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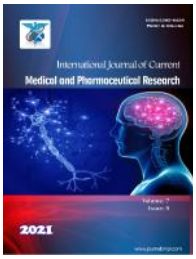

COMPARATIVE STUDY OF THE EFFECT OF THE PRETREATMENT WITH INTRAVENOUS LIGNOCAINE AND LIGNOCAINE WITH FENTANYL AND PARACETAMOLON PAIN ASSOCIATED WITH INJECTION OF PROPOFOL AFTER TEMPORARY VENOUS OCCLUSION

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ABSTRACT

Background: Propofol is now most commonly used agent for induction of anaesthesia.
Objectives: To study incidence and severity of pain using Verbal pain rating scale by Mc Cirrick & Hunter and Face pain scale by Wong and Baker.
Methods and material: The study was conducted on two hundred adult patients with the American society of Anesthesiologists physical status grade l and ll, scheduled for gynaecological, urological or general surgical procedures.A double blind randomized, placebo controlled study was carried out. Departmental and ethics committee permission obtained.
Results: Comparison of pain on propofol injection by verbal pain scale and face pain scale Post-Hoc test: multiple comparision: Tukey test when applied the difference is significant when VPS and FPS of control group is compared to lignocaine group ,lignocaine with fentanyl and paracetamol group , p value was <0.001.
Conclusion: Lignocaine 40 mg retained in tourniquet occluded vein for 60 seconds was effective in reducing propofol injection. Incidence of pain was less as compared to lignocaine 40 mg with fentanyl 100 mcg and paracetamol 1 mg/kg. Lignocaine 40 mg with fentanyl 100 mcg with venous occlusion was effective in reducing propofol injection pain. Paracetamol 1 mg/kg with venous occlusion was effective in reducing propofol injection pain.

INTRODUCTION

The use of intravenous agents for induction of general anaesthesia is very popular. The incidence of pain varies between 28% and 90% in adults during anaesthesia (Stark RD[1] *et al* 1955 and Manger D [2] *et al* 1992) and 28% and 85% in children (ValtonenM[3] *et al* 1988 and 1989). Overall risk of pain alone was about 60% (Leena Jalota and Vicki K BMJ[4], 2011)

Aims

1. To study, the effect of the pretreatment with intravenous Lignocaine and Lignocaine with Fentanyl and Paracetamol on pain associated with injection of propofol after temporary venous occlusion.
2. To compare the effect of pretreatment with intravenous Lignocaine, Lignocaine with Fentanyl and Paracetamol on pain on injection of Propofol.

Objectives

1. To study incidence and severity of pain using Verbal pain rating scale by Mc Cirrick & Hunter and Face pain scale by Wong and Baker.
2. To study hemodynamics changes just before procedure, during procedure and after procedure with following parameters heart rate, systolic blood pressure.

MATERIALS AND METHODS

The study was conducted on two hundred adult patients with the American society of Anaesthesiologists physical status grade l and ll, scheduled for gynaecological, urological or general surgical procedures. A double blind randomized, placebo controlled study was carried out. Departmental and ethics committee permission obtained.

Inclusion criteria

1. Patients with ASA physical status grade l and ll
2. Age between 19-60 years
3. Patient of both sexes

Exclusion criteria

1. Refusal of consent
2. Patients with heart failure, renal failure and liver dysfunction
3. Patients taking sedatives, analgesics, central nervous system, depressants or antiseizure medications
4. History of intolerance or adverse reactions to the medications used in the study

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All patients underwent a pre anesthetic checkup consisting of a detailed history, general examination, airway examination, systemic examination including respiratory, cardiovascular and per abdominal system and biochemical investigations including a hemogram, blood urea, serum creatinine, random blood sugar, liver function tests, X-ray chest and electrocardiogram.

Patients were kept NBM and consent for anaesthesia and weight was taken. Patients were not given any premedication. An informed consent was obtained from all patients. Pulse oximeter, non invasive blood pressure tied on uncannulated arm and electrocardiogram monitors attached. A 18 G intravenous catheter was inserted into a large vein of the dorsum or wrist of the hand. Intravenous catheter was used for infusion of ringer lactate solution.

In study two hundred were randomly allocated to one of the four groups. Each group consists of fifty patients. Drugs were given by blinded observer and pain score obtained .Venous occlusion of 60 seconds was done on the arm at distance of about 8 cm proximal to the antecubital fossa using a 2.5 cm wide rubber tourniquet before giving the study drugs. After 60 seconds the tourniquet was released and propofol injected over 15 seconds one fourth of the induction dose 2.5 mg/kg.

Group L-4 ml of 1% lignocaine(40mg)
Followed by propofol one fourth of induction dose 2.5 mg/kg

Group LF-4 ml of lignocaine 1%(40 mg) and fentanyl 100 mcg
Followed by propofol one fourth of induction dose 2.5 mg/kg
Group P- 1 mg/kg of intravenous paracetamol(Perfalgan)
Followed by propofol one fourth of induction dose 2.5 mg/kg
Group C- 4 ml of isotonic saline solution
Followed by propofol one fourth of induction dose 2.5 mg/kg
Pain was assessed by verbal pain rating scale (VPS) and face pain scale (FPS) every 5 second during propofol injection. The highest pain score was recorded.

Heart rate, systolic blood pressure, diastolic blood pressure, means arterial pressure and pulse oximetry was recorded before procedure, intra procedure and after procedure.

Later induction was continued by giving pre medications and rest of the propofol and muscle relaxant.

OBSERVATIONS AND RESULTS

At the end of the study, data was tabulated and subjected to statistical analysis where appropriate and careful notation was made of each patient characteristic.

Table 1 Demographic Characteristics of The Four Groups

Parameters	Group L N=50	Group L+F N=50	Group P N=50	Group C N=50	*P* Value / Significance
Age (yrs.)					P=0.513
Median	38	41	35.5	35.5	(Not significant)
Range	20-60	20-60	18-60	20-60	Kruskal Wallis test
Weight (kg)					
Mean	53.98	54.62	54.28	54.14	P=0.797
S.D.	3.89	3.72	3.99	4.34	(Not significant)
Range	46-60	48-61	48-62	46-68	Kruskal Wallis test
Height (cm)					
Mean	156.24	156.76	158.30	157.80	P=0.299
S.D.	4.26	5.11	6.62	6.62	(Not significant)
Range	148-168	148-168	146-178	146-170	Kruskal Wallis test

There is no significant difference in the age, weight and height distribution of the groups (p>0.05 not significant, Kruskal Wallis test

Table 2 Table for sex distribution

Group		Sex		Total
		Female	Male	
Group L	**No.**	33	17	50
	%	66.0%	34.0%	100.0%
Group L+F	**No.**	29	21	50
	%	58.0%	42.0%	100.0%
Group P	**No.**	29	21	50
	%	58.0%	42.0%	100.0%
Group C	**No.**	30	20	50
	%	60.0%	40.0%	100.0%
Total	**No.**	121	79	200
	%	60.5%	39.5%	100.0%
Chi-square tests	Value	df	p-value	Association is-
Pearson Chi-Square	0.900	3	0.826	Not significant

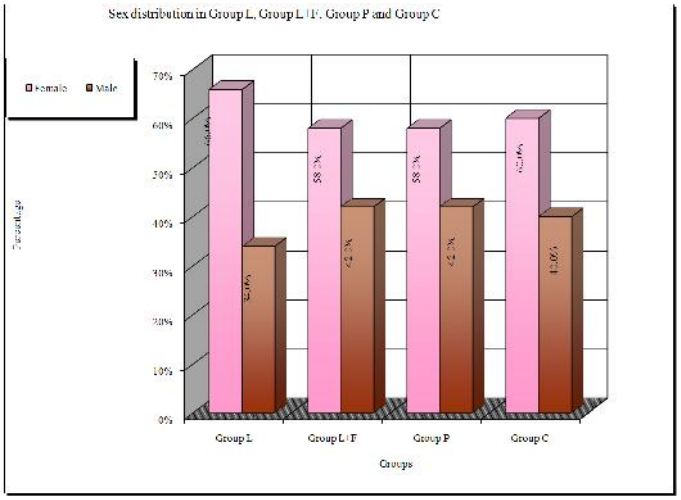


Fig 1 Bar chart for groups by sex

(Pearson Chi-Square test). As p>0.05 the difference is not significant.

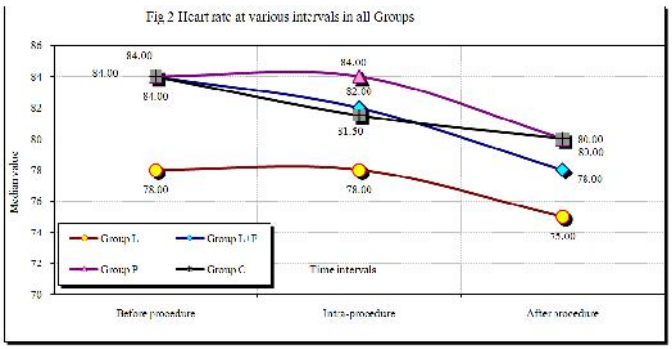
Comparison of heart rate in the four groups (Kruskal Wallis test)

Table 3 Table showing heart rate at various intervals in four groups

Heart rate	Group L		Group L+F		Group P		Group C		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p value
Before procedure	79.38	6.68	83.66	4.79	82.98	5.06	81.94	5.25	0.067
Intra-procedure	78.54	6.35	81.92	5.17	82.18	5.11	80.86	5.96	0.019
After procedure	76.24	6.43	77.44	4.97	78.6	4.91	78.42	6.16	0.253

The before procedure heart rate is comparable, difference is not significant as p>0.05.Kruskal Wallis test applied in all four groups. Intra procedure the mean (SD) heart rate is 78.54(6.35) in group L, 81.92.(5.17) in group L+F, 82.18(5.11) in group P and 80.86.(5.96) in group C. The difference is significant (p=0.01996) between group L and group P. Kruskal Wallis test applied. After procedure mean (SD) heart rate difference is not significant (p=0.25388). Kruskal Wallis test applied.

Comparison of heart rate at various interval in each group (Post –Hoc test(Tukey test) applied)



Line chart showing heart rate at various interval in each group. In the group L, median (range) there is no significant difference in heart rate in intraprocedure 78(65-90) compared to preprocedure 78(68-90) heart rate. There is significant difference in heart rate in before procedure 78(68-90) compared to post procedure 75(65-88) heart rate (p<0.001). There is also significant difference in heart rate in intraprocedure 78(65-90) compared to postprocedure 75(65-88) heart rate (p<0.001). Friedman repeated Measures of Analysis of Variance on Ranks applied.

In the group L+F, median (range) there is significant difference in heart rate in intraprocedure 82(72-94) compared to preprocedure 84(70-90) heart rate. There is also significant difference in heart rate in post procedure 78(64-90) compared to before procedure 84(70-90) heart rate. There is also significant difference in heart rate in intraprocedure 82(72-94) compared to postprocedure 78(64-90) heart rate .Friedman repeated Measures of Analysis of Variance on Ranks applied p<0.001.

In the group P, median (range) there is no significant difference in heart rate in intra procedure 84 (66-92) compared to pre procedure 84(68-90) heart rate (p>0.001). There is significant difference in heart rate in post procedure 80(68-88) compared to before procedure 84(68-90) heart rate (p<0.001).There is also significant difference in heart rate in intra procedure 84(66-92) compared to post procedure 80(68-88) heart rate (p<0.001). .Friedman repeated Measures of Analysis of Variance on Ranks applied. In the group C, median (range) there is no significant difference in heart rate in intraprocedure 81.50(65-98) compared to preprocedure 84 (68-92) heart rate (p<0.001). There is significant difference in heart rate in post procedure 80(64-96) compared to before procedure 84 (68-92) heart rate (p<0.001). There is also significant difference in heart rate in intra procedure 81.50(65-98) compared to post procedure 80(64-96) heart rate (p<0.001). Friedman repeated Measures of Analysis of Variance on Ranks applied.

Comparison of systolic blood pressure in the four groups (KruskalWallis test applied)

The before procedure mean (SD) systolic blood pressure difference is not statistically significant (p=0.435).The mean systolic blood pressure is 121.16(7.44) in group L, 122.04(6.8) in group L+F,121.00(8.95) in group P and 123.32(7.03) in group C.

The intra procedure mean (SD) systolic blood pressure difference is not statistically significant (p=0.55064). The mean systolic blood pressure is 118.56(6.5) in group L, 117.40(7.07) in group L+F, 117.80 (8.86) in group P and 119.28(6.70) in group C.

The after procedure mean (SD) systolic blood pressure difference is statistically significant (p=0.0.00131).The mean systolic blood pressure is 114.12(5.81) in group L, 109.24(3.75) in group L+F, 111.84 (8.10) in group P and 113.04(6.20) in group C.

Comparison of systolic blood pressure at various interval in individual groups (Post –Hoc test (Tukey test) applied

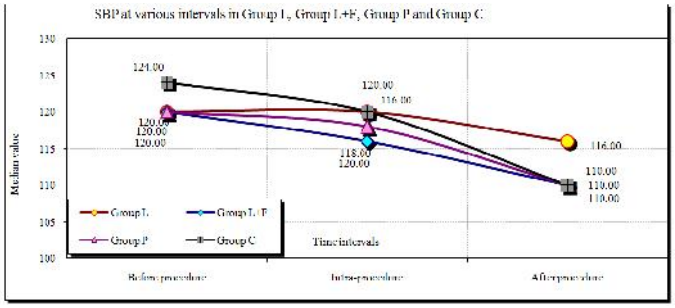


Fig 3 Line chart showing systolic blood pressure at various intervals in Group L, Group L+F, Group P and Group C

Line chart showing systolic blood pressure at various intervals in four groups In the group L, median (range) there is significant difference in systolic blood pressure during intra procedure 120(108-130) compared to preprocedure 120(110-134) systolic blood pressure (p<0.001). There is significant difference in systolic blood pressure in before procedure 120(110-134) compared to post procedure 116(104-128) systolic blood pressure (p<0.001) There is also significant difference in intra procedure 120(108-130) systolic blood pressure compared to post procedure 116(104-128) systolic blood pressure (p<0.001) .Post-Hoc (Tukey test) applied.

In the group L+F, median(range) there is significant difference in intra procedure 116(108-134) systolic blood pressure compared to pre procedure 120(110-134) systolic blood pressure(p<0.001). There is also significant difference in systolic blood pressure in before procedure 120(110-134) compared to post procedure 110(104-120) systolic blood pressure (p<0.001). There is also significant difference in systolic blood pressure in intra procedure116 (108-134) compared to post procedure 110(104-120) systolic blood pressure (p<0.001). Post-Hoc (Tukey test) applied.

Table 4 Table showing systolic blood pressure at various intervals

Systolic blood pressure	Group L		Group L+F		Group P		Group C		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p value
Before procedure	121.16	7.44	122.04	6.80	121.00	8.95	123.32	7.03	0.435
Intra-procedure	118.56	6.50	117.40	7.07	117.80	8.86	119.28	6.70	0.550
After procedure	114.12	5.81	109.24	3.75	111.84	8.10	113.04	6.20	0.001

In the group P, median (range) there is significant difference in systolic blood pressure inintra procedure 118(100-134) compared to pre procedure 120(104-136) systolic blood

pressure (p<0.001). There is also significant difference in systolic blood pressure in before procedure 120(104-136) compared to post procedure 110(100-130) systolic blood pressure (p<0.001). There is also significant difference in systolic blood pressure inintra procedure118 (100-134) compared to post procedure 110(100-130) systolic blood pressure (p<0.001). Post-Hoc (Tukey test) applied.

In the group C, median (range) there is significant difference in systolic blood pressure inintra procedure 120 (108-134) compared to pre procedure124 (110-130) systolic blood pressure (p<0.001). There is also significant difference in systolic blood pressure in before procedure 124(110-130) compared to post procedure110 (100-126) systolic blood pressure (p<0.001). There is also significant difference in systolic blood pressure in intra procedure 120(108-134) compared to post procedure 110(100-126) systolic blood pressure (p<0.001) .Post-Hoc (Tukey test) applied.

Comparison of pain on propofol injection by VPS and FPS

Table 5 showing incidence and percentage of pain by VPS

Group N=50	L	L+F	P	C
Pain	1	3	3	48
Percentage%	2	6	6	96

The incidence of pain in group L is 2%, group L+F is 6%,group P is 6% and group C is 96 % by VPS.

Chi square test for comparison of incidence between two groups

a.VPS (L & L+F)

Groups	VPS score		
	0	≥1	Total
L	49	1	50
L+F	47	3	50
	96	4	100

$\chi 2 = 1.042$, P -0.309 NS

b.VPS (L & P)

Groups	VPS score		
	0	≥1	Total
L	49	1	50
P	47	3	50
	96	4	100

$\chi 2 = 1.042$, P -0.309 NS

c.VPS (P & L+F)

Groups	VPS score		
	0	≥1	Total
P	47	3	50
L+F	47	3	50
	96	4	100

NA (Same values)

d.VPS (L & C)

Groups	VPS score		
	0	≥1	Total
L	49	1	50
C	2	48	50
	96	4	100

$\chi 2 = 88.4$, P < 0.0001 HS

e.VPS (C& L+F)

Groups	VPS score		
	0	≥1	Total
C	2	48	50
L+F	47	3	50
	96	4	100

$\chi 2 = 81.3$, P < 0.0001 HS

f.VPS (C& P)

Groups	VPS score		
	0	≥1	Total
C	2	48	50
P	47	3	50
	96	4	100

$\chi 2 = 81.3$, P < 0.0001 HS

Thus, difference in incidence of pain is not significant between group L and L+F, between group Land P .The group L+F and P were similar with respect to incidence of pain. But the incidence of pain in group C is highly signicant compared to group L,L+F and P by VPS.

Table 6 Table showing severity of pain by Verbal Pain Rating Scale

Group	VPS score					Median Pain Score
	0	1	2	3	Total	
L	49	1	0	0	50	0
	98%	2%	0%	0%		
L+F	47	3	0	0	50	0
	94%	6%	0%	0%		
P	47	3	0	0	50	0
	97%	6%	0%	0%		
C	2	2	15	31	50	3
	4%	4%	30%	62%		

Table shows severity of pain by VPS.

Table 7 Table showing incidence and percentage of pain by FPS

Group N=50	L	L+F	P	C
Pain	0	0	0	48
Percentage%	0	0	0	96

Table showing incidence of pain is 0% in group L, 0% in group L+F, 0% in group P and 96 % in group C by FPS.

Comparison of incidence between groups by chi-square test by FPS

A.FPS (L & L+F)

Groups	FPS score		
	0	≥1	Total
L	50	0	50
L+F	50	0	50
	100	0	100

NA (Same values)

B.FPS (L & P)

Groups	FPS score		
	0	≥1	Total
L	50	0	50
P	50	0	50
	100	0	100

NA (Same values)

C.FPS (P & L+F)

Groups	FPS score		
	0	≥1	Total
P	50	0	50
L+F	50	0	50
	100	0	100

NA (Same values)

D.FPS (L & C)

Groups	FPS score		
	0	≥1	Total
L	50	0	50
C	2	48	50
	52	48	100

$\chi 2 = 88.48$, $P < 0.001$ HS

E.FPS (C& L+F)

Groups	FPS score		
	0	≥1	Total
C	2	48	50
L+F	50	0	50
	52	48	100

$\chi 2 = 88.48$, $P < 0.001$ HS

F.FPS (C& P)

Groups	FPS score		
	0	≥1	Total
C	2	48	50
P	50	0	50
	52	48	100

$\chi 2 = 88.48$, $P < 0.001$ HS

By using chi-square test, incidence of pain is 48 out of 50 patients in group C and incidence of pain is 0 out of 50 patients in group L, p<0.001, highly significant.

By using chi-square test, incidence of pain is 48 out of 50 patients in group C and incidence of pain is 3 out of 50 patients in group L+F, p<0.001, highly significant.

By using chi-square test, incidence of pain is 48 out of 50 patients in group C and incidence of pain is 3 out of 50 patients in group P, p<0.001, highly significant.

Thus, incidence of pain is similar between group L and L+F, between group Land P and group L+F and P. But the incidence of pain in group C is highly signicant compared to group L,L+F and P by FPS.

Table 8 Table showing severity of pain by Face Pain Scale (FPS)

Group	0	1	2	3	4	5	Total	Median pain score
L	100	0	0	0	0	0	50	0
	100%	0%	0%	0%	0%	0%		
L+F	100	0	0	0	0	0	50	0
	100%	0%	0%	0%	0%	0%		
P	100	0	0	0	0	0	50	0
	100%	0%	0%	0%	0%	0%		
C	2	0	8	31	5	4	50	3
	4%	0%	16%	62%	10%	8%		

Table shows severity of pain by FPS.

Comparison of pain on propofol injection by VPS and FPS (Post- Hoc test: multiplecomparision: Tukey test applied)

Table 9 Table showing VPS and FPS scores in four groups

Parameters	Group L N=50	Group L+F N=50	Group P N=50	Group C N=50	*P* Value / Significance
VPS Median	0.00	0.00	0.00	3.00	P<0.001 (significant) Post-Hoc test
Range	0-1	0-1	0-1	1-3	Group C vs GroupL,L+F,P
FPS Median	0.00	0.00	0.00	3.00	P<0.001 (significant) Post-Hoc test
Range	0-0	0-0	0-0	0-5	Group C vs GroupL,L+F,P

Table shows the median (range) VPS and FPS of the four groups. ByVPS, in group L median (range) is 0.00(0-1). In group L+F median (range) is 0.00(0-1). In group P median (range) is 0.00(0-1) and group C median (range) is 3.00(1-3). By FPS, in group L median (range) is 0.00(0-0). In group L+F median (range) is 0.00(0-0). In group P median (range) is 0.00(0-0) and group C median (range) is 3.00(0-5). Statistically the difference is insignificant when VPS and FPS of group L is compared to group L+F, P and group L+F compared to group L, P and group P compared to group L, L+F. But the difference is significant when VPS and FPS of group C is compared to group L, L+F and P(Post-Hoc test-multiple comparision-Tukey test applied) p<0.001.

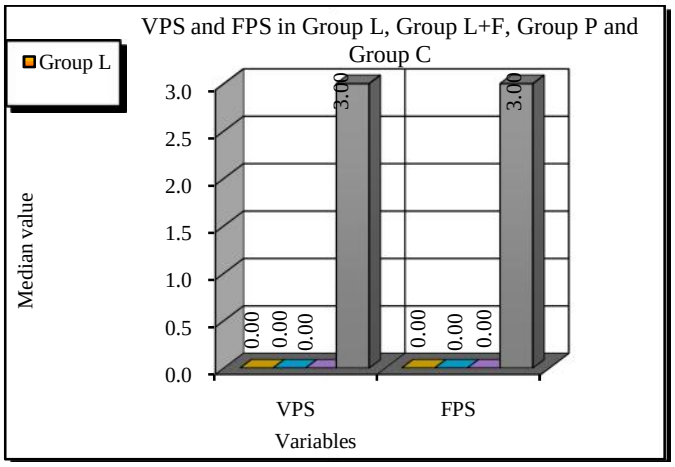


Fig 4 Bar chart showing VPS and FPS in four groups

Bar chart showing median values of all four groups.

The median pain score in group L by VPS is 0.00 and FPS is 0.00.
The median pain score in group L+F by VPS is 0.00 and FPS is 0.00.
The median pain score in group P by VPS is 0.00 and FPS is 0.00.
The median pain score in group C by VPS is 3.00 and FPS is 3.00.

DISCUSSION

In study two hundred adult patients were randomly allocated to one of the four groups. Each group consists of fifty patients. Drugs were given by blinded observer and pain score obtained .Venous occlusion of 60 seconds was done on the arm at distance of about 8 cm proximal to the antecubital fossa using a 2.5 cm wide rubber tourniquet before giving the study drugs. After 60 seconds the tourniquet was released and propofol injected over 15 seconds one fourth of the induction dose 2.5 mg/kg.

Group L-4 ml of 1% lignocaine(40mg)
Followed by propofol one fourth of induction dose 2.5 mg/kg
Group LF-4 ml of lignocaine 1% (40 mg) and fentanyl 100 mcg
Followed by propofol one fourth of induction dose 2.5 mg/kg
Group P- 1 mg/kg of intravenous paracetamol (Perfalgan)
Followed by propofol one fourth of induction dose 2.5 mg/kg
Group C- 4 ml of isotonic saline solution
Followed by propofol one fourth of induction dose 2.5 mg/kg
Pain was assessed by verbal pain rating scale (VPS) and face pain scale(FPS) every 5 second during propofol injection. The highest pain score was recorded.

Heart rate, systolic blood pressure, was recorded before procedure, intra procedure and after procedure. The observations of above are discussed as below In our study, the four groups were comparable with respect to age, sex and weight. The median age in lidocaine group (group L) was 38 (20-60). The median age in lidocaine with fentanyl group (group L+F) was 41 (20-60). The median age in paracetamol group (group P) was 35.5 (18-60.) And in control group (group C) median age was 35.5(20-60).

Sex distribution was comparable in all four groups. Female patients were 66% in group L,58% in group L+F, 58% in group P and 60% in group C. Male patients were 34% in group L,42% in group L+F, 42% in group P and 40% in group C.

The mean weight (SD) was 53.98(3.89) in group L,54.62(3.72) in group L+F, 54.28(3.99) in group P and 54.14(4.34) in group C.

Comparison of heart rate between all four groups

In our study before procedure mean (SD) heart rate was comparable (p>0.05) in all four groups. The mean heart rate (SD) was 79.38(6.68) in group L, 83.66(4.79) in group L+F, 82.98(5.06) in group P and 81.94(5.25) in group C.

Intra procedure the mean (SD) heart rate was 78.54(6.35) in group L, 81.92.(5.17) in group L+F, 82.18(5.11) in group P and 80.86.(5.96) in group C. The difference was significant (p=0.01996).

After procedure mean (SD) heart rate was 76.24(6.43) in group L, 77.44(4.97) in group L+F, 78.6(4.91) in group P and 78.42(6.16) in group C. The difference was not significant (p=0.25388).

Comparison of heart rate at various interval in individual groups

In our study, in the group L, there is no significant difference in heart rate in intra procedure 78.54(6.35) compared to pre procedure heart rate 79.38(6.68). There is significant difference in heart rate in before procedure 79.38(6.68) compared to post procedure heart rate 76.24(6.43). There is also significant difference in heart rate in intra procedure 78.54(6.35) compared to post procedure heart rate 76.24(6.43). p<0.001.The decrease in heart rate compared to pre procedure heart rate was due lignocaine and propofol.

In the group L+F, there is significant difference in heart rate in intra procedure 81.92(5.17) compared to pre procedure heart rate 83.66(4.79). There is also significant difference in heart rate in post procedure 77.44(4.97) compared to before procedure heart rate 83.66(4.79). There is also significant difference in heart rate in intra procedure compared to post procedure heart rate 77.44(4.97). p<0.001.There is decrease in heart rate compared to pre procedure heart rate was due to lignocaine, fentanyl and propofol.

In the group P, there is no significant difference in heart rate in intra procedure 82.18(5.11) compared to pre procedure heart rate 82.98(5.06). There is significant difference in heart rate in post procedure 78.60(4.91) compared to before procedure heart rate 82.98(5.06). There is also significant difference in heart rate in intra procedure 82.18(5.11) compared to post procedure heart rate 78.60(4.91) p<0.001.There is decrease in heart rate compared to pre procedure heart rate was due to propofol.

In the group C, there is no significant difference in heart rate in intra procedure 80.86(5.96) compared to pre procedure heart rate 81.94(5.25). There is significant difference in heart rate in post procedure 78.42(6.16) compared to before procedure heart rate 81.94(5.25).There is also significant difference in heart rate in intra procedure 80.86(5.96) compared to post procedure heart rate 78.42(6.16). p<0.001.

Comparison of systolic blood pressure between all four groups

In our study, the before procedure mean (SD) systolic blood pressure difference was not statistically significant (p=0.435). The mean systolic blood pressure was 121.16(7.44) in group L, 122.04(6.8) in group L+F,121.00(8.95) in group P and 123.32(7.03) in group C.

The intra procedure mean (SD) systolic blood pressure difference was not statistically significant (p=0.55064).The mean systolic blood pressure was 118.56(6.5) in group L, 117.40(7.07) in group L+F, 117.80(8.86) in group P and 119.28(6.70) in group C.

The after procedure mean (SD) systolic blood pressure difference was statistically significant (p=0.0.00131).The mean systolic blood pressure was 114.12(5.81) in group L, 109.24(3.75) in group L+F, 111.84(8.10) in group P and 113.04(6.20) in group C.

Comparison of systolic blood pressure at various interval in individual groups

In the group L, there is significant difference in systolic blood pressure during intra procedure 118.56(6.50) compared to pre procedure systolic blood pressure 121.16(7.44). There is significant difference in systolic blood pressure in before procedure 121.16(7.44) compared to post procedure systolic blood pressure 114.12(5.81). There is also significant difference in intra procedure systolic blood pressure 118.56(6.50) compared to post procedure systolic blood pressure 114.12(5.81). p<0.001.

In the group L+F, there is significant difference in in intra procedure systolic blood pressure 117.40(7.07) compared to pre procedure systolic blood pressure 122.04(6.80). There is also significant difference in systolic blood pressure in before procedure 122.04(6.80) compared to post procedure systolic blood pressure 109.24 (3.75). There is also significant difference in systolic blood pressure in intra procedure 117.40(7.07) compared to post procedure systolic blood pressure 109.24(3.75). p<0.001.

In the group P, there is significant difference in systolic blood pressure in intra procedure 117.84(8.10) compared to pre procedure systolic blood pressure 121.00(8.95). There is also significant difference in systolic blood pressure in post procedure 111.84(8.10) compared to pre procedure systolic blood pressure 121.00 (8.95). There is also significant difference in systolic blood pressure in intra procedure 117.84(8.10) compared to post procedure systolic blood pressure 111.84(8.10) .p<0.001.

In the group C, there is significant difference in systolic blood pressure in intra procedure 119.28(6.20) compared to pre procedure systolic blood pressure 123.32(7.03). There is also significant difference in systolic blood pressure in before procedure 123.32 (7.03) compared to post procedure systolic blood pressure 113.04(6.20). There is also significant

difference in systolic blood pressure inintra procedure 119.28(6.70) compared to post procedure systolic blood pressure 113.04(6.20). p<0.001.

Comparison of pain on propofol injection by, Verbal pain rating scale (VPS) and Face pain scale (FPS)

Comparison of incidence of pain by VPS

In group L, 40 mg lignocaine was used for pretreatment with venous occlusion, 1 patient of 50 complained of pain on injection, thus incidence of pain was 2% in group L.

The primary clinical effect of fentanyl as an opiod is related to its interaction with opiate receptors centrally and with larger dose could have a local anaestheticeffect. To use this local effect , in group L+ F, 40 mg lignocaine with 100 microgram fentanyl was used for pretreatment with venous occlusion, 3 patient of 50 complained of pain on injection, thus incidence of pain was 6% in group L+F.

Analgesic effect of paracetamol is by unknown mechanism. In group P, 1 mg/kg intravenous paracetamol (Perfalgan) was used for pretreatment with venous occlusion, 3 patient of 50 complained of pain on injection, thus incidence of pain was 6% in group P.In group C, 4 ml of isotonic saline solution was used for pretreatment, 48 patient of 50 complained of pain on injection, thus incidence of pain was 96% in group C.

Incidence of pain was 1 out of 50 patients in group L and incidence of pain was 3 out of 50 patients in group L+F.The difference between incidence of pain was not significant by VPS. p= - 0.309.

Incidence of pain was 1 out of 50 patients in group L and incidence of pain was 3 out of 50 patients in group P.The difference between incidence was not significant. p=-0.309.
Incidence of pain was 3 out of 50 patients in group L+F and incidence of pain was 3 out of 50 patients in group P.Both groups were similar with respect to incidence of pain by VPS.
Incidence of pain was 48 out of 50 patients in group C and incidence of pain was 1 out of 50 patients in group L. The difference between incidence was highly significant. p<0.0001.

Incidence of pain is 48 out of 50 patients in group C and incidence of pain is 3 out of 50 patients in group L+F. The difference between incidence was highly significant. p<0.0001.

Incidence of pain is 48 out of 50 patients in group C and incidence of pain is 3 out of 50 patients in group P. The difference between incidence was highly significant. p<0.0001.

Thus, difference in incidence of pain was not significant between group L and L+F, between group Land P .The group L+F and P were similar with respect to incidence of pain.But the incidence of pain in group C was highly signicant compared to group L,L+F and P by VPS.

Comparison of severity of pain by VPS

In group L, by VPS pain score was 0 in 49 patients(98%), pain score was 1 in 1 patient (2%), pain score was 2 in 0 patient(0%) and pain score was 3 in 0 patient(0%) .

In group L+F, by VPS pain score was 0 in 49 patients(98%) , pain score was 1 in 3 patient (6%), pain score was 2 in 0 patient(0%) and pain score was 3 in 0 patient(0%) .

In group P, by VPS pain score was 0 in 49 patients(98%) , pain score was 1 in 3 patient (6%), pain score was 2 in 0 patient(0%) and pain score was 3 in 0 patient(0%).

In group C, by VPS pain score was 0 in 2 patients(4%), pain score was 1 in 2 patient (4%), pain score was 2 in 15 patient (30%) and pain score was 3 in 31 patient(62%). Thus, severity of pain was mild in group L,L+F and P. In group C pain was mild to severe.

Comparison of incidence of pain with FPS

In group L, 40 mg lignocaine was used for pretreatment with venous occlusion, 0 patient of 50 complained of pain on injection, thus incidence of pain was 0% in group L.

In group L+ F, 40 mg lignocaine with 100 microgram fentanyl was used for pretreatment with venous occlusion, 0 patient of 50 complained of pain on injection, thus incidence of pain was 0% in group L+F.

In group P, 1 mg/kg intravenous paracetamol (Perfalgan) was used for pretreatment with venous occlusion, 0 patient of 50 complained of pain on injection, thus incidence of pain was 0% in group P.

In group C, 4 ml of isotonic saline solution was used for pretreatment, 48 patient of 50 complained of pain on injection, thus incidence of pain was 96% in group C.

Incidence of pain was 0 out of 50 patients in group L and incidence of pain was 0 out of 50 patients in group L+F.Thus the groups were similar with respect to incidence of pain by FPS.

Incidence of pain was 0 out of 50 patients in group L and incidence of pain was 0 out of 50 patients in group P.Thus the groups were similar with respect to incidence of pain by FPS.
Incidence of pain was 0 out of 50 patients in group P and incidence of pain was 0 out of 50 patients in group L+F.Thus the groups were similar with respect to incidence of pain by FPS.

Incidence of pain is 48 out of 50 patients in group C and incidence of pain is 0 out of 50 patients in group L.Thus difference between incidence of pain was highly significant. p<0.001.

Incidence of pain was 48 out of 50 patients in group C and incidence of pain was 3 out of 50 patients in group L+F. Thus difference between incidence of pain was highly significant. p<0.001.

Incidence of pain was 48 out of 50 patients in group C and incidence of pain was 3 out of 50 patients in group P. Thus difference between incidence of pain was highly significant. p<0.001.

Thus, incidence of pain was similar between group L and L+F, between group Land P and group L+F and P.But the incidence of pain in group C was highly signicant compared to group L,L+F and P by FPS.

Comparison of severity of pain by FPS

In group L, FPS pain score is 0 in 50 patients(100%) , pain score is 1 in 0 patient (0%), pain score is 2 in 0 patient(0%) , pain score 3 in 0 patient(0%) , pain score 4 in 0 patient(0%) and pain score 5 in 0 patient(0%).

In group L+F, FPS pain score is 0 in 50 patients(100%) , pain score is 1 in patient (0%), pain score is 2 in 0 patient(0%) , pain score 3 in 0 patient(0%) , pain score 4 in 0 patient(0%) and pain score 5 in 0 patient(0%).

In group P, FPS pain score is 0 in 50 patients(100%) , pain score is 1 in 0 patient (0%), pain score is 2 in 0 patient(0%) , pain score 3 in 0 patient(0%), pain score 4 in 0 patient(0%) and pain score 5 in 0 patient(0%).

In group C, FPS pain score is 0 in 2 patients(4%) , pain score is 1 in 0 patient (0%), pain score is 2 in 8 patient(16%) , pain score 3 in 31 patient(62%), pain score 4 in 5 patient (10%) and pain score 5 in 4 patient (8%).

The severity of pain was mild in group L, group L +F and group P by VPS and mild to severe in group C with VPS scores of 3 in 31 patients(62%), 2 in 15 patients(30%) and by FPS pain was mild to severe in group C with scores of 5 in 4 patients(8%) ,pain score of 4 in 5 patients(10%), pain score of 3 in 31 patients(62%) and, pain score of 2 in 8 patients(16%).. By VPS, in group L median (range) is 0.00(0-1). In group L+F median (range) is 0.00(0-1). In group P median (range) is 0.00(0-1) and group C median(range) is 3.00(1-3). By FPS, in group L median (range) is 0.00(0-0). In group L+F median (range) is 0.00(0-0). In group P median (range) is 0.00(0-0) and group C median (range) is 3.00(0-5). Statistically the difference is insignificant when VPS and FPS of group L is compared to group L+F, P and group L+F compared to group L,P and group P compared to group L, L+F. But the difference is significant when VPS and FPS of group C is compared to group L,L+F and P.

Thus, in our study, lignocaine 40 mg was effective in relieving propofol injection pain. Lignocaine 40mg with fentanyl 100 mcg and paracetamol 1 mg/kg was equally effective in relieving propofol injection pain.

CONCLUSION

- Lignocaine 40 mg retained in tourniquet occluded vein for 60 seconds is effective in reducing propofol injection. Incidence of painis less as compared to lignocaine 40 mg with fentanyl 100 mcg and paracetamol 1 mg/kg.
- Lignocaine 40 mg with fentanyl 100 mcg with venous occlusion is effective in reducing propofol injection pain.
- Paracetamol 1 mg/kg with venous occlusion iseffective in reducing propofol injection pain.
- Lignocaine with fentanyl and paracetamol are equally effective in reducing severity and incidence of propofol injection pain.
- Severity of pain is mild with lignocaine 40 mg, lignocaine 40 mg with fentanyl 100 microgram and paracetamol 1 mg/kg.

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Abbreviations:
ASA: American society of anesthesiologist
VPS: Visual Pain Scale
FPS: Face Pain Scale
NBM: nil by mouth

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