 36% at A2, 51% at A3, 70% at AT, 85% at F1, 93% at F2.

ii) The mean score at A1 when compared with A2 showed 30% improvement of the parameter, 68% at AT, 93% at F2.

iii) The mean score at A2 when compared with A3 showed 23% improvement of the parameter, 54% at AT, 90% at F2.

iv) The mean score at A3 when compared with AT showed 40% improvement of the parameter, 70% at F1, 87% at F2.

v) The mean score at AT when compared with F1 showed 50% improvement of the parameter, 78% at F2.

vi) The mean score at F1 when compared with F2 showed 56% improvement of the parameter.

Group B

Table: Effect of Treatment within the GROUP -B on WOUND SIZE

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	3.00	1.170	Test of Within and between Subjects Effects						
A1	2.95	1.099	Within-Subjects Effects	Time	131.30	21.88	112.74	<0.001	HS
A2	2.10	1.165		Residual	22.13	0.19			
A3	1.70	0.979	Within-Subjects Contrasts	Time	128.26	128.26	180.13	<0.001	HS
AT	1.10	0.968		Error	13.53	0.71			
F1	0.65	0.745	Between-Subjects Effects	Intercept	404.60	404.60	73.94	<0.001	HS
F2	0.40	0.503		Error	103.97	5.47			

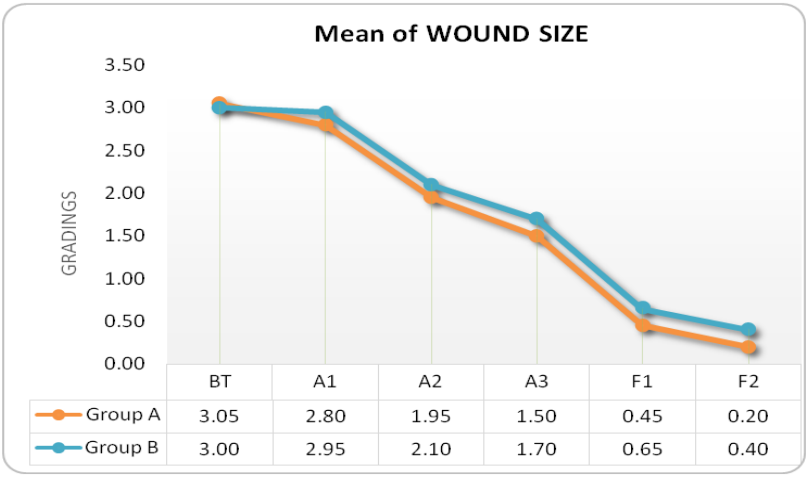
Pairwise Comparisons By: Bonferroni			Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change		Lower Bound	Upper Bound			
BT	A1	2%	0.05	-0.13	0.23	0.05	1.000	IS
	A2	30%	0.90	0.66	1.14	0.069	0.000	HS
	A3	43%	1.30	0.93	1.67	0.105	0.000	HS
	AT	63%	1.90	1.40	2.40	0.143	0.000	HS
	F1	78%	2.35	1.77	2.93	0.167	0.000	HS
	F2	87%	2.60	1.86	3.34	0.21	0.000	HS
A1	A2	29%	0.85	0.56	1.14	0.082	0.000	HS
	AT	63%	1.85	1.39	2.31	0.131	0.000	HS
	F2	86%	2.55	1.86	3.25	0.198	0.000	HS
A2	A3	19%	0.40	0.01	0.79	0.112	0.044	MS
	AT	48%	1.00	0.49	1.51	0.145	0.000	HS
	F2	81%	1.70	0.98	2.42	0.206	0.000	HS
A3	AT	35%	0.60	0.21	0.99	0.112	0.001	HS
	F1	62%	1.05	0.65	1.45	0.114	0.000	HS
	F2	76%	1.30	0.73	1.87	0.164	0.000	HS
AT	F1	41%	0.45	0.05	0.85	0.114	0.018	MS
	F2	64%	0.70	0.19	1.22	0.147	0.003	S
F1	F2	38%	0.25	-0.10	0.60	0.099	0.441	IS

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1. The mean score of parameter before treatment(BT) was 3.00 which reduced to 2.95 at theend of 1st Assessment (A1), SD 1.099with 'f' value 112.74, showed highly significant difference at this level with "p" <0.001.
2. The mean score of parameter before treatment(BT) was 3.00 which reduced to 2.10 at the end of 2nd Assessment (A2), SD 1.165 with 'f' value 112.74, showed highly significant difference at this level with "p" <0.001.
3. The mean score of parameter before treatment(BT) was 3.00 which reduced to 1.70 at the end of 3rd Assessment (A3), SD 0.979 with 'f' value 180.13, showed highly significant difference at this level with "p" <0.001.
4. The mean score of parameter before treatment(BT) was 3.00 which reduced to 1.10 at the end of after treatment (AT), SD 0.968 with 'f' value 180.13, showed highly significant difference at this level with "p" <0.001
5. The mean score of parameter before treatment(BT) was 3.00 which reduced to 0.65 at theend of 1st Follow up (F1), SD 0.745 with 'f' value 73.94, showed highly significant difference at this level with "p" <0.001.
6. The mean score of parameter before treatment(BT) was 3.00 which reduced to 0.40 at theend of 2nd Follow Up (F2), SD 0.503 with 'f' value 73.94, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

a. The mean score BT at A1 showed 2% improvement of the parameter, 30% at A2, 43% at A3, 63% at AT, 78% at F1, 87% at F2.
b. The mean score at A1 when compared with A2 showed 29% improvement of the parameter, 63% at AT, 86% at F2.
c. The mean score at A2 when compared with A3 showed 19% improvement of the parameter, 48% at AT, 81% at F2.
d. The mean score at A3 when compared with AT showed 35% improvement of the parameter, 62% at F1, 76% at F2.
e. The mean score at AT when compared with F1 showed 41% improvement of the parameter, 64% at F2.
f. The mean score at F1 when compared with F2 showed 38% improvement of the parameter.

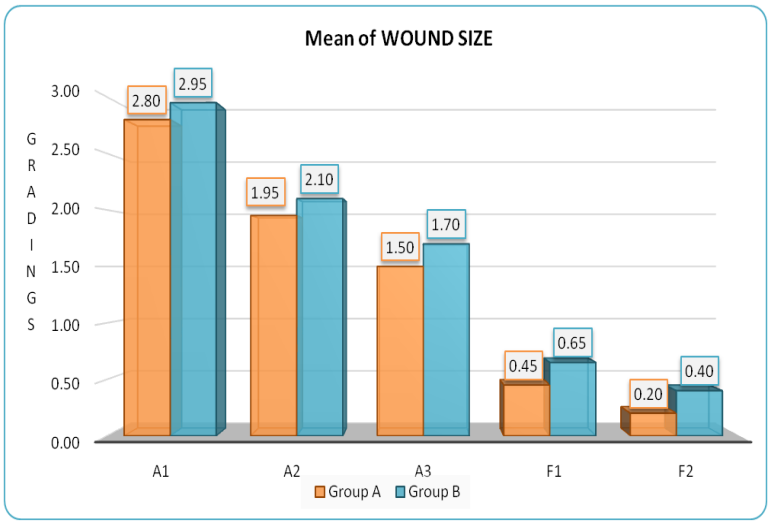


Comparison between the groups on wound size

Table : Comparisons Between Groups A and B in WOUND SIZE

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
A1	Group A	2.80	1.06	20	19.63	392.5	182.5	0.51	>0.05	IS
	Group B	2.95	1.10	20	21.38	427.5				
A2	Group A	1.95	0.95	20	20.15	403.0	193.0	0.20	>0.05	IS
	Group B	2.10	1.17	20	20.85	417.0				
A3	Group A	1.50	0.83	20	19.45	389.0	179.0	0.67	>0.05	IS
	Group B	1.70	0.98	20	21.55	431.0				
AT	Group A	0.90	1.07	20	19.00	380.0	170.0	0.86	>0.05	IS
	Group B	1.10	0.97	20	22.00	440.0				
F1	Group A	0.45	0.61	20	19.15	383.0	173.0	0.82	>0.05	IS
	Group B	0.65	0.75	20	21.85	437.0				
F2	Group A	0.20	0.41	20	18.50	370.0	160.0	1.36	>0.05	IS
	Group B	0.40	0.50	20	22.50	450.0				

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.



Comparison between Group A and Group B of parameter Wound size using Mann-Whitney U test Rank Showed following

i) At the end of A1 the mean score of group A was 2.80 and group B was 2.95 with sum of rank 392.5 in group A and 427.5 in group B, Z value 0.51 statistically showed insignificant difference between both group with P>0.05.

Even though statistically there is insignificant difference between groups, but On thebasis of sum of rank group A is better than group B.

ii) At the end of A2 the mean score of group A was 1.95 and group B was 2.10 with sum of rank 403.0 in group A and 417.0 in group B, Z value 0.20 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

iii) At the end of A3 the mean score of group A was 1.50 and group B was 1.70 with sum of rank 389.0 in group A and 431.0 in group B, Z value 0.67 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

iv) At the end of AT the mean score of group A was 0.90 and group B was 1.10 with sum of rank 380.0 in group A and 440.0 in group B, Z value 0.86 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

v) At the end of F1 the mean score of group A was 0.45 and group B was 0.75 with sum of rank 383.0 in group A and 437.0 in group B, Z value 0.82 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

vi) At the end of F2 the mean score of group A was 0.20 and group B was 0.40 with sum of rank 370.0 in group A and 450.0 in group B, Z value 1.36 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

c) Depth of the cavity

Comparison within the group on granulation tissue

Group A

Table: Effect of Treatment within the GROUP- A on DEPTH OF THE CAVITY

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	3.25	0.639	Test of Within and between Subjects Effects						
A1	2.85	0.671	Within-Subjects Effects	Time	203.60	33.93	207.02	<0.001	HS
A2	1.95	0.510		Residual	18.69	0.16			
A3	1.10	0.718	Within-Subjects Contrasts	Time	193.29	193.29	750.85	<0.001	HS
AT	0.40	0.598		Error	4.89	0.26			
F1	0.20	0.410	Between-Subjects Effects	Intercept	274.40	274.40	223.62	<0.001	HS
F2	0.05	0.224		Error	23.31	1.23			

Pairwise Comparisons By: Bonferroni				Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change			Lower Bound	Upper Bound			
BT	A1	12%	12%	0.40	0.01	0.79	0.112	0.044	MS
	A2	40%	40%	1.30	0.79	1.82	0.147	0.000	HS
	A3	66%	66%	2.15	1.57	2.73	0.167	0.000	HS
	AT	88%	88%	2.85	2.39	3.31	0.131	0.000	HS
	F1	94%	94%	3.05	2.58	3.52	0.135	0.000	HS
	F2	98%	98%	3.20	2.72	3.68	0.138	0.000	HS
A1	A2	32%	32%	0.90	0.55	1.25	0.1	0.000	HS
	AT	86%	86%	2.45	1.98	2.92	0.135	0.000	HS
	F2	98%	98%	2.80	2.32	3.28	0.138	0.000	HS
A2	A3	44%	44%	0.85	0.39	1.31	0.131	0.000	HS
	AT	79%	79%	1.55	1.15	1.95	0.114	0.000	HS
	F2	97%	97%	1.90	1.55	2.25	0.1	0.000	HS
A3	AT	64%	64%	0.70	0.25	1.15	0.128	0.001	HS
	F1	82%	82%	0.90	0.40	1.40	0.143	0.000	HS
	F2	95%	95%	1.05	0.51	1.59	0.153	0.000	HS
AT	F1	50%	50%	0.20	-0.12	0.52	0.092	0.884	IS
	F2	88%	88%	0.35	-0.03	0.73	0.109	0.099	IS
F1	F2	75%	75%	0.15	-0.14	0.44	0.082	1.000	IS

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1) The mean score of parameter before treatment(BT) was 3.25 which reduced to 2.85 at the end of 1st Assessment (A1), SD 0.639 with 'f' value 207.02 , showed highly significant difference at this level with "p" <0.001.
2) The mean score of parameter before treatment(BT) was 3.25 which reduced to 1.95 at the end of 2nd Assessment (A2), SD 0.510 with 'f' value 207.02, showed highly significant difference at this level with "p" <0.001.
3) The mean score of parameter before treatment(BT) was 3.25which reduced to 1.10 at the end of 3rd Assessment (A3), SD 0.718 with 'f' value 750.85, showed highly significant difference at this level with "p" <0.001.
4) The mean score of parameter before treatment(BT) was 3.25 which reduced to 0.40 at the end of after treatment (AT), SD 0.598 with 'f' value 750.85 , showed highly significant difference at this level with "p" <0.001.

5) The mean score of parameter before treatment(BT) was 3.25 which reduced to 0.20 at theend of 1st Follow up (F1), SD 0.410 with 'f' value 223.62 , showed highly significant difference at this level with "p" <0.001.
6) The mean score of parameter before treatment(BT) was 3.25 which reduced to 0.05 at theend of 2nd Follow Up (F2), SD 0.224 with 'f' value 223.62, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

a) The mean score BT at A1 showed 12% improvement of the parameter, 40% at A2, 66% atA3, 88% at AT, 94% at F1, 98% at F2.
b) The mean score at A1 when compared with A2 showed 32% improvement of the parameter, 86% at AT, 98% at F2.
c) The mean score at A2 when compared with A3 showed 44% improvement of the parameter, 79% at AT, 97% at F2.
d) The mean score at A3 when compared with AT showed 64% improvement of the parameter, 82% at F1, 95% at F2.
e) The mean score at AT when compared with F1 showed 50% improvement of the parameter, 88% at F2.
f) The mean score at F1 when compared with F2 showed 75% improvement of the parameter.

Group B

Table: Effect of Treatment within the GROUP -B on DEPTH OF THE CAVITY

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	3.30	0.470	Test of Within and between Subjects Effects						
A1	3.00	0.649	Within-Subjects Effects	Time	160.17	26.70	173.48	<0.001	HS
A2	2.15	0.671		Residual	17.54	0.15			
A3	1.45	0.826	Within-Subjects Contrasts	Time	153.30	153.30	676.54	<0.001	HS
AT	0.85	0.745		Error	4.31	0.23			
F1	0.60	0.598	Between-Subjects Effects	Intercept	397.83	397.83	186.83	<0.001	HS
F2	0.45	0.605		Error	40.46	2.13			

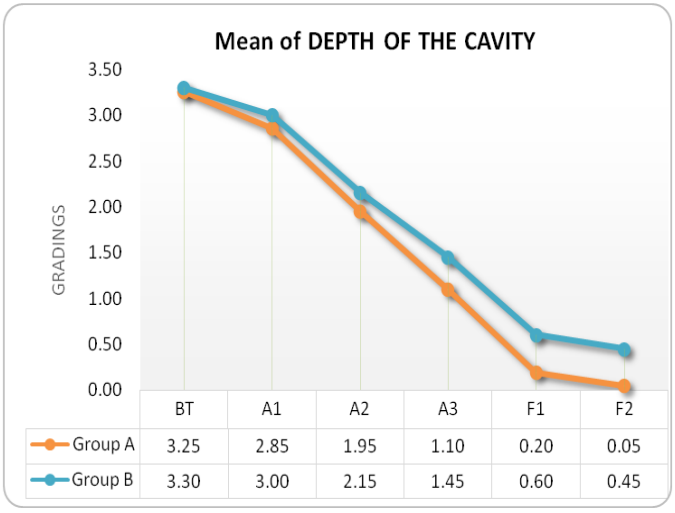
Pairwise Comparisons By: Bonferroni			Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change		Lower Bound	Upper Bound			
BT	A1	9%	0.30	-0.07	0.67	0.105	0.213	IS
	A2	35%	1.15	0.77	1.53	0.109	0.000	HS
	A3	56%	1.85	1.33	2.38	0.15	0.000	HS
	AT	74%	2.45	1.98	2.92	0.135	0.000	HS
	F1	82%	2.70	2.25	3.15	0.128	0.000	HS
	F2	86%	2.85	2.47	3.23	0.109	0.000	HS
A1	A2	28%	0.85	0.47	1.23	0.109	0.000	HS
	AT	72%	2.15	1.77	2.53	0.109	0.000	HS
	F2	85%	2.55	2.15	2.95	0.114	0.000	HS
A2	A3	33%	0.70	0.33	1.07	0.105	0.000	HS
	AT	60%	1.30	0.85	1.75	0.128	0.000	HS
	F2	79%	1.70	1.13	2.27	0.164	0.000	HS
A3	AT	41%	0.60	0.21	0.99	0.112	0.001	HS
	F1	59%	0.85	0.39	1.31	0.131	0.000	HS
	F2	69%	1.00	0.43	1.57	0.162	0.000	HS
AT	F1	29%	0.25	-0.10	0.60	0.099	0.441	IS
	F2	47%	0.40	-0.07	0.87	0.134	0.158	IS
F1	F2	25%	0.15	-0.14	0.44	0.082	1.000	IS

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1) The mean score of parameter before treatment(BT) was 3.30 which reduced to 3.00 at the end of 1st Assessment (A1), SD 0.649 with 'f' value 173.48 , showed highly significant difference at this level with "p" <0.001.
2) The mean score of parameter before treatment(BT) was 3.30 which reduced to 2.15 at the end of 2nd Assessment (A2), SD 0.671 with 'f' value 173.48, showed highly significant difference at this level with "p" <0.001.
3) The mean score of parameter before treatment(BT) was 3.30 which reduced to 1.45 at the end of 3rd Assessment (A3), SD 0.826 with 'f' value 676.54, showed highly significant difference at this level with "p" <0.001.
4) The mean score of parameter before treatment(BT) was 3.30 which reduced to 0.85 at the end of after treatment (AT), SD 0.745 with 'f' value 676.54 , showed highly significant difference at this level with "p" <0.001.
5) The mean score of parameter before treatment(BT) was 3.30 which reduced to 0.60 at theend of 1st Follow up (F1), SD 0.598 with 'f' value 186.83 , showed highly significant difference at this level with "p" <0.001.
6) The mean score of parameter before treatment(BT) was 3.30 which reduced to 0.45 at theend of 2nd Follow Up (F2), SD 0.605 with 'f' value 186.83, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

a) The mean score BT at A1 showed 9% improvement of the parameter, 35% at A2, 56% at A3, 74% at AT, 82% at F1, 86% at F2.
b) The mean score at A1 when compared with A2 showed 28% improvement of the parameter, 72% at AT, 85% at F2.
c) The mean score at A2 when compared with A3 showed 33% improvement of the parameter, 60% at AT, 79% at F2.
d) The mean score at A3 when compared with AT showed 41% improvement of the parameter, 59% at F1, 69% at F2.
e) The mean score at AT when compared with F1 showed 29% improvement of the parameter, 47% at F2.
f) The mean score at F1 when compared with F2 showed 25% improvement of the parameter.

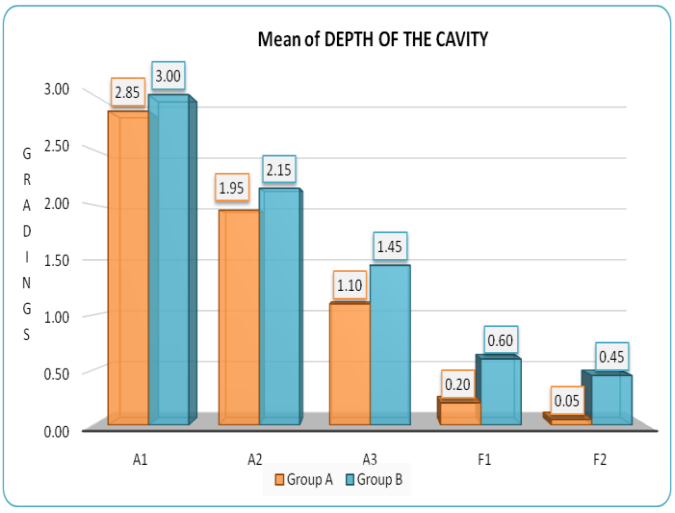


Comparison between both groups on depth of the cavity

Table : Comparisons Between Groups A and B in DEPTH OF THE CAVITY

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
A1	Group A	2.85	0.67	20	19.30	386.0	176.0	0.73	>0.05	IS
	Group B	3.00	0.65	20	21.70	434.0				
A2	Group A	1.95	0.51	20	18.80	376.0	166.0	1.09	>0.05	IS
	Group B	2.15	0.67	20	22.20	444.0				
A3	Group A	1.10	0.72	20	18.30	366.0	156.0	1.29	>0.05	IS
	Group B	1.45	0.83	20	22.70	454.0				
AT	Group A	0.40	0.60	20	17.13	342.5	132.5	2.02	<0.05	MS
	Group B	0.85	0.75	20	23.88	477.5				
F1	Group A	0.20	0.41	20	16.90	338.0	128.0	2.31	<0.05	MS
	Group B	0.60	0.60	20	24.10	482.0				
F2	Group A	0.05	0.22	20	16.98	339.5	129.5	2.63	<0.01	S
	Group B	0.45	0.61	20	24.03	480.5				

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.



Comparison between Group A and Group B of parameter Depth of cavity using Mann-Whitney U test Rank Showed following

i) At the end of A1 the mean score of group A was 2.85 and group B was 3.00 with sum of rank 386.0 in group A and 434.0 in group B, Z value 0.73 statistically showed insignificant difference between both group with P>0.05.

Even though statistically there is insignificant difference between groups, but On thebasis of sum of rank group A is better than group B.

ii) At the end of A2 the mean score of group A was 1.95 and group B was 2.15 with sum of rank 376.0 in group A and 444.0 in group B, Z value 1.09 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

iii) At the end of A3 the mean score of group A was 1.10 and group B was 1.45 with sum of rank 366.0 in group A and 454.0 in group B, Z value 1.29 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

iv) At the end of AT the mean score of group A was 0.40 and group B was 0.85 with sum of rank 348.0 in group A and 477.0 in group B, Z value 2.02 statistically showed moderate significant difference between both group with P<0.05.

On the basis of sum of rank group A is better than group B.

v) At the end of F1 the mean score of group A was 0.20 and group B was 0.60 with sum of rank 338.0 in group A and 482.0 in group B, Z value 2.31 statistically showed moderate significant difference between both group with P<0.05.

On the basis of sum of rank group A is better than group B.

vi) At the end of F2 the mean score of group A was 0.05 and group B was 0.45 with sum of rank 339.0 in group A and 480.0 in group B, Z value 2.63 statistically showed significant difference between both group with P<0.05.

On the basis of sum of rank group A is better than group B

Granulation tissue

Comparison within the group on granulation tissue

Group A

Table: Effect of Treatment within the GROUP- A on GRANULATION TISSUE

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	2.80	0.410	Test of Within and between Subjects Effects						
A1	2.50	0.607	Within-Subjects Effects	Time	167.24	27.87	224.00	<0.001	HS
A2	1.55	0.605		Residual	14.19	0.12			
A3	0.65	0.587	Within-Subjects Contrasts	Time	151.22	151.22	547.44	<0.001	HS
AT	0.15	0.366		Error	5.25	0.28			
F1	0.05	0.224	Between-Subjects Effects	Intercept	171.61	171.61	233.49	<0.001	HS
F2	0.05	0.224		Error	13.96	0.74			

Pairwise Comparisons By: Bonferroni			Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change		Lower Bound	Upper Bound			
BT	A1	11%	0.30	-0.07	0.67	0.105	0.213	IS
	A2	45%	1.25	0.90	1.60	0.099	0.000	HS
	A3	77%	2.15	1.77	2.53	0.109	0.000	HS
	AT	95%	2.65	2.27	3.03	0.109	0.000	HS
	F1	98%	2.75	2.40	3.10	0.099	0.000	HS
	F2	98%	2.75	2.40	3.10	0.099	0.000	HS
A1	A2	38%	0.95	0.78	1.13	0.05	0.000	HS
	AT	94%	2.35	1.89	2.81	0.131	0.000	HS
	F2	98%	2.45	1.98	2.92	0.135	0.000	HS
A2	A3	58%	0.90	0.55	1.25	0.1	0.000	HS
	AT	90%	1.40	0.93	1.87	0.134	0.000	HS
	F2	97%	1.50	1.03	1.98	0.136	0.000	HS
A3	AT	77%	0.50	0.03	0.98	0.136	0.033	MS
	F1	92%	0.60	0.13	1.07	0.134	0.005	S
	F2	92%	0.60	0.13	1.07	0.134	0.005	S
AT	F1	67%	0.10	-0.14	0.34	0.069	1.000	IS
	F2	67%	0.10	-0.14	0.34	0.069	1.000	IS
F1	F2	0%	0.00	0.00	0.00	0	.	IS

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1) The mean score of parameter before treatment(BT) was 2.80 which reduced to 2.50 at theend of 1st Assessment (A1), SD 0.607 with 'f' value 224.0 , showed highly significant difference at this level with "p" <0.001.
2) The mean score of parameter before treatment(BT) was 2.80 which reduced to 1.55 at theend of 2nd Assessment (A2), SD 0.605 with 'f' value 224.0, showed highly significant difference at this level with "p" <0.001.
3) The mean score of parameter before treatment(BT) was 2.80 which reduced to 0.65 at the end of 3rd Assessment (A3), SD 0.587 with 'f' value 547.44, showed highly significant difference at this level with "p" <0.001.
4) The mean score of parameter before treatment(BT) was 2.80 which reduced to 0.15 at the end of after treatment (AT), SD 0.366 with 'f' value 547.44, showed highly significant difference at this level with "p" <0.001.

5) The mean score of parameter before treatment(BT) was 2.80 which reduced to 0.05 at theend of 1st Follow up (F1), SD 0.224 with 'f' value 233.49, showed highly significant difference at this level with "p" <0.001.
6) The mean score of parameter before treatment(BT) was 2.80 which reduced to 0.05 at theend of 2nd Follow Up (F2), SD 0.224 with 'f' value 233.49, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

a) The mean score BT at A1 showed 11% improvement of the parameter, 45% at A2, 77% atA3, 95% at AT, 98% at F1, 98% at F2.
b) The mean score at A1 when compared with A2 showed 38% improvement of the parameter, 94% at AT, 98% at F2.
c) The mean score at A2 when compared with A3 showed 58% improvement of the parameter, 90% at AT, 97% at F2.
d) The mean score at A3 when compared with AT showed 77% improvement of the parameter, 92% at F1, 92% at F2.
e) The mean score at AT when compared with F1 showed 67% improvement of the parameter, 67% at F2.
f) The mean score at F1 when compared with F2 showed 0% improvement of the parameter.

Group B

Table: Effect of Treatment within the GROUP -B on GRANULATION TISSUE

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	2.55	0.510	Test of Within and between Subjects Effects						
A1	2.45	0.510	Within-Subjects Effects	Time	105.30	17.55	161.16	<0.001	HS
A2	1.55	0.510		Residual	12.41	0.11			
A3	0.80	0.410	Within-Subjects Contrasts	Time	92.02	92.02	280.45	<0.001	HS
AT	0.50	0.513		Error	6.23	0.33			
F1	0.45	0.510	Between-Subjects Effects	Intercept	218.75	218.75	202.39	<0.001	HS
F2	0.45	0.510		Error	20.54	1.08			

Pairwise Comparisons By: Bonferroni			Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change		Lower Bound	Upper Bound			
BT	A1	4%	0.10	-0.14	0.34	0.069	1.000	IS
	A2	39%	1.00	0.64	1.36	0.103	0.000	HS
	A3	69%	1.75	1.32	2.18	0.123	0.000	HS
	AT	80%	2.05	1.65	2.45	0.114	0.000	HS
	F1	82%	2.10	1.67	2.53	0.124	0.000	HS
	F2	82%	2.10	1.67	2.53	0.124	0.000	HS
A1	A2	37%	0.90	0.66	1.14	0.069	0.000	HS
	AT	80%	1.95	1.55	2.35	0.114	0.000	HS
	F2	82%	2.00	1.56	2.44	0.126	0.000	HS
A2	A3	48%	0.75	0.40	1.10	0.099	0.000	HS
	AT	68%	1.05	0.65	1.45	0.114	0.000	HS
	F2	71%	1.10	0.67	1.53	0.124	0.000	HS
A3	AT	38%	0.30	-0.07	0.67	0.105	0.213	IS
	F1	44%	0.35	-0.03	0.73	0.109	0.099	IS
	F2	44%	0.35	-0.03	0.73	0.109	0.099	IS
AT	F1	10%	0.05	-0.13	0.23	0.05	1.000	IS
	F2	10%	0.05	-0.13	0.23	0.05	1.000	IS
F1	F2	0%	0.00	0.00	0.00	0	.	IS

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

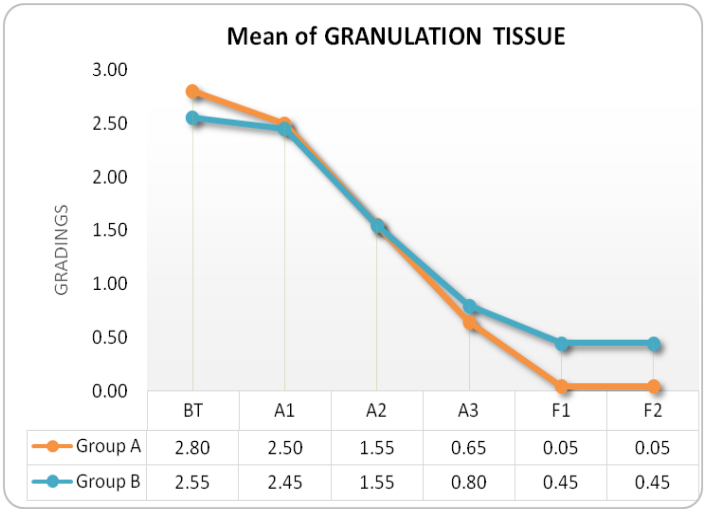
1) The mean score of parameter before treatment(BT) was 2.55 which reduced to 2.45 at

the end of 1st Assessment (A1), SD 0.510 with 'f' value 161.16, showed highly significant difference at this level with "p" <0.001.

2) The mean score of parameter before treatment(BT) was 2.55 which reduced to 1.55 at the end of 2nd Assessment (A2), SD 0.510 with 'f' value 161.16, showed highly significant difference at this level with "p" <0.001.
3) The mean score of parameter before treatment(BT) was 2.55 which reduced to 0.80 at the end of 3rd Assessment (A3), SD 0.410 with 'f' value 280.45, showed highly significant difference at this level with "p" <0.001. The mean score of parameter before treatment(BT) was 2.55 which reduced to 0.50 at the end of after treatment (AT), SD 0.513 with 'f' value 280.45, showed highly significant difference at this level with "p" <0.001.
4) The mean score of parameter before treatment(BT) was 2.55 which reduced to 0.45 at the end of 1st Follow up (F1), SD 0.510 with 'f' value 202.39, showed highly significant difference at this level with "p" <0.001.
5) The mean score of parameter before treatment(BT) was 2.55 which reduced to 0.45 at the end of 2nd Follow Up (F2), SD 0.510 with 'f' value 202.39, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

a) The mean score BT at A1 showed 4% improvement of the parameter, 39% at A2, 69% at A3, 80% at AT , 82% at F1, 82% at F2.
b) The mean score at A1 when compared with A2 showed 37% improvement of the parameter, 80% at AT, 82% at F2.
c) The mean score at A2 when compared with A3 showed 48% improvement of the parameter, 68% at AT, 71% at F2.
d) The mean score at A3 when compared with AT showed 38% improvement of the parameter, 44% at F1, 44% at F2.
e) The mean score at AT when compared with F1 showed 10% improvement of the parameter, 10% at F2.
f) The mean score at F1 when compared with F2 showed 0% improvement of the parameter.

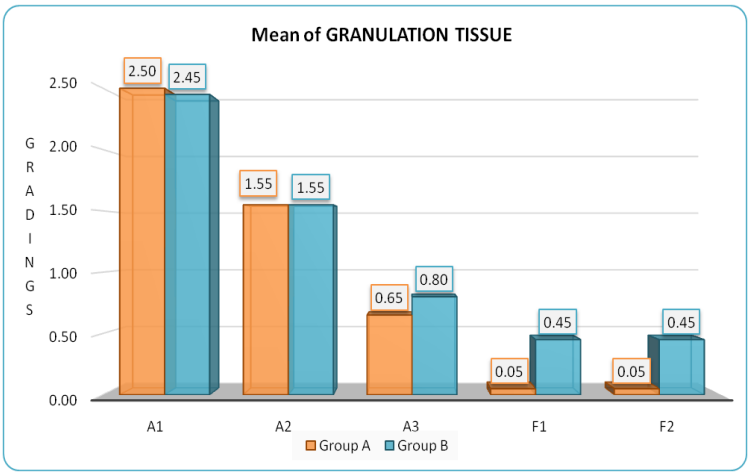


Comparison between groups on granulation tissue

Table : Comparisons Between Groups A and B in GRANULATION TISSUE

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
A1	Group A	2.50	0.61	20	21.23	424.5	185.5	0.45	>0.05	IS
	Group B	2.45	0.51	20	19.78	395.5				
A2	Group A	1.55	0.61	20	20.78	415.5	194.5	0.17	>0.05	IS
	Group B	1.55	0.51	20	20.23	404.5				
A3	Group A	0.65	0.59	20	18.90	378.0	168.0	1.06	>0.05	IS
	Group B	0.80	0.41	20	22.10	442.0				
AT	Group A	0.15	0.37	20	17.00	340.0	130.0	2.33	<0.05	MS
	Group B	0.50	0.51	20	24.00	480.0				
F1	Group A	0.05	0.22	20	16.50	330.0	120.0	2.88	<0.01	S
	Group B	0.45	0.51	20	24.50	490.0				
F2	Group A	0.05	0.22	20	16.50	330.0	120.0	2.88	<0.01	S
	Group B	0.45	0.51	20	24.50	490.0				

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.



Comparison between Group A and Group B of parameter Granulation tissue using Mann-Whitney U test Rank Showed following

i) At the end of A1 the mean score of group A was 2.50 and group B was 2.45 with sum of rank 424.5 in group A and 395.5 in group B, Z value 0.45 statistically showed insignificant difference between both group with P>0.05.

Even though statistically there is insignificant difference between groups, but On thebasis of sum of rank group B is better than group A.

ii) At the end of A2 the mean score of group A was 1.55 and group B was 1.55 with sum of rank 415.5 in group A and 404.5 in group B, Z value 0.17 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group B is better than group A.

iii) At the end of A3 the mean score of group A was 0.65 and group B was 0.80 with sum of rank 378.0 in group A and 442.0 in group B, Z value 1.06 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

iv) At the end of AT the mean score of group A was 0.15 and group B was 0.50 with sum of rank 340.0 in group A and 480.0 in group B, Z value 2.33 statistically showed moderate significant difference between both group with P<0.05.

On the basis of sum of rank group A is better than group B.

v) At the end of F1 the mean score of group A was 0.05 and group B was 0.45 with sum of rank 330.0 in group A and 490.0 in group B, Z value 2.88 statistically showed significant difference between both group with P<0.01.

On the basis of sum of rank group A is better than group B.

vi) At the end of F2 the mean score of group A was 0.05 and group B was 0.45 with sum of rank 330.0 in group A and 490.0 in group B, Z value 2.88 statistically showed insignificant difference between both group with P<0.01.

On the basis of sum of rank group A is better than group B

Discharge

Comparison within the group on discharge

Group A

Table: Effect of Treatment within the GROUP- A on DISCHARGE

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	2.60	0.503	Test of Within and between Subjects Effects						
A1	2.30	0.733	Within-Subjects Effects	Time	114.10	19.02	110.53	<0.001	HS
A2	1.70	0.657		Residual	19.61	0.17			
A3	1.15	0.587	Within-Subjects Contrasts	Time	109.83	109.83	250.98	<0.001	HS
AT	0.50	0.513		Error	8.31	0.44			
F1	0.30	0.470	Between-Subjects Effects	Intercept	218.75	218.75	184.43	<0.001	HS
F2	0.20	0.410		Error	22.54	1.19			

Pairwise Comparisons By: Bonferroni			Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change		Lower Bound	Upper Bound			
BT	A1	12%	0.30	-0.15	0.75	0.128	0.626	IS
	A2	35%	0.90	0.55	1.25	0.1	0.000	HS
	A3	56%	1.45	0.98	1.92	0.135	0.000	HS
	AT	81%	2.10	1.67	2.53	0.124	0.000	HS
	F1	88%	2.30	1.85	2.75	0.128	0.000	HS
	F2	92%	2.40	1.93	2.87	0.134	0.000	HS
A1	A2	26%	0.60	0.21	0.99	0.112	0.001	HS
	AT	78%	1.80	1.20	2.40	0.172	0.000	HS
	F2	91%	2.10	1.43	2.77	0.191	0.000	HS
A2	A3	32%	0.55	0.15	0.95	0.114	0.003	S
	AT	71%	1.20	0.72	1.68	0.138	0.000	HS
	F2	88%	1.50	0.96	2.04	0.154	0.000	HS
A3	AT	57%	0.65	0.27	1.03	0.109	0.000	HS
	F1	74%	0.85	0.47	1.23	0.109	0.000	HS
	F2	83%	0.95	0.55	1.35	0.114	0.000	HS
AT	F1	40%	0.20	-0.12	0.52	0.092	0.884	IS
	F2	60%	0.30	-0.07	0.67	0.105	0.213	IS
F1	F2	33%	0.10	-0.14	0.34	0.069	1.000	IS

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1) The mean score of parameter before treatment(BT) was 2.60 which reduced to 2.30 at the end of 1st Assessment (A1), SD 0.733 with 'f' value 110.53 , showed highly significant difference at this level with "p" <0.001.
2) The mean score of parameter before treatment(BT) was 2.60 which reduced to 1.70 at the end of 2nd Assessment (A2), SD 0.657 with 'f' value 110.53, showed highly significant difference at this level with "p" <0.001.
3) The mean score of parameter before treatment(BT) was 2.60 which reduced to 1.15 at the end of 3rd Assessment (A3), SD 0.587 with 'f' value 250.98, showed highly significant difference at this level with "p" <0.001.
4) The mean score of parameter before treatment(BT) was 2.60 which reduced to 0.50 at

the end of after treatment (AT), SD 0.513 with 'f' value 250.98 , showed highly significant difference at this level with "p" <0.001.

5) The mean score of parameter before treatment(BT) was 2.60 which reduced to 0.30 at theend of 1st Follow up (F1), SD 0.470 with 'f' value 184.43 , showed highly significant difference at this level with "p" <0.001.
6) The mean score of parameter before treatment(BT) was 2.60 which reduced to 0.20 at theend of 2nd Follow Up (F2), SD 0.410 with 'f' value 184.43, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

a) The mean score BT at A1 showed 12% improvement of the parameter, 35% at A2, 56% atA3, 81% at AT, 88% at F1, 92% at F2.
b) The mean score at A1 when compared with A2 showed 26% improvement of the parameter, 780% at AT, 91% at F2.
c) The mean score at A2 when compared with A3 showed 32% improvement of the parameter, 71% at AT, 88% at F2.
d) The mean score at A3 when compared with AT showed 57% improvement of the parameter, 74% at F1, 83% at F2.
e) The mean score at AT when compared with F1 showed 40% improvement of the parameter, 60% at F2.
f) The mean score at F1 when compared with F2 showed 33% improvement of the parameter.

Group B

Table: Effect of Treatment within the GROUP -B on DISCHARGE

N=20	Descriptives		Repeated measures of ANOVA test						
Observations Recorded on	Mean	±SD	Tests of Measure	Source of variation	Sum of Squares	Mean Square	F	P	Remarks
BT	2.35	0.489	Test of Within and between Subjects Effects						
A1	2.30	0.571	Within-Subjects Effects	Time	76.77	12.80	101.50	<0.001	HS
A2	1.80	0.616		Residual	14.37	0.13			
A3	1.30	0.657	Within-Subjects Contrasts	Time	73.59	73.59	260.04	<0.001	HS
AT	0.75	0.716		Error	5.38	0.28			
F1	0.60	0.598	Between-Subjects Effects	Intercept	260.58	260.58	148.77	<0.001	HS
F2	0.45	0.510		Error	33.28	1.75			

Pairwise Comparisons By: Bonferroni			Mean Difference (I-J)	95% CI for Difference		SE	Sig.	Remarks
(I) Time	(J) Time	% Change		Lower Bound	Upper Bound			
BT	A1	2%	0.05	-0.13	0.23	0.05	1.000	IS
	A2	23%	0.55	0.15	0.95	0.114	0.003	S
	A3	45%	1.05	0.65	1.45	0.114	0.000	HS
	AT	68%	1.60	1.13	2.07	0.134	0.000	HS
	F1	74%	1.75	1.32	2.18	0.123	0.000	HS
	F2	81%	1.90	1.47	2.33	0.124	0.000	HS
A1	A2	22%	0.50	0.10	0.90	0.115	0.007	S
	AT	67%	1.55	1.08	2.02	0.135	0.000	HS
	F2	80%	1.85	1.39	2.31	0.131	0.000	HS
A2	A3	28%	0.50	0.10	0.90	0.115	0.007	S
	AT	58%	1.05	0.65	1.45	0.114	0.000	HS
	F2	75%	1.35	0.97	1.73	0.109	0.000	HS
A3	AT	42%	0.55	0.15	0.95	0.114	0.003	S
	F1	54%	0.70	0.33	1.07	0.105	0.000	HS
	F2	65%	0.85	0.47	1.23	0.109	0.000	HS
AT	F1	20%	0.15	-0.14	0.44	0.082	1.000	IS
	F2	40%	0.30	-0.07	0.67	0.105	0.213	IS
F1	F2	25%	0.15	-0.14	0.44	0.082	1.000	IS

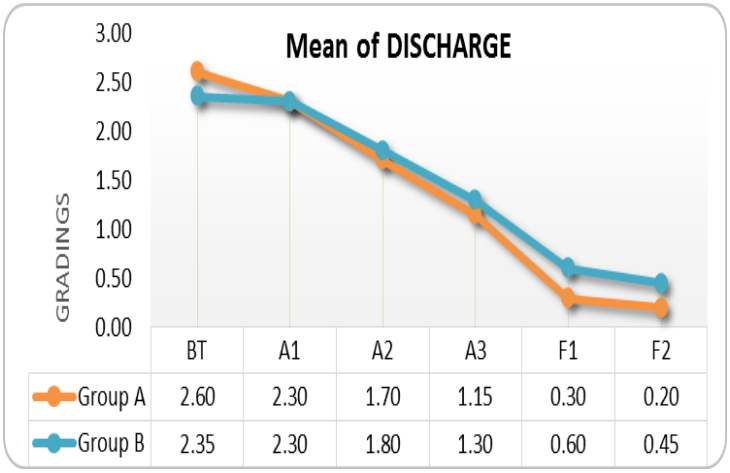
IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

1. The mean score of parameter before treatment(BT) was 2.35 which reduced to 2.30 at the end of 1st Assessment (A1), SD 0.571 with 'f' value 101.50, showed highly significant difference at this level with "p" <0.001.
2. The mean score of parameter before treatment(BT) was 2.35 which reduced to 1.80 at the end of 2nd Assessment (A2), SD 0.616 with 'f' value 101.50, showed highly significant difference at this level with "p" <0.001.
3. The mean score of parameter before treatment(BT) was 2.35 which reduced to 1.30 at the end of 3rd Assessment (A3), SD 0.657 with 'f' value 260.04, showed highly significant difference at this level with "p" <0.001. The mean score of parameter before treatment(BT) was 2.35 which reduced to 0.75 at the end of after treatment (AT), SD 0.716 with 'f' value 260.04 , showed highly significant difference at this level with "p" <0.001.
4. The mean score of parameter before treatment(BT) was 2.35 which reduced to 0.60 at theend of 1st Follow up (F1), SD 0.598 with 'f' value 148.77 , showed highly significant difference at this level with "p" <0.001.
5. The mean score of parameter before treatment(BT) was 2.35 which reduced to 0.45 at theend of 2nd Follow Up (F2), SD 0.510 with 'f' value 148.77, showed highly significant difference at this level with "p" <0.001.
6. The mean score of parameter before treatment(BT) was 2.35 which reduced to 0.45 at theend of 2nd Follow Up (F2), SD 0.510 with 'f' value 148.77, showed highly significant difference at this level with "p" <0.001.

Within group comparison at multiple levels showed following results

a) The mean score BT at A1 showed 2% improvement of the parameter, 23% at A2, 45% at A3, 68% at AT , 74% at F1, 81% at F2.
b) The mean score at A1 when compared with A2 showed 22% improvement of the parameter, 67% at AT, 80% at F2.
c) The mean score at A2 when compared with A3 showed 28% improvement of the parameter, 58% at AT, 75% at F2.
d) The mean score at A3 when compared with AT showed 42% improvement of the parameter,54% at F1, 65% at F2.
e) The mean score at AT when compared with F1 showed 20% improvement of the parameter, 40% at F2.
f) The mean score at F1 when compared with F2 showed 25% improvement of the

parameter.

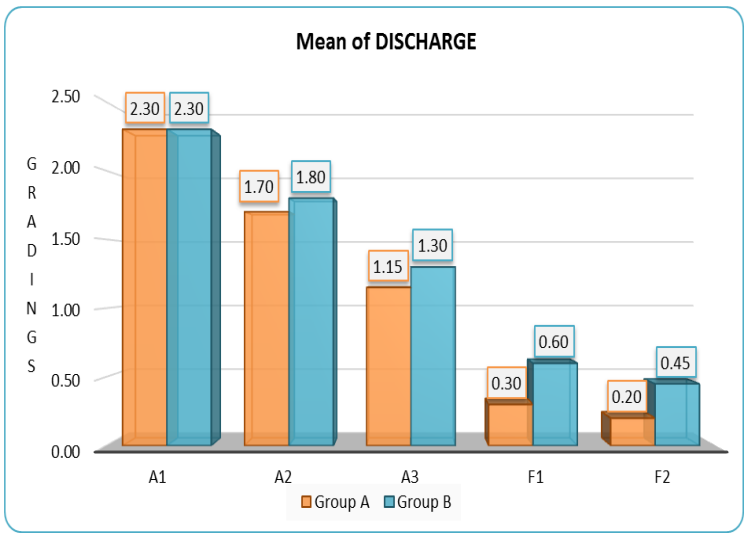


Comparison between groups on discharge

Table : Comparisons Between Groups A and B in DISCHARGE

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
A1	Group A	2.30	0.73	20	20.80	416.0	194.0	0.18	>0.05	IS
	Group B	2.30	0.57	20	20.20	404.0				
A2	Group A	1.70	0.66	20	19.60	392.0	182.0	0.55	>0.05	IS
	Group B	1.80	0.62	20	21.40	428.0				
A3	Group A	1.15	0.59	20	19.15	383.0	173.0	0.83	>0.05	IS
	Group B	1.30	0.66	20	21.85	437.0				
AT	Group A	0.50	0.51	20	18.75	375.0	165.0	1.06	>0.05	IS
	Group B	0.75	0.72	20	22.25	445.0				
F1	Group A	0.30	0.47	20	17.85	357.0	147.0	1.66	>0.05	IS
	Group B	0.60	0.60	20	23.15	463.0				
F2	Group A	0.20	0.41	20	18.00	360.0	150.0	1.67	>0.05	IS
	Group B	0.45	0.51	20	23.00	460.0				

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.



Comparison between Group A and Group B of parameter Discharge using Mann-Whitney U test Rank Showed following

i) At the end of A1 the mean score of group A was 2.30 and group B was 2.30 with sum of rank 416.0 in group A and 404.0 in group B, Z value 0.18 statistically showed insignificant difference between both group with P>0.05.

Even though statistically there is insignificant difference between groups, but On thebasis of sum of rank group B is better than group A.

ii) At the end of A2 the mean score of group A was 1.70 and group B was 1.80 with sum of rank 392.0 in group A and 428.0 in group B, Z value 0.55 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

iii) At the end of A3 the mean score of group A was 1.15 and group B was 1.30 with sum of rank 383.0 in group A and 437.0 in group B, Z value 0.83 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

iv) At the end of AT the mean score of group A was 0.50 and group B was 0.75 with sum of rank 375.0 in group A and 445.0 in group B, Z value 1.06 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

v) At the end of F1 the mean score of group A was 0.30 and group B was 0.60 with sum of rank 357.0 in group A and 463.0 in group B, Z value 1.66 statistically showed insignificant difference between both group with P>0.05.

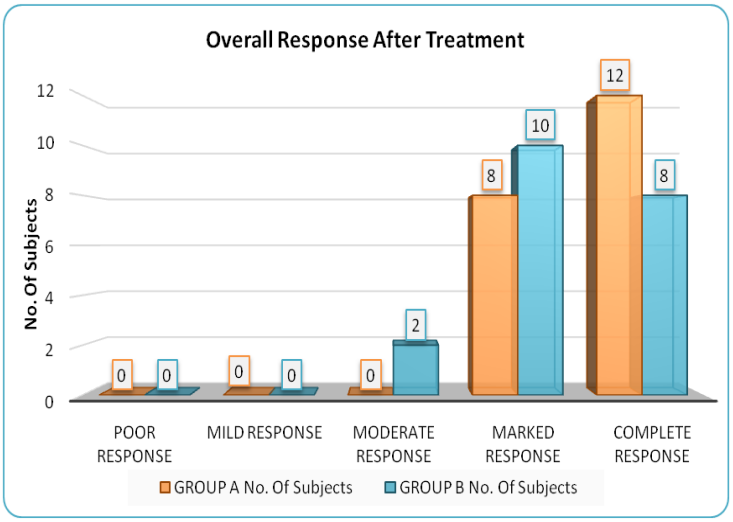
On the basis of sum of rank group A is better than group B.

vi) At the end of F2 the mean score of group A was 0.20 and group B was 0.45 with sum of rank 360.0 in group A and 460.0 in group B, Z value 1.67 statistically showed insignificant difference between both group with P>0.05.

On the basis of sum of rank group A is better than group B.

Overall response of both groups after treatment

Overall Response After Treatment					
Grouping	Response	GROUP A		GROUP B	
		No. Of Subjects	%	No. Of Subjects	%
(0%-25%)	Poor Response	0	0%	0	0%
(25%-50%)	Mild Response	0	0%	0	0%
(50%-75%)	Moderate Response	0	0%	2	10%
(75%-99%)	Marked Response	8	40%	10	50%
(>99%)	Complete Response	12	60%	8	40%
Total		20	100%	20	100%

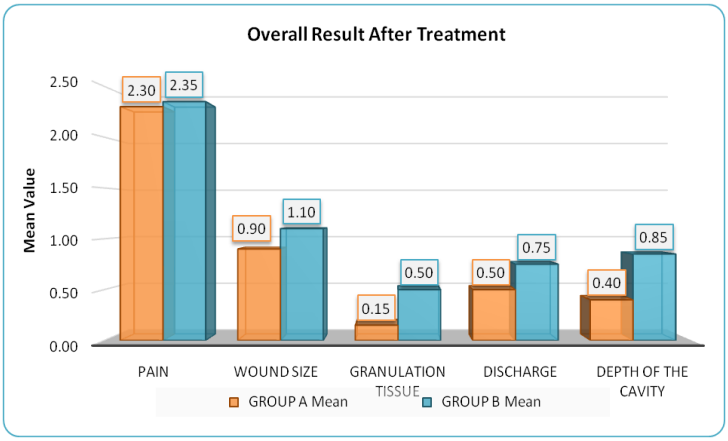


Overall response after treatment

- In group A unchanged, mild and moderate response was 0%, 8 patients (40%) showed marked response, 12 patients (60%) showed complete response.
- In group B unchanged and mild response was 0%, 2 patients(10%) showed moderate response, 10 patients(50%) showed marked response and 8 patients(40%) showed complete response.

Overall result of both groups after treatment

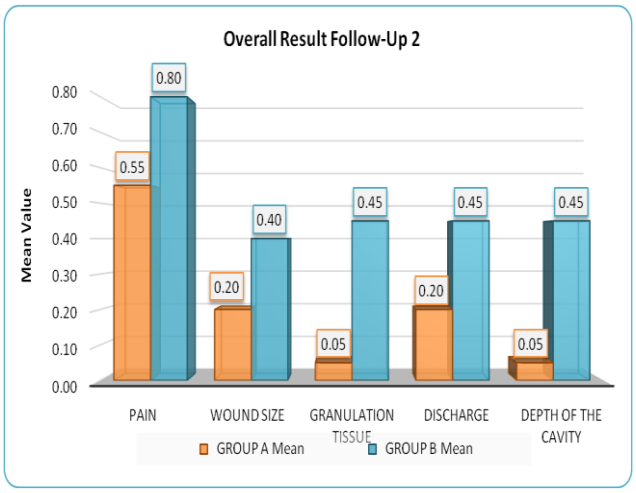
Overall Result After Treatment				
Parameters	GROUP A		GROUP B	
	Mean	±SD	Mean	±SD
PAIN	2.30	1.261	2.35	1.226
WOUND SIZE	0.90	1.071	1.10	0.968
GRANULATION TISSUE	0.15	0.366	0.50	0.513
DISCHARGE	0.50	0.513	0.75	0.716
DEPTH OF THE CAVITY	0.40	0.598	0.85	0.745



- The mean of Pain in group A is 2.30 after treatment and in group B it was 2.35.
- The mean of Wound Size in group A is 0.90 after Treatment and in Group B was 1.10.
- The mean of Granulation Tissue in Group A was 0.15 after treatment and in group B was 0.50.
- The mean of Discharge in group A was 0.50 after treatment and in Group B was 0.75.
- The mean of Depth of the cavity in group A was 0.40 after Treatment and in Group B was 0.85.

Overall response of both groups after follow up

Overall Result Follow-Up 2				
Parameters	GROUP A		GROUP B	
	Mean	±SD	Mean	±SD
PAIN	0.55	1.146	0.80	1.005
WOUND SIZE	0.20	0.410	0.40	0.503
GRANULATION TISSUE	0.05	0.224	0.45	0.510
DISCHARGE	0.20	0.410	0.45	0.510
DEPTH OF THE CAVITY	0.05	0.224	0.45	0.605



The mean of Pain in group A is 0.55 after follow up 2 and in group B it is 0.80.

- The mean of Wound Size in group A is 0.20 after follow up 2 and in Group B is 0.40.
- The mean of Granulation Tissue in Group A is 0.05 after follow up 2 and in group B is 0.45.
- The mean of Discharge in group A is 0.20 after follow up 2 and in Group B is 0.45.
- The mean of Depth of the cavity in group A is 0.05 after follow up 2 and in Group B is 0.45.

DISCUSSION

Discussion on disease

Acharya Sushruta has logically characterized in a foundational way an abundance of clinical material and the standards of the board for *vidradhi*, which are legitimate even today. "*Sheegra vidhahivat*" meaning of *vidradhi* itself recommends the destructive nature of the disease, *Vidradhi* word is advanced from *Vidra* means Painful condition like pricking, stabbing or cutting sensation in the skin. The *Vidradhi* is a typical infirmity disturbing mankind and debilitates the victim for his day today work and needed treatment as early as possible, The healing of such drained abscess cavity depends upon the amount of tissue injury and degree of contamination but when it comes to contamination the abscess cavity itself is a fully contaminated one so healing depends on the way surgeon will treat the wound, The main intension of the wound management in Abscess condition includes prevention of extension of infection to underlying structures,sepsis and enhancing the wound healing.The basic principle of *Vrana* management includes the aetiopathogenesis as well as *Dusta vrana* in which involvement of *Tridoshas* are there, once the Abscess is drained the wound will be

considered as *dusta vrana* only, this trial is planned to assess the effect *of Shodhana* and *Ropana* properties of *Gomutra arka* in *Bahya Bhedhya vidradi.*

Discussion on drug

In *Astavidha-mutra Gomutra* is superior and it is proved that, it has Antimicrobial, Anticancerous and Immuno-modulatory properties, *Shodana karma* is mentioned for *Vrana Ropana* by Acharya Sushruta in *Shasti-Upakrama, Gomutra* is mentioned in *Krimigna upakrama* which is needed in abscess condition and In Vidradhi Chikitsa for *Ropana* purpose *Gomutra* is mentioned, In Arka Prakasha, Ravana mentioned *Arka* preparation for *Vrana Shodana* and *Ropana* purpose. The *Gomutra* has *Tridoshagna, Lekhana, Krimigna* and *Ksharatva* property which helped in *Shodhana* & *Ropana* of *Vrana*. Bioenhancing is one of the main property of *Gomutra arka*. Cow urine distillate is more effective as a bio enhancer than cow urine, and increases the effectiveness of antimicrobial, antifungal and anticancer drugs.

Probable mode of action of drugs

The subject of Study is external drained abscess cavity and the purpose is aimed at *shodhana* to reach the stage of *shudha vrana* eventually effecting Ropana, Intention of dressing is mainly to clear the Slough and increase the Vascularity in the form of inflammation and the Histamine activity in inflammation will completed after 48hrs but to activate it again dressing is the one way which induces inflammation in the form of minimal physical trauma.

Mode of action of gomutra arka

1) The *doshagnatha* of *Gomutra* is *Tridoshagna* and *Arka* is also *Kapha vata shamaka*. *kapha* and *vata* are mainly held responsible for *dushta vrana* along with the *pitta*.
2) The pus formation is due to vitiated *kapha* and *pitta* where as *prasara* of pus is due to vitiated *vata*.
3) *Gomutra* has *Ksharatva, Lekhana, Ushna guna* which helped the *shodhana* of *vrana Kshara guna* helped in removal of slough by the property of *Chedana*, *Bhedana* and *lekhana*.
4) The drug having *Ushna guna, Ushna vreeya* with *Vata hara* which is effective in *lekhana* and *vedanahara.*
5) *Kshara, Ushna guna, Chedana, Bhedana* and *Lekhana* property of drug irritates the tissue at wound site which induces the Inflammation (First stage of wound healing).

6) Once inflammation is induced at local wound site means Histamines are activated and local vasodilatation will occur which helps in bringing of more plasma proteins towards the wound site which are required for clearing infection and enhancing the healing process.

DISCUSSION ON RESULT

Pain

Effect within the group

Group A:

The mean score of the symptoms which was 7.55 before treatment reduced to 6.50 with 14% improvement after A1, at A2 showed 28% improvement, at A3 showed 46%, at AT showed 70% improvement, at F1 showed 85% improvement, at F2 showed 93% improvement at all these levels statistically it had shown significant p value <0.001.

Group B:

The mean score of the symptoms which was 7.05 before treatment reduced to 6.25 with 11% improvement after A1, at A2 showed 26% improvement, at A3 showed 42%, at AT showed 67% improvement, at F1 showed 81% improvement, at F2 showed 89% improvement at all these levels statistically it had shown significant p value <0.001.

Effect in between groups

Between the group comparison using Mann Whitney U test showed insignificant difference at A1, A2, A3, AT, F1and F2 but on the basis of Ranks at A3 group B(408.5) is better than Group A (411.5). F1 and F2 there was insignificant difference between the groups in which Group A (F1-375.5 and F2- 360) was better than Group B (F1- 444.0 and F2- 460.0).

Discharge

Effect within the group

Group A:

The mean score of the symptoms which was 2.60 before treatment reduced to 2.30 with 12% improvement after A1, at A2 showed 35% improvement, at A3 showed 56% , at AT showed 81% improvement, at F1 showed 88% improvement, at F2 showed 92% improvement at all these levels statistically it had shown significant p value <0.001.

Group B:

The mean score of the symptoms which was 2.35 before treatment reduced to 2.30 with 2% improvement after A1, at A2 showed 23% improvement, at A3 showed 45%, at AT showed 68% improvement, at F1 showed 74% improvement, at F2 showed 81% improvement at all these levels statistically it had shown significant p value <0.001.

Effect in between groups

Between the group comparison using Mann Whitney U test showed insignificant difference at A1, A2, A3, AT, F1 and F2 but on the basis of Ranks at A1 group B(404) is better than Group A (416.0).

At F1 and F2 there was insignificant difference between the groups in which Group A (F1- 357.0 and F2- 360) was better than Group B (F1- 463.0 and F2- 460.0).

Size of the wound

Effect within the group

Group A

The mean score of the symptoms which was 3.05 before treatment reduced to 2.80 with 8% improvement after A1, at A2 showed 36% improvement, at A3 showed 51% , at AT showed 70% improvement, at F1 showed 85% improvement, at F2 showed 93% improvement at all these levels statistically it had shown significant p value <0.001.

Group B

The mean score of the symptoms which was 3.00 before treatment reduced to 2.95 with 2% improvement after A1, at A2 showed 30% improvement, at A3 showed 43%, at AT showed 63% improvement, at F1 showed 78% improvement, at F2 showed 87% improvement at all these levels statistically it had shown significant p value <0.001.

Effect in between groups

Between the group comparison using Mann Whitney U test showed insignificant difference at A1, A2, A3, AT, F1and F2 but on the basis of Ranks at A2 group B(403.0) is better than Group A(417.0). At F1 and F2 there was insignificant difference between the groups in which Group A (F1-383 and F2- 370) was better than Group B (F1- 437.0 and F2- 450.0).

Granulation tissue

Effect within the group

Group A

The mean score of the symptoms which was 2.80 before treatment reduced to 2.50 with 11% improvement after A1, at A2 showed 45% improvement, at A3 showed 77%, at AT showed 95% improvement, at F1 showed 98% improvement, at F2 showed 98% improvement at all these levels statistically it had shown significant p value <0.001.

Group B

The mean score of the symptoms which was 2.55 before treatment reduced to 2.45 with 4% improvement after A1, at A2 showed 39% improvement, at A3 showed 69%, at AT showed 80% improvement, at F1 showed 82% improvement, at F2 showed 82% improvement at all these levels statistically it had shown significant p value <0.001.

Effect in between groups

Between the group comparison using Mann Whitney U test showed insignificant difference at A1 ,A2 and A3 but on the basis of Ranks at A3 group A is better than Group B whereas at A3 Group A (378.0) was better than Group B(442.0), At AT there was moderate significant difference between groups in which group A (340.0) is better than Group B(480) and at F1 and F2 there was significant difference between the groups in which Group A in which group A(F1-330 and F2-330) was better than Group B (F1 and F2 - 490).

Size of the wound

Effect within the group

Group A

The mean score of the symptoms which was 3.05 before treatment reduced to 2.80 with 8% improvement after A1, at A2 showed 36% improvement, at A3 showed 51%, at AT showed 70% improvement, at F1 showed 85% improvement, at F2 showed 93% improvement at all these levels statistically it had shown significant p value <0.001.

Group B

The mean score of the symptoms which was 3.00 before treatment reduced to 2.95 with 2% improvement after A1, at A2 showed 30% improvement, at A3 showed 43%, at AT showed 63% improvement, at F1 showed 78% improvement, at F2 showed 87% improvement at all these levels statistically it had shown significant p value <0.001.

Effect in between groups

Between the group comparisons using Mann Whitney U test showed Insignificant difference at A1, A2, A3, AT, F1and F2 but on the basis of Ranks at A2 group B(403.0) is better than Group A(417.0). At F1 and F2 there was insignificant difference between the groups in which Group A (F1-383 and F2- 370) was better than Group B (F1- 437.0 and F2- 450.0).

Depth of the cavity

Effect within the group

Group A:

The mean score of the symptoms which was 3.25 before treatment reduced to 2.85 with 12% improvement after A1, at A2 showed 40% improvement, at A3 showed 66%, at AT showed 88% improvement, at F1 showed 94% improvement, at F2 showed 98% improvement at all these levels statistically it had shown significant p value <0.001.

Group B

The mean score of the symptoms which was 3.30 before treatment reduced to 3.00 with 9% improvement after A1, at A2 showed 35% improvement, at A3 showed 56%, at AT showed 74% improvement, at F1 showed 82% improvement, at F2 showed 86% improvement at all these levels statistically it had shown significant p value <0.001.

Effect in between groups

Between the group comparison using Mann Whitney U test showed insignificant difference at A1, A2 and A3 but on the basis of Ranks at A3 group A is better than Group B whereas at A3 Group A (366.0) was better than Group B(454.0), At AT there was moderate significant difference between groups in which group A (342.0) is better than Group B(477) and at F2 there was significant difference between the groups in which Group A (339.5) was better than Group B (480.5).

Discussion on overall response after treatment and follow up 2

1. Overall response of after treatment showed Complete response in 60% (12 patient) in group A, whereas 40% (8 patients) in group B, marked response in 40% (8 patient) in group A whereas 50% (8 patient) in group B moderate response in 0% in group A whereas 10% (2 patient) in group B, mild and poor response was 0% in both groups Therefore group A showed better result than group B.

2. Overall response of after follow up showed Complete response in 70% (14 patient) in group A, whereas 10% (2 patient) in group B , marked response in 30% (6 patient) in group A whereas 75% (15 patient) in group B, moderate response in 0% in group A whereas 15% (3 patient) in group B, mild and poor response was 0% in both groups Therefore group A showed better result than group B.

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