

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).

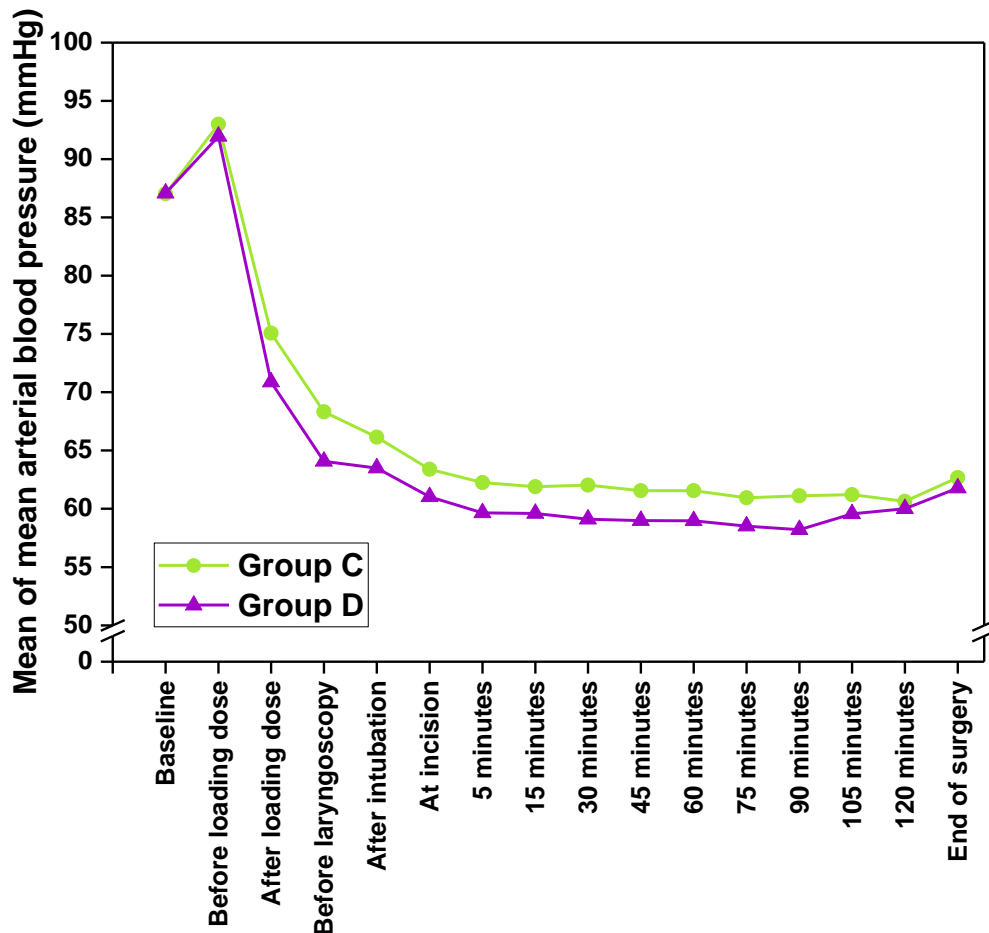
Table 4. Comparison between the two groups according to demographic data (Age, Sex, Weight, BMI, ASA)

| General characteristics | Group C (n=40) [n (%)] | Group D (n=40) [n (%)] | Test | p-value |
|-------------------------------|------------------------|------------------------|-----------|---------|
| Age (in years) | | | | |
| Min | 19 | 22 | t=0.830 | 0.409 |
| Max | 48 | 46 | | |
| Mean ± SD | 33.90± 6.85 | 35.15±6.62 | | |
| BMI (kg/m²) | | | | |
| 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 | | |
| Sex | | | | |
| Male | 22 (55.0%) | 20 (50.0%) | χ² =0.201 | 0.654 |
| Female | 18 (45.0%) | 20 (50.0%) | | |
| ASA Classification | | | | |
| ASA I | 27 (67.5%) | 28 (70.0%) | χ² =0.058 | 0.809 |
| ASA II | 13 (32.5%) | 12 (30.0%) | | |
| Duration of surgery (minutes) | | | | |
| 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 (\pm SD) of baseline MAP were comparable with 87.03 \pm 3.63 mmHg (95% CI 85.86-88.19) in group C and 87.08 \pm 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 ($p>0.05$).



19

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 ≤ 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 ($p>0.05$)

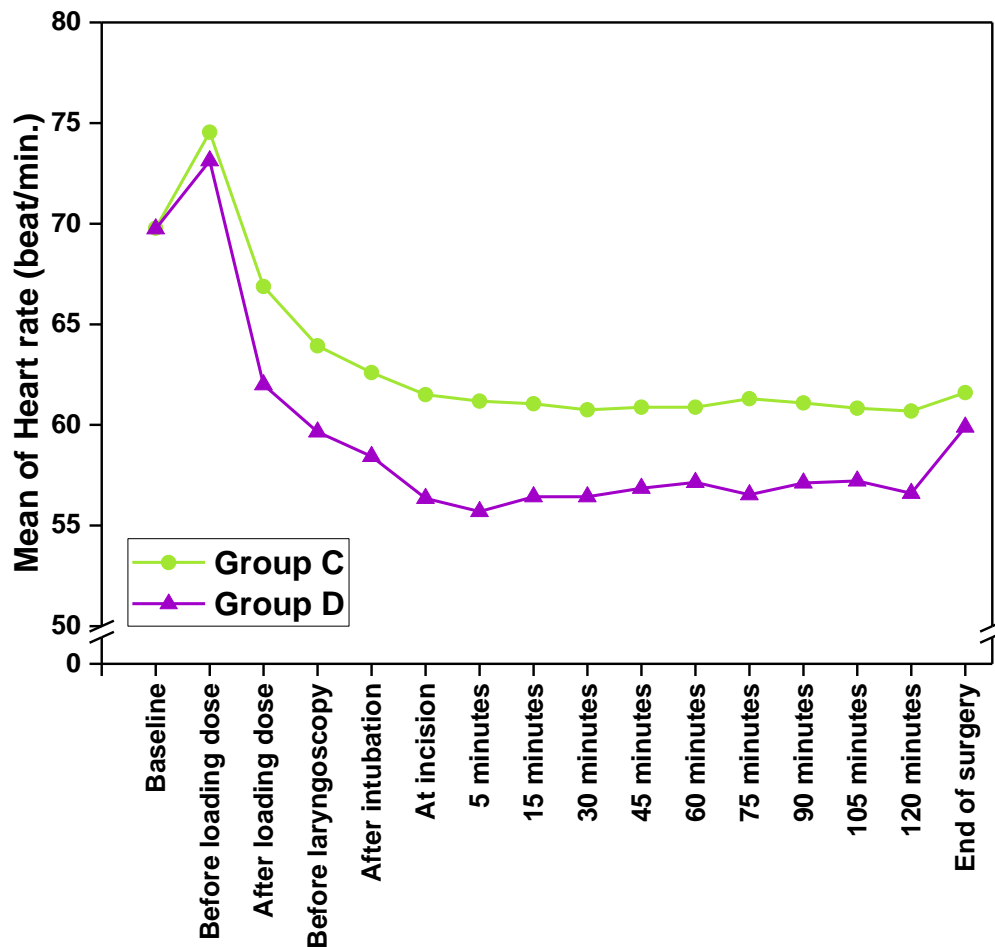


Figure 3. Comparison of heart rate variations between group C and group D.

Blood loss and Surgical field quality

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

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

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

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

Recovery

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

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

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

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

Table 6. Comparison between the two studied groups according to post-operative sedation assessed 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 | Gr. D | Gr. C | Gr. D | Gr. C | Gr. D | Gr. C | Gr. D | Gr. C | Gr. D |
| | No. (%) | No. (%) | No. (%) | No. (%) | No. (%) | No. (%) | No. (%) | No. (%) | No. (%) | 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) |
| χ^2 (p) | 39.200* (<0.001*) | | 5.0* (0.025*) | | 7.813* (0.005*) | | 3.117(0.241) | | 1.013(1.000) | |

*: Statistically significant at $p \leq 0.05$

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

In the intraoperative period, in group D, 2 (5%) patients developed severe bradycardia treated with atropine 0.5mg and severe hypotension was recorded in 2 (5%) patients treated with ephedrine 3mg in incremented dose. No complication (severe bradycardia, severe hypotension or rebound hypertension) was recorded in group C. In the post-operative period we didn't record shivering, postoperative nausea and vomiting (PONV) or respiratory depression in both groups. Postoperative sedation was significantly prolonged in group D comparing to group C.