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Comparison of Vacuum Assisted Closure with Conventional Dressing

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INTRODUCTION

One of the most common causes for admission in surgical ward is non healing ulcer. In which diabetes is the most common etiology. In most of the cases, hospital stay of many weeks is required for management of the above. In many cases they ultimately go for amputation. Acute and chronic wounds affect at least 1% of the population. Regardless of etiology, wounds are difficult to treat if coexisting factors (eg, infection or diabetes mellitus) prevent regular wound healing.

Wounds represent a significant risk factor for hospitalization, amputation, sepsis, and even death, and from the patient's perspective, wound therapy is often un-comfortable or painful. In all sense patients turns to be a burden for society and family.

Vacuum assisted closure is a universally accepted method for dressing. It has proved its efficacy for wound dressing. Faster wound healing, shorter hospital stay.

Still in our hospital, majority of dressings are conventional. My aim is to show the advantage of V.A.C over conventional dressing in our hospital

Key words: vaccum assisted closure; wound healing; non healing ulcer

MeSH terms: vaccum assisted closure; non healing ulcer

ETHICAL CONSIDERATIONS

Study has been conducted after getting approval from institutional ethical committee. A written informed consent has been taken from all the patients included in the study. Patients participating in the study did not have to incur any expenses. The anonymity of each individual has been maintained.

METHODOLOGY

STUDY DESIGN

Case control study

STUDY SETTING

Study is conducted at Govt medical collage Alappuzha, which is tertiary Centre. Patients are selected from general surgery wards

PERIOD OF STUDY

Study is conducted from April 1 to Nov. 30, 2016, total 8 months

SAMPLE SIZEANDMETHOD OF ALLOCATION OF GROUP

Cases are selected from the surgical ward (2 specific wards allocated) from April 1 to November 30

Controls selected from the during this period from another surgical ward.

Total 30 cases and 30 controls; they were selected randomized by the admission. As my study period was from april 1 to Nov 30, ie total of 8 months.

Patients who agreed and gave consent for VAC from surgical ward 15 were 30. So 30 patients were selected from ward 12.

INTERVENTION

Patients included in study are classified according to grade of ulcer. All grades are included except grade 5. Other patients excluded are patients with

- Gangrenous foot
- Suspicious of anaerobic infections
- Exposed blood vessels
- Active bleeding
- Undebrided wound
- Malignancy

After debridement of wound V.A.C dressing is applied, after bleeding gets stopped. Pre V.A.C & post V.A.C C&S is taken. Dressing is given for 5 days. doppler study, x ray taken.

CONTROL group with conventional saline soaked dressing

OUTCOME VARIABLES

- rate of outcome,
- hospital stay,
- pus C&S before & after V.A.C

METHOD OF STUDY

During the period of study, I randomized the patients to CASES and CONTROL as surgical ward 15,23 Apr. 1 to nov. 30

Controls selected from the surgical ward 12 during this period.

After debridement of wound V.A.C dressing is applied, after bleeding gets stopped. Pre V.A.C & post V.A.C C&S is taken. Dressing is given for 5 days. doppler study, x ray taken.

CONTROL group with conventional dressing

Status of the patient at the time of discharge is noted

MATERIALS USED FOR STUDY

- Performa
- Camera cover
- Transparent adhesive plaster
- Sponge
- Suction drain/ suction apparutus available

Data analysis

Statistical method

Chisquare test

All the analysis was done using qualitative variables in statistical package for social sciences (SPSS) version 16.

RESULTS

Table 1 Hospital Stay

	case/control	N	Mean	Std. Deviation	Std. Error Mean
STAY	Case	30	21.17	7.940	1.450
	control	30	28.53	7.045	1.286

Mean hospital stay in cases is 21 compared to stay of 28 in control group.

Table 2 PREVAC * POSTVAC C&S Crosstabulation

		POSTVAC		Total
		sterile	non sterile	
PREVAC	sterile	9	0	9
	non sterile	19	2	21
Total		28	2	30

Patients with sterile pre V.A.C C&S is not turning non sterile after V.A.C, but 90% non-sterile turns sterile after V.A.C

Table 3 Xray * PLAN Crosstabulation

Count

		PLAN			Total
		Discharge	SSG	amputation	
Xray	OM present	5	9	2	16
	OM absent	7	7	0	14
Total		12	16	2	30

There were no much difference observed in outcome of the patient with or without osteomyelitis on applying V.A.C.

Table 4 DOPPLER * PLAN Cross tabulation

Count

		PLAN			Total
		Discharge	SSG	amputation	
DOPPLER	1 NORMAL	9	15	0	24
	2 ABOVE KNEE	1	0	1	2
	3 POPILITTAL	0	0	1	1
	4 DISTAL	2	1	0	3
Total		12	16	2	30

SSG as outcome is more in patients with normal Doppler study . 15 out of 16 patients undergone SSG is having normal Doppler study.

Table 5 case/control * plan at end of Rx Cross tabulation

		DISCHARGE	SSG	AMPUTATION	
case/control	case	12	16	2	30
	control	22	0	8	30
Total		34	16	10	60

Patients with V.A.C dressing have more split skin graft before discharge, less rate of amputation rate

Table 6

		plan at end of Rx			
		DISCHARGE	SSG	AMPUTATION	Total
case/control	case	12	16	2	30
	control	22	0	8	30
Total		34	16	10	60

DISCUSSION

This study was conducted on a group of 60 patients. They were divided into case and control. It was single blind as case were selected as admitted to specific ward during the period of study.

It was found that outcome of the patient after V.A.C were better than conventional dressing

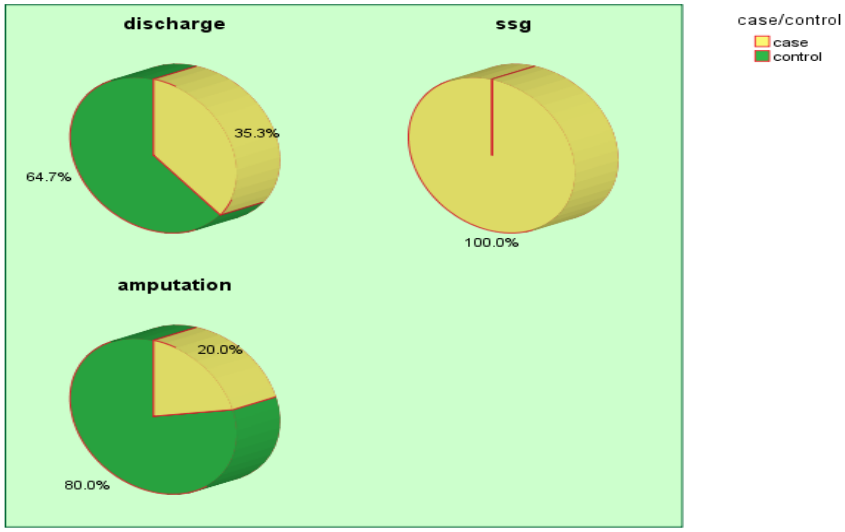
Table : 7 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.541[a]	2	.001
Likelihood Ratio	29.021	2	.001
N of Valid Cases	60		

.

Chi-square test shows study is significant (p value of .001).

Figure: 1



HOSPITAL STAY

Table : 8

		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
STAY	Equal variances assumed	-3.801	58	.000	-7.367	1.938	-11.246	-3.487
	Equal variances not assumed	-3.801	57.191	.000	-7.367	1.938	-11.247	-3.486

Table : 9

Group Statistics

	case/control	N	Mean	Std. Deviation	Std. Error Mean
STAY	Case	30	21.17	7.940	1.450
	control	30	28.53	7.045	1.286

Chi-square test shows study is significant (p value of .001, -3.801)

Table : 10 PREVAC * POSTVAC C&S Cross tabulation

		POSTVAC		
		sterile	non sterile	Total
PREVAC	sterile	9	0	9
	non sterile	19	2	21
Total		28	2	30

V.A.C dressing turns non sterile wound to sterile.Applying V.A.C. doesn't turns sterile wound to non-sterile

Table : 11 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.918[a]	1	.002		
Continuity Correction[b]	.026	1	.873		
Likelihood Ratio	1.487	1	.223		
Fisher's Exact Test				1.000	.483
Linear-by-Linear Association	.888	1	.346		
N of Valid Cases	30				

Chi-square test shows study is significant (p value .002)

Table : 12 OSTEOMYLITIS * OUTCOME Crosstabulation

		PLAN			
		DISCHARGE	SSG	AMPUTATION	Total
Xray	OM present	5	9	2	16
	OM absent	7	7	0	14
Total		12	16	2	30

Table : 13 Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.461[a]	2	.292
Likelihood Ratio	3.225	2	.199
Linear-by-Linear Association	1.982	1	.159
N of Valid Cases	30		

Chi-Square Test shows study is not significant as p-value is .292 that means OSTEOMYLITIS is not a contraindication for V.A.C dressing.

Table : 14 DOPPLER * PLAN Crosstabulation

		PLAN			
		DISCHARGE	SSG	AMPUTATION	Total
DOPPLER	1	9	15	0	24
	2	1	0	1	2
	3	0	0	1	1
	4	2	1	0	3
Total		12	16	2	30

Patients with normal Doppler shows better outcome. Almost 100% patients undergone SSG were having normal Doppler.

TABLE : 15

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.724[a]	6	.001
Likelihood Ratio	14.592	6	.024
Linear-by-Linear Association	.011	1	.916
N of Valid Cases	30		

Chi-Square Test shows study is significant as p-value is .OO1

CONCLUSION

V.A.C dressing decreases Hospital stay

V.A.C dressing improves pus culture sensitivity

V.A.C dressing improves outcome , more SSG

V.A.C dressing has better result in patients with Normal Doppler

V.A.C dressing has good result in patients with non-active osteomyelitis

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