

# Clonidine and dexmedetomidine for controlled hypotension during functional endoscopic sinus surgery: a comparative study

## Results

The demographic data of the two groups (C and D) were comparable, no significant difference (Table 4).

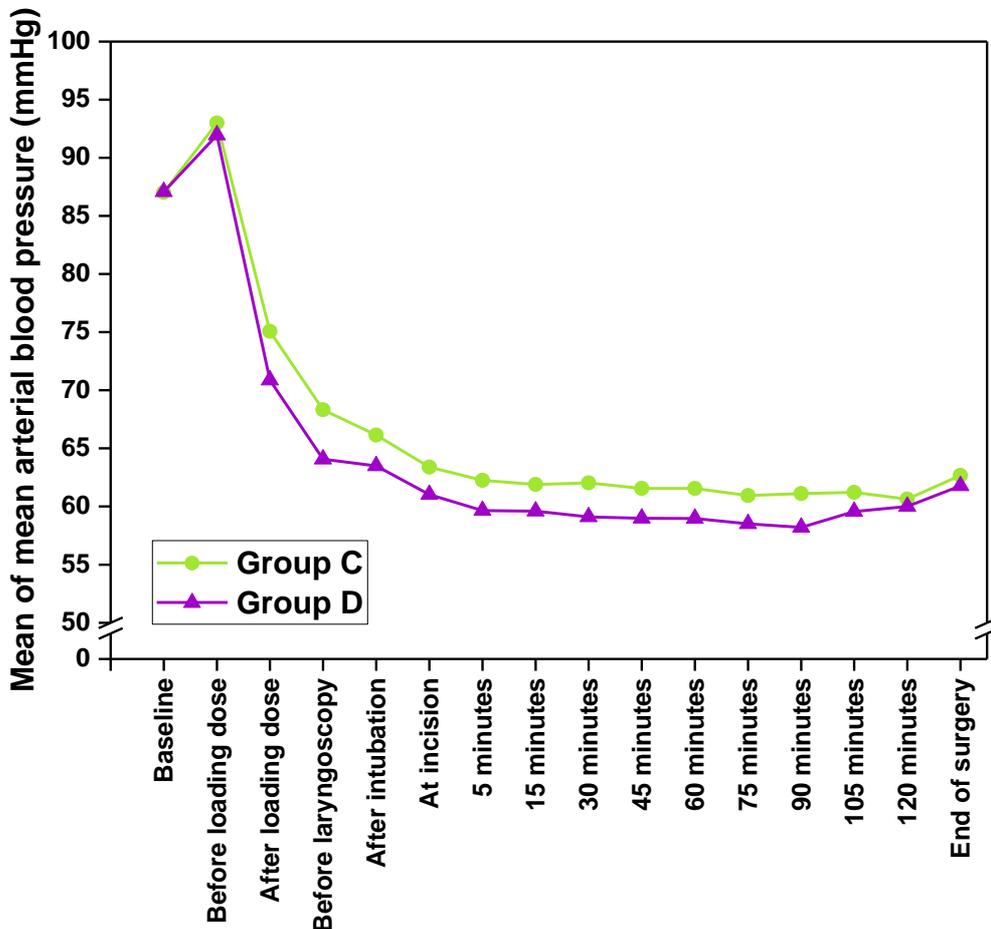
**Table 4. Comparison between the two groups according to demographic data (Age, Sex, Weight, BMI, ASA)**

General characteristics	Group C (n=40) [n (%)]	Group D (n=40) [n (%)]	Test	p-value
<b>Age (in years)</b>				
Min	19	22	t=0.830	0.409
Max	48	46		
Mean ± SD	33.90± 6.85	35.15±6.62		
<b>BMI (kg/m<sup>2</sup>)</b>				
Min	22.31	22.84	t=0.117	0.907
Max	28.41	28.73		
Mean ± SD	25.75±1.53	25.71±1.28		
<b>Sex</b>				
Male	22 (55.0%)	20 (50.0%)	χ <sup>2</sup> =0.201	0.654
Female	18 (45.0%)	20 (50.0%)		
<b>ASA Classification</b>				
ASA I	27 (67.5%)	28 (70.0%)	χ <sup>2</sup> =0.058	0.809
ASA II	13 (32.5%)	12 (30.0%)		
<b>Duration of surgery (minutes)</b>				
Min	60	55	t =1.593	0.115
Max	150	135		
Mean ± SD	103.50(22.45)	95.83(20.59)		

### ***Hemodynamic changes in Mean Arteria Blood Pressure***

Comparing both groups (Figure 2), mean (±SD) of baseline MAP were comparable with 87.03±3.63 mmHg (95% CI 85.86-88.19) in group C and 87.08±4.98 (95% CI 85.48-88.67) in group D, t(p)=0.051(0.959). The variations of MAP throughout the intraoperative period were not statistically different in both groups (p=0.119). The mean intraoperative MAP was 66.44 mmHg with Standard Error (SE) of 0.65 (95% ci 65.13-67.83) mmHg in Group C and 64.75 with SE 0.84

17 (95% CI 63.01-66.50) mmHg in Group D. Stimulations such as laryngoscopy, intubation or first  
 18 incision did not lead to increased MAP throughout the intraoperative period ( $p>0.05$ ).

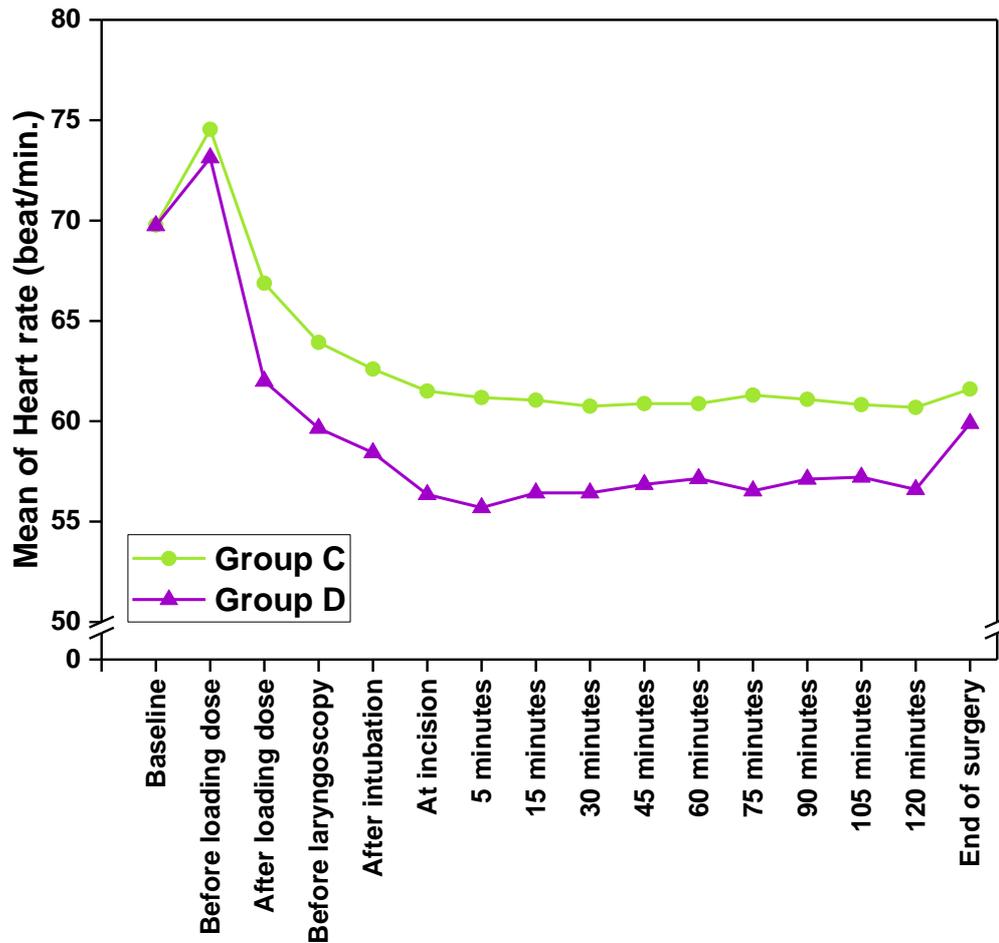


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20 **Figure 2. Comparison of mean arterial pressure variation between group C and group D**

21 ***Changes in Heart Rate (HR)***

22 Comparing both groups (**Figure 3**) the mean of HR throughout the intraoperative period was  
 23 62.69 beats per minute with SE 0.61 ( 95% ci 61.43-63.95) in Group C while it was 59.88 beats  
 24 per minute with SE 0.79 ( 95% CI 58.25-61.50) in Group D. Much lower means of HR were  
 25 recorded in Group D comparing to Group C. The difference was statistically significant, with  
 26 successively  $p$  value  $\leq 0.001$  throughout intraoperative time measurement at surgical incision, 5,  
 27 15, 30, 45, 60, 75, 90, 105 and 120 min. Stimulations such as laryngoscopy, intubation or first  
 28 incision did not lead to increased HR throughout the intraoperative period ( $p>0.05$ )



29

30 **Figure 3. Comparison of heart rate variations between group C and group D.**31 ***Blood loss and Surgical field quality***

32 Blood loss in Group C ranged from 50-180 ml with a mean (SD) of 133.50(36.48) ml (95% CI  
 33 121.83-145.17) while in Group D it ranged from 50-170 mL with a mean (SD) of 129.50(27.08)  
 34 mL (95% CI 120.44-138.16). The mean of blood loss was lower in Group D comparing to Group C  
 35 but difference was not statistically significant, p-value was 0.579.

36 Surgical field quality as assessed by Fromme-Boezaart scale was comparable in both groups ( $p >$   
 37 0.05) with predominance of class 2 (**Table 5**). Surgeon satisfaction was rated good to excellent in  
 38 both groups, ( $p >$  0.05).

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42 **Table 5. Comparison between the two studied groups according to surgical field quality assessed by**  
 43 **Fromme- Boezaart Scale**

Fromme- Boezaart Scale	Group C (n = 40)	Group D (n = 40)	$\chi^2(p)$
0	0 (0%)	0 (0%)	
1	7 (17.5%)	7 (17.5%)	
2	27 (67.5%)	27 (67.5%)	0.0 (1.000 )
3	6 (15.0%)	6 (15.0%)	
4	0 (0%)	0 (0%)	
5	0 (0%)	0 (0%)	

44

45 **Recovery**

46 Time taken for MAP to reach  $\pm 20\%$  range of the baseline values after stopping the alpha-2  
 47 adrenergic agonist and isoflurane, was different between the group C and D. In the group C,  
 48 hemodynamic recovery time ranged from 9-28 minutes with a mean (SD) of 16.35(4.36) minutes  
 49 while in group D it ranged from 10-35 minutes with a mean of 22.40(6.62) minutes. Lower  
 50 hemodynamic recovery time was observed in group C comparing to group D and difference was  
 51 statistically significant with  $t(p) = 4.829 (<0.001)$ .

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53 Time taken for the patient to regain consciousness after stopping the alpha-2 adrenergic agonist  
 54 and isoflurane was different between the group C and D. In the group C, it ranged from (14-30)  
 55 minutes with a mean (SD) of 20.40(3.84) minutes and in group D it ranged from (15-35) minutes  
 56 with a mean (SD) of 25.53(5.51) minutes. Lower recovery time was observed in group C  
 57 comparing to group D and the difference was statistically significant with  $t(p) = 4.823 (<0.001)$ .

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59 Post-operative sedation was assessed at 10, 20, 30, 45 and 60 minutes after awake extubation  
 60 using Ramsay Sedation Score. Regarding post-operative sedation, Group C had rapid recovery  
 61 from anaesthesia as assessed by RSS compared to group D.

62 The difference was statistically significant at 10 minutes with  $\chi^2 (p) = 39.200 (<0.001)$ , 20 minutes  
 63  $\chi^2 (p) = 5 (<0.025)$ , and at 30 minutes  $\chi^2 (p) = 7.813 (<0.005)$  (**Table 6**)

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67 **Table 6. Comparison between the two studied groups according to post-operative sedation assessed**  
 68 **by RSS**

RSS	Post-operative Ramsay Sedation Score									
	At 10 minutes		At 20 minutes		At 30 minutes		At 45 minutes		At 60 minutes	
	Gr. C No. (%)	Gr. D No. (%)	Gr. C No. (%)	Gr. D No. (%)	Gr. C No. (%)	Gr. D No. (%)	Gr. C No. (%)	Gr. D No. (%)	Gr. C No. (%)	Gr. D No. (%)
1	19 (47.5)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
2	12 (30)	4(10.0)	25(62.5)	15(37.5)	35(87.5)	24(60.0)	40(100.0)	37(92.5)	40(100.0)	39(97.5)
3	9 (22.5)	36(90.0)	15(37.5)	25(62.5)	5(12.5)	16(40.0)	0 (0)	3(7.5)	0 (0)	1 (2.5)
4	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
5	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
$\chi^2$ (p)	39.200* (<0.001*)		5.0* (0.025*)		7.813* (0.005*)		3.117(0.241)		1.013(1.000)	

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70 \*: Statistically significant at  $p \leq 0.05$ 

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72 No major complications (sinus arrest, Heart block, anaphylaxis) were observed in both groups in  
73 the intraoperative or postoperative period.

74 In the intraoperative period, in group D, 2 (5%) patients developed severe bradycardia treated  
75 with atropine 0.5mg and severe hypotension was recorded in 2 (5%) patients treated with

76 ephedrine 3mg in incremented dose. No complication (severe bradycardia, severe hypotension or  
77 rebound hypertension) was recorded in group C. In the post-operative period we didn't record

78 shivering, postoperative nausea and vomiting (PONV) or respiratory depression in both groups.

79 Postoperative sedation was significantly prolonged in group D comparing to group C.

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