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Dexmedetomidine versus magnesium sulfate for controlled hypotension during rhinoplasty surgeries: A prospective randomized comparative study

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ABSTRACT

Background: General anesthesia organizes the best option for controlled blood pressure during rhinoplasty surgery. The primary agent applied in controlling hypotension should have particular unique characteristics. The peripheral and central sympatholytic attainment of dexmedetomidine is usually indicated by low blood pressure and low heart rate. Magnesium sulfate is among the best agents used.

Objective: Determine the influence of both dexmedetomidine and magnesium sulfate on hemodynamic parameters for patients undergoing rhinoplasty surgeries after general anesthesia.

Patients and methods: This is a randomized prospective comparative study. Fifty-six patients got enrolled and divided into two categories. Group 1 ($n = 28$): Received a priming dose of dexmedetomidine 1 microgram/kg before induction then 0.4 µg/kg/h. Group 2 ($n = 28$): Received 30 mg/kg of magnesium sulfate as a priming dose before induction and then 10 mg/kg/h during the time of the procedure.

Results: No significant differences were seen between the two groups regarding the MAP. There were significant differences among the groups in heart rate ($p < 0.05$). The patients in the second group experienced higher bleeding scores than those in the first group. The first group had a higher surgeon satisfaction rate than the second group ($p < 0.05$). The first group had more time to arrive at the Aldrete score of less than or equal to 9 than that of the second group of patients.

Conclusion: Dexmedetomidine has high effectiveness in attaining controlled hypotension in patients undergoing rhinoplasty. Magnesium sulfate requires extra nitroglycerine. Dexmedetomidine possesses a potent analgesic impact with a reduced analgesic requirement duration compared to magnesium sulfate.

Registration trial: The study was approved by clinical trials registration (NCT05880693).

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Controlled hypotension; dexmedetomidine; magnesium; bleeding

1. Introduction

For many reasons, general anesthesia organizes the best option for controlled blood pressure during rhinoplasty surgery [1]. A lot of nasal septum surgeries are accomplished on an outpatient basis and most commonly on healthy candidates; nonetheless, some patients can present with comorbidities like hypertension or obstructive sleep apnea (OSA) [1]. Indication for this surgery varies: it can be for purely cosmetic reasons, post-traumatic, or to relieve chronic nasal obstruction of post-tumor resection [1].

The primary agent applied in controlling hypotension should have particular unique characteristics. The characteristics include easy administration, an effect that fades once the administration's discontinuation occurs, and a negligible impact on essential body organs [2]. Other crucial factors include rapid onset and fast elimination times with no harmful metabolites and predictable effects [3].

Dexmedetomidine is a very discriminatory and strong central α2- adrenergic receptor agonist that binds with the transmembrane G protein-binding adrenoceptors. Dexmedetomidine has extraordinary properties, due to its sedation production without respiratory depression. Besides, it does not lead to analgesic effects [4]. The dexmedetomidine peripheral and central sympatholytic attainment is usually indicated by low blood pressure and low heart rate. Other indicators of this performance include cardiac output and even low norepinephrine release [5].

In the setting of controlled hypotension, magnesium sulfate is among the best agents used. This agent stabilizes the cell membrane and intracytoplasmic organelles by facilitating the stimulation of Na+ ATPase and the Ca^{++}ATPase enzymes [6]. The two enzymes play an essential function in the transmembrane ion interchange amid the two polarization phases [6]. Moreover, the magnesium ion prevents

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norepinephrine release through blockage of the N-type Ca++ pathways at the nerve terminals, thus reducing arterial blood pressure [6].

1.1. Objective

We determine the validity of both dexmedetomidine and magnesium sulfate on hemodynamic parameters for patients undergoing rhinoplasty surgeries after general anesthesia.

2. Patients and methods

This is a proposed comparative randomized trial that was performed in Mustasharak Hospital (KSA) and Al-Azhar hospitals between June 2022 and June 2023. The study is conducted in accordance with Helsinki standards as revised in 2013. Approximately 56 patients got enrolled and divided into two categories as described in the CONSORT flow chart (Figure 1):

(1) The first group (group 1) ($n = 28$): Received a priming dose of dexmedetomidine 1 microgram/kg in an 0.9% saline solution of 100 ml 10 min prior to anesthesia induction and then a 0.4 ug/kg/h via syringe infusion pump during the time of surgery.
(2) The second group (group 2) ($n = 28$): Magnesium sulfate 30 mg/kg as a priming dose in a saline 0.9% solution of 100 ml infusion through the syringe pump 10 minutes before anesthesia induction and then a 10 mg/kg/h through syringe infusion pump during the time of surgery.

2.1. Inclusion criteria

The study had patients of either gender, 18–60 years old with ASA grading I and II, who were to undergo a rhinoplasty procedure under the effect of general anesthesia.

2.2. Exclusion criteria

Pregnant women, patients suffering from hypertension, ischemic heart disease, renal insufficiency,

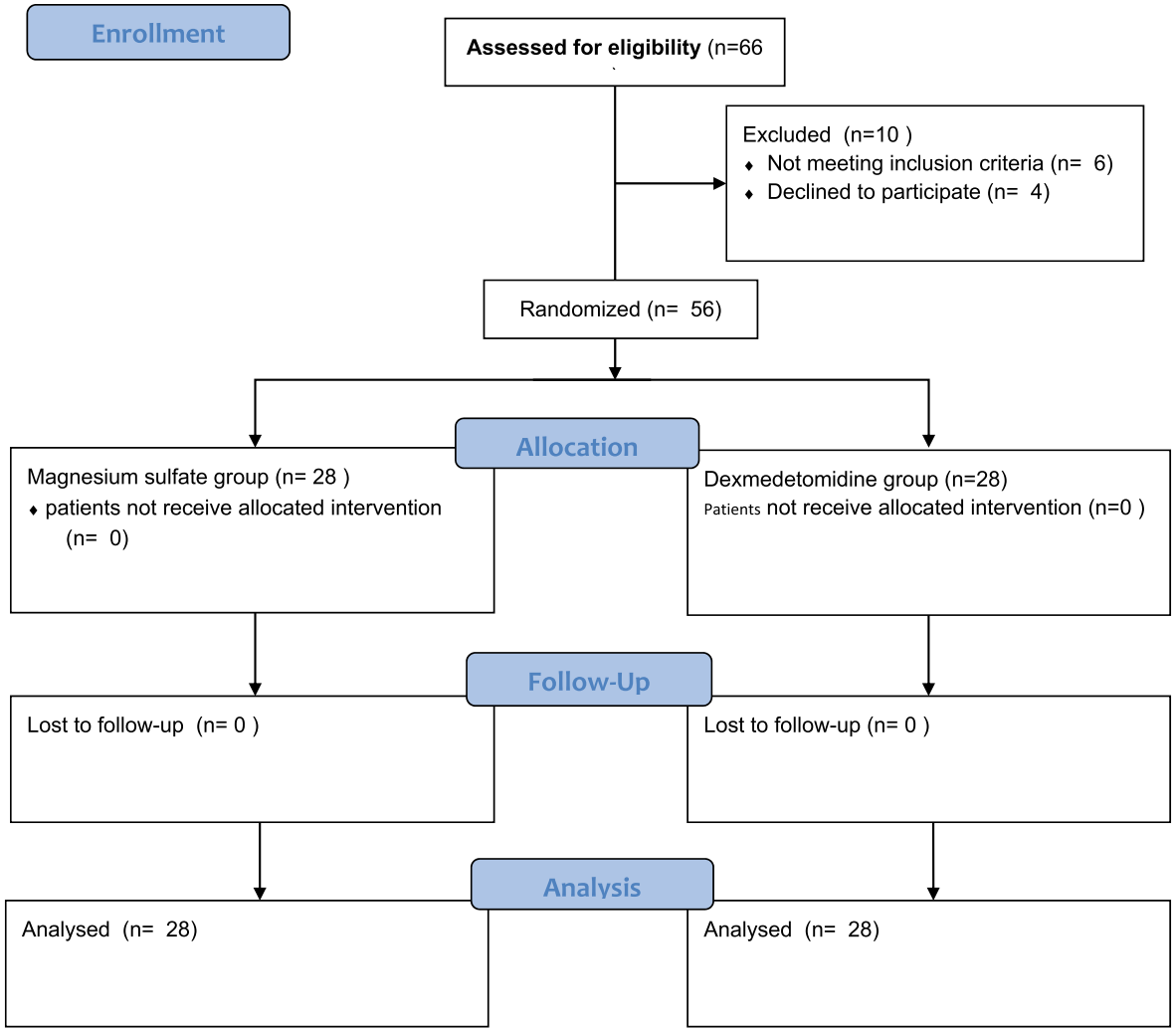

Figure 1. CONSORT flow diagram.

neuromuscular disease, hepatic impairment, cerebrovascular inadequacy, diabetic neuropathy, coagulopathies, patients taking antiplatelets, patients who refused study and patients of age <18 or >60 were unauthorized from the study.

2.3. Study outcomes

2.3.1. Primary outcome

Hemodynamic parameters (MAP and HR).

2.3.2. Secondary outcomes

(1) Time to accomplish an Aldrete score ≥9, in the recovery time post-anesthesia.
(2) valuation of bleeding by bleeding score.
(3) valuation of sedation by Ramsay sedation score.
(4) valuation of postoperative pain by VAS scores.
(5) Surgeon satisfaction.

2.4. Randomization

The randomization process was performed through numbered and opaque envelopes with random allocations generated by the computer in a 1:1 ratio.

2.5. Ethical consideration

The Research Ethics Committee approved the study's protocol (Approved no: 00362). Informed written consent was obtained from each patient before the operation. The study was approved by clinical trials registration (https://clinicaltrials.gov/ct2/show/NCT05880693).

2.6. Study procedures

Preoperative assessment was conducted for all patients, and it consisted of regular history taking and laboratory examination. The body weights of all the patients under study were recorded and kept in their files. According to the rules, all patients were fasting and were premedicated with midazolam and ondansetron for 30 min before the actual surgery.

Patients also received the same anesthetic technique that contained propofol of 2 mg/kg as well as fentanyl. The anesthesia was kept with just 2% of sevoflurane. Through a volume-controlled mode, all the patients received mechanical ventilation. Besides, a capnography measurement was also developed to maintain normocapnia. After the anesthesia induction, an arterial line was put into the radial artery to enhance regular blood pressure monitoring in the arteries. Besides, the pulse rate, as well as the mean arterial blood pressure, was also noted down at the baseline before taking the dose. If there is to be an increment in the blood pressure beyond the normal one, the infusion of nitroglycerine was performed and the drug's infusion rate was reduced immediately. Upon reaching the required range, surgeon contentment was approximated for the surgical field quality and was rated on a scale upon completion of the surgery. The scale rating included: one was bad, two was moderate, three was good, and four was rated excellent.

The amount of blood loss during the entire process was measured and assessed through a bleeding score. The score assessment was rated from 0 to 5, in which 0 had no bleeding, 1 was little bleeding with no suction needed, and 2 was minor bleeding that required suction. On a scale of 3, the bleeding was minor with regular aspiration requirements, while 4 had moderate bleeding, which was visible through aspiration. The last scale 5, had severe bleeding, which required a continuous aspiration [2]. The drug infusions and sevoflurane upon completion of the surgery, while the neuromuscular block was inverted. In the post-anesthesia care unit, time to achieve an Aldrete score of more or equal to 9 was reported to shift the patient from the post-anesthesia care unit (PACU) to the ward (Aldrete, 1995) [7]. (Table 1)

The score of pain was evaluated by the VAS score [8], and the sedation score through the Ramsey sedation score (Table 2) was rated 15, 30, and 60 min post extubating the trachea [9]. The time required for the first demand of analgesia was also documented, as well as intraoperative and postoperative problems.

Table 1. Aldrete score [7].

Respiration	2 Capable to keep efficient cough and breath	1 Trivial breathing or Dyspnoea	0 Apnea
O2 saturation	2 Sustain > 92% on ambient air	1 Needs oxygen supplementation to keep SO2 > 90%	0 So2 < 90% even with supplemental O2
Consciousness	2 Fully conscious	1 Easily arousable on calling	0 Not responding
Circulation	2 BP ± 20 mmHg preoperative reading	1 BP ± (20–50) mmHg preoperative reading	0 BP ± 50 mmHg preoperative reading
Activity	2 Able to move 4 limbs voluntary or on command	1 Able to move 2 limbs voluntarily or on request	0 Not able to move any limb voluntarily or on request

Table 2. Correlation between the two groups in accord with demographic inputs.

Demographic inputs	Group 1(n = 28)	Group 2 (n = 28)	t/x2	p-value
Gender				
Male	10 (35.7%)18 (65.3%)	12 (4.3%)16 (6.0%)	1.764#	.246
Female	18 (65.3%)	16 (60.0%)		
Age (years)				
Range	18–6041.14 ± 8.59	18–6037.55 ± 9.49	0.448	.661
Mean ± SD	41.14 ± 8.59	37.55 ± 9.49		
Weight (kg)				
Range	59–8374.69 ± 17.20	58–8375.70 ± 18.11	1.788	.132
Mean ± SD	74.69 ± 17.20	75.70 ± 18.11		
ASA				
I	23 (78.0%)5 (22.0%)	21 (75.3%)7 (25.7%)	1.831#	.228
II	5 (22.0%)	7 (25.7%)		
Duration of operation (min)				
Mean ± SD	123.19± 15.55	13.68 ± 19.10	0.668	.439

By use of absolute sample t-test; #x2: Chi-square test.
p-value >0.05 non-significant; *p-value <0.05 is significant.

Therefore, hypotension was explained as MAP below 50 mmHg. It was managed by administering ephedrine boluses. Besides, bradycardia was also illustrated as heart rates below 60 bpm, and its treatment was atropine 0.01 mg/kg.

2.6.1. Ramsay sedation score [9]

Score 1: Restless, anxious, or agitated.

Score 2: Oriented and Cooperative.

Score 3: Drowsy but responds to orders.

Score 4: Sleepy, vigorous response to a minimal glabellar tap or high auditory stimulant.

Score 5: Sleepy, lethargic response to a minimal glabellar tap or high auditory stimulant.

Score 6: Sleepy and unarousable.

Moreover, the patients who experienced nausea and vomiting received an extra 4 mg of ondansetron, while those who displayed shivering signs received warmth from heated blankets.

2.7. Determination of sample size

The collected information was analyzed through the use of the PASS program that set alpha error at 5% as well as power at 80%. A recent trial (Bayram et al.) [10] indicated that the score of bleeding above 2 was approximately 23% in the Dexmedetomidine group in comparison with the 65% in the magnesium group. Depending on this, the required sample size was 28 cases in each group, totaling 56, while the effect size was 0.79.

2.8. Statistical analysis

The data were evaluated and interpreted using the SPSS, 20.0 versions (SPSS Inc., Chicago, IL, USA). The quantitative data were evaluated as the mean ± standard deviation (SD). On the other hand, the qualitative data was expressed in the form of percentages as well as frequencies. Different tests were carried out. An independent sample test of importance was applied during the comparison of two means. We used the chi-square test to correlate proportions among qualitative parameters. The level of confidence was regulated at 95%, while the accepted error margin varied at 5%. Therefore, the value of p was necessary since the probability value of less than 0.05 was highly significant.

3. Results

The current study shows no significant differences between groups 1 and 2 regarding gender, weight, surgery duration, age, and ASA classification as shown in Table 2.

Furthermore, no significant differences were seen between the two groups regarding the baseline MAP prior to priming dose at induction time, then at 15 min, 30 min, 60 min, 90 min, and 120 min; or post tracheal extubation.

However, there was a substantial reduction in MAP among the first group members at 67.45 ± 4.61 mmHg compared to patients of the second one at 74.01 ± 4.65 mmHg at 30-min post-procedure ($p = 0.041$) (Table 3).

Besides, a statistically significant difference existed between the two groups regarding nitroglycerine requirements applied in the second group only for seven cases ($p = 0.007$). The nitroglycerine dosage used for patients from the second group was approximately 139 ± 149.7 µg.

Moreover, there was a significant difference among the groups in heart rate. However, there was a slight reduction in the heart rate immediately after the anesthetic induction and at intervals of 15 min, 30 min, 60 min, 90 min, and 120 min intraoperatively and even postoperatively; after completing the surgery, and 30 min post-extubation in the first group of patients compared to those from the second one (Table 4).

By use of an absolute sample t-test; p-value >0.05 is non-significant, and *p value <0.05 is significant.

The patients in the second group experienced higher bleeding scores than those in the first group.

Table 3. Correlation between the two groups according to the mean arterial pressure (MAP) (mmHg).

MAP (mmHg)	Group 1 (n = 28)	Group 2 (n = 28)	t-test	*p-value*
Baseline	84.81 ± 5.71	85.79 ± 5.69	0.151	.729
Post-induction	75.39 ± 5.17	75.57 ± 5.28	0.677	.450
15 min post-induction	66.20 ± 4.49	68.51 ± 4.61	0.572	.485
30 min post-induction	57.81 ± 3.54	61.11 ± 4.34	0.065	.782
60 min post-induction	55.31 ± 3.83	56.91 ± 3.84	0.848	.488
90 min post-induction	57.88± 3.54	61.60 ± 4.21	1.738	.175
120 min post-induction	61.11 ± 4.22	63.76 ± 4.66	1.159	.291
At surgery end	67.11 ± 4.49	68.76 ± 4.82	1.487	.223
After extubation	72.35 ±5.12	76.44 ± 4.99	2.733	.081
30 min. Post-operative	67.45 ± 4.61	74.01 ± 4.65	4.103	.041*

By use of absolute sample t-test.
p-value > 0.05 is non-significant; *p-value <0.05 is significant.

Table 4. Correlation between the two groups as regards the heart rate (beat/min).

Heart rate (beat/min)	Group 1 (n = 28)	Group 2 (n = 28)	t-test	*p-value*
Baseline (preoperative)	81.49 ± 5.81	8.93 ± 5.83	0.950	.339
Post-induction	75.31 ± 5.51	77.91 ± 5.87	4.345	.028*
15 min post-induction	65.78 ± 4.54	71.94 ± 5.11	3.112	.040*
30 min post-induction	61.23 ± 4.32	66.38 ± 4.43	4.777	.031*
60 min post-induction	58.01 ± 4.07	63.65 ± 4.64	6.765	.015*
90 min post-induction	61.13 ± 4.34	64.87 ± 4.43	9.015	.005*
120 min post-induction	63.03 ± 4.41	66.44 ± 4.84	6.054	.011*
End of procedure	68.09± 4.81	73.20 ± 5.20	6.028	.019*
After extubation	75.54 ± 5.23	8.54 ± 5.89	4.532	.015*
30 min Post-procedure	66.98 ± 4.54	74.99 ± 5.43	3.612	.028*

Table 5. Correlation between groups regarding bleeding score.

Bleeding score	Group 1 (n = 28)	Group 2 (n = 28)	χ2	*p-value*
0	1 (4.3%)	0 (.0%)	1.893	.221
1	3 (11.3%)	0 (.0%)	1.278	.222
2	16 (52.3%)	5 (21.7%)	3.788	.041*
3	9 (25.4%)	5 (15.0%)	4.011	.015*
4	2 (5.9%)	12 (44.1%)	2.679	.031*
5	1 (4.0%)	8 (3.1%)	4.201	.028*

Furthermore, the first group of patients shared a slight decrease in blood loss compared to the patients in the first one with a p-value of 0.015 (Table 5).

Using the χ2 chi-square test; a p-value >0.05 is considered non-significant, *p-value <0.05 is significant.

There was a significant difference between the groups ($p < 0.01$) in postoperative analgesia in Table 6.

The first group had a higher surgeon contentment rate than the second group as shown in (figure 2).

Besides, the first group also had more time to arrive at the Aldrete score of less than or equal to 9 than that of the second group of patients. At intervals of 15 min, 30 min, and 60 min post-procedure.

There were significant differences in the Ramsey sedation score between groups with a p-value less than 0.001, which was more in the first group. The first group had a slightly high time (44.51 ± 4.12) for the initial postoperative requirement in comparison to the patients in the second group (Table 7).

Three cases of low blood pressure (MAP below 50 mmHg) were noted among the first group members and were therefore treated with shots of ephedrine to 10 mg, which was insignificant. Besides, there also occurred bradycardia episodes (HR below 60 b/min) in four cases in the first group, while one episode happened in the second one. All five cases were

Table 6. Assessment of postoperative pain by VAS score.

Groups / Parameter	Group 1 (n = 28)	Group 2 (n = 28)	P- value
2 hrs. Postoperative	0 (0–1)	1 (0–1)	<.01*
4 hrs. Postoperative	1 (1–2)	2 (2–3)	<.05*
8 hrs. Postoperative	2 (1–2)	3 (2–3)	<.05*
12 hrs. Postoperative	3 (1–2)	4 (3–4)	<.01*
16 hrs. Postoperative	4 (2–4)	5 (4–5)	<.05*
20 hrs. Postoperative	4 (4–5)	5 (4–5)	.13
24 hrs. Postoperative	6 (5–6)	6 (5–6)	.12

Data represented by (IQR).

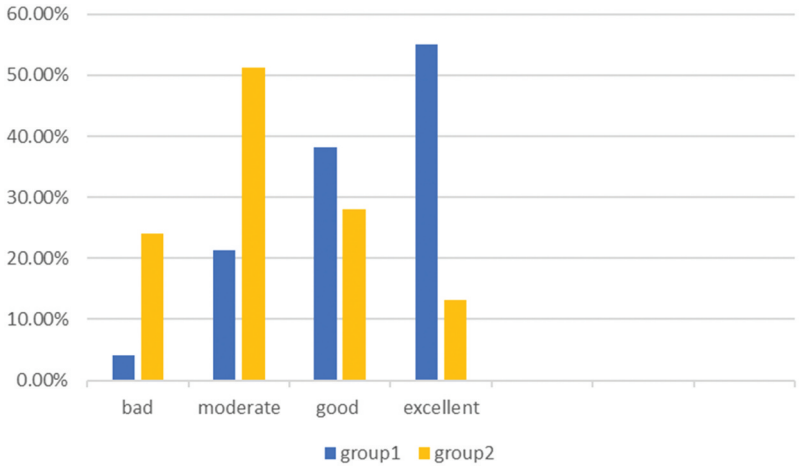

Figure 2. Correlation between groups 1 and 2 as regards surgeon satisfaction.

Table 7. Correlation between groups as regards the Ramsay sedation score.

Ramsay sedation score	Group 1 (n = 28)	Group 2 (n = 28)	t-test	*p-value*
RSS at 15 min post procedure	5.66 ± .28	2.11 ± .20	14.643	<.001**
RSS at 30 min post procedure	4.98 ± .25	3.33 ± .12	15.038	<.001**
RSS at 60 min post procedure	4.11 ± .34	3.09 ± .11	13.568	<.001**

Absolute sample t-test used; **p value < 0.001 is highly significant.

treated using 0.5 mg of atropine and had no statistical difference. In addition, in the second group, cases of nausea as well as vomiting were found, and ondansetron 4 mg was used in treating them. In the same group, two patients also showed shivering and were treated with a heated blanket that provided warmth.

4. Discussion

Septoplasty surgery is one of the most frequent procedures carried out on the young population [4]. There should be little or no bleeding during surgery, since a few drops of it may completely conceal the surgical field [4]. Many different techniques have been applied to secure a dry operating area [3]. Such techniques include topical vasoconstrictors and alpha, as well as a beta-adrenergic blockade [4]. Other used approaches include Fowler's position and the preoperative steroids, and all of them are linked with specific side effects [6]. Besides, there is an approved method to solve this problem, which combines complete intravenous anesthesia through the use of propofol, remifentanil, as well as esmolol [3]. However, other researchers applied oral nifedipine, which acted as a premedication for the induced low blood pressure in surgery of the spine [11].

This study compared the application of dexmedetomidine as well as magnesium sulfate to achieve a bloodless field during surgery. Dexmedetomidine is among the most selective as well as a strong central α2-receptor agonist. Besides, it also has peripheral and central sympatholytic characteristics illustrated by decreased blood pressure in the arteries, cardiac output, and heart rate. Magnesium sulfate induces deliberate low blood pressure through the mediation of the membrane stimulation of Ca2+ ATPase as well as Na-K ATPase. Besides, it also performs the role of increasing prostacyclin synthesis and even hindering the angiotensin-converting enzyme activity.

During the study, dexmedetomidine was very useful as compared to the activity of magnesium sulfate in attaining a controlled low blood pressure in those undergoing surgery on the nasal septum. Compared with magnesium sulfate, dexmedetomidine controlled blood pressure better because nitroglycerine was included to obtain the required MAP among the magnesium sulfate group patients. Therefore, it offered a unique surgical field quality, reasonable satisfaction for the surgeon, and little bleeding. Besides, it also had a powerful analgesic impact that had fewer side effects. Both dexmedetomidine, and magnesium sulfate, have also been applied in other various research about controlled low blood pressure. In the study conducted by Patel et al., dexmedetomidine and nitroglycerine were compared in the production of steady low blood pressure. In this case, dexmedetomidine kept improving the stability of the cardiovascular in comparison to that nitroglycerine [12].

In the study performed by Bajwa et al., esmolol and dexmedetomidine were cumulatively compared as hypotensive drugs. Dexmedetomidine led to reduced heart rates, BP, and even an excellent condition in the surgical field compared to that esmolol [1]. Moreover, both magnesium and remifentanil were compared in the study performed by Ghodraty et al. These drugs shared some similarities in the provision of controlled

low blood pressure. Besides, the two drugs also showed the same hemodynamic properties [13]. However, in the current study, dexmedetomidine, as well as magnesium sulfate, led to the attainment of controlled low blood pressure. Most of the assessors evaluated hormonal as well as metabolic responses in patients with controlled low blood pressure and a MAP range of 55–65 mmHg [14].

Moreover, the dexmedetomidine group patients experienced lower heart rates as compared to those from the magnesium group at the time of surgery. Therefore, this shows that the dexmedetomidine group has an excellent surgical field. In the dexmedetomidine group, four patients suffered from bradycardia, while in the magnesium group, just one suffered from the condition. In Bayram's study, bradycardia happened in a few patients in the dexmedetomidine group and one patient from the magnesium group [10].

Correlation evaluation of mean arterial blood pressure, as well as bleeding in nasal septoplasty surgery among individuals with reduced heart rates, showed that a decreased HR leads to excellent condition in the operative field. According to a study, which was performed by Sienkiewicz, the correlation assessment was attained with no decrease in MAP [15]. There was a reduced bleeding score in members of the dexmedetomidine group than in patients of the magnesium group. The contentment of the surgeon with the clarity of the operative field increased in the dexmedetomidine group of patients. The obtained results were the same as those of Faranak et al. 's study, whereby the bleeding score was reduced while the surgeon's contentment was slightly higher in the dexmedetomidine group compared to the magnesium group [16]. The Bayram study indicated that dexmedetomidine offered reasonable surgeon satisfaction compared to the magnesium group [10]. However, in a different study by Eghbal et al., which compared both dexmedetomidine and labetalol, good surgical field visibility was found in the labetalol group than in the dexmedetomidine group [4]. The dexmedetomidine group patients, in this study, were highly sedated at PACU while the arrival time to the Aldrete score >9 was a bit longer than that of the magnesium group [4]. The outcomes are the same as those of the Faranak et al. study; whereby the patients from the dexmedetomidine group had high sedation, while the Aldrete score time was much longer [16]. The study performed by Lee et al. made comparisons of the administration of dexmedetomidine as well as remifentanil as a hypotensive agent during the whole surgical process. The author found out that patients who received dexmedetomidine had high sedation, while the Aldrete score time was longer as compared to those who received remifentanil [17]. In another study by Ozcan et al., similar results were obtained and thus concluded that patients in the dexmedetomidine group had a longer recovery time in comparison with those who received remifentanil [18]. The time required for initial analgesic requirements in the magnesium group was higher compared to that of the dexmedetomidine group upon completion of the operation in the current research. Therefore, this indicates that there is a higher analgesic effect in dexmedetomidine than in magnesium sulfate. Additionally, in dexmedetomidine, the analgesic impact is a result of the high selectivity of the alpha two receptors. The effect occurs at the locus coeruleus and the spinal cord with sedative and even analgesic actions and does not lead to depression [3]. Besides, those of magnesium sulfate occurred because of the NMDA receptor antagonist [19].

In current study, there was better sedation score in dexmedetomidine than magnesium in the postoperative period.

The results were similar to those of the Faranak et al. study because less analgesia was needed by the dexmedetomidine group members than those in the magnesium group [16]. After the study of the role of dexmedetomidine in the control of pain at the time of surgery, Dong et al. discovered that the drug decreased the requirement of opioids as well as the satisfaction of the control of pain in the entire postoperative period [20]. On the other hand, upon studying magnesium sulfate, Yu and his colleagues discovered that intravenous application of magnesium sulfate might decrease the consumption of postoperative analgesia as well as postoperative pain [21].

Ossama et al.'s [22] study reported that the surgical field and postoperative pain were not different between Dexmedetomidine and magnesium groups, and only eight patients in the magnesium group and seven patients in the Dexmedetomidine group needed analgesics. The recovery time was significantly longer for the patients in the Dexmedetomidine group.

5. Limitation of the study

The trial was performed with patients grouped as ASA I or II and amid the ages of 18–60. Thus, no conclusive generalization was made to other groups. Besides, the sample size did not permit the detection of similar adverse activities with the possibility of occurring at minimal frequency.

6. Conclusion

Dexmedetomidine has high effectiveness in attaining controlled hypotension in patients undergoing rhinoplasty compared to magnesium sulfate. Magnesium sulfate required extra nitroglycerine to give a good surgical field quality, little bleeding, as well as higher satisfaction for the surgeon. Besides, dexmedetomidine possesses a potent analgesic impact with a reduced analgesic requirement duration compared to magnesium sulfate.

7. Recommendation

Dexmedetomidine is recommended for attaining controlled hypotension, good surgical field quality, a little bleeding, as well as higher satisfaction for the surgeon in surgeries needing a bloodless field like rhinoplasty.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

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