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Research Article

Comparative study between Air-Q and Intubating Laryngeal Mask Airway when used as conduit for fiber-optic

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KEYWORDS

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Abstract This study compared Air-Q and Intubating LMA when used as a conduit for endotracheal intubation.

Methods: One hundred patients scheduled for surgical operations under general anesthesia were randomly allocated into two equal groups ($n = 50$). Group I: Air-Q and group II: Intubating Laryngeal Mask Airway (ILMA) in both groups intubation was done by Fiberoptic bronchoscope (FOB) through study device. After induction of anesthesia, patients were ventilated with Air-Q or ILMA. Then, endotracheal tube (ETT) was inserted through study device. Recorded measurements were as follows: number of attempts and duration of insertion of device, peak airway pressure and fiberoptic grading of laryngeal view. Also, we recorded number of attempts and duration of insertion of ETT and the incidence of blood stain on device and sore throat grading.

Results: Duration of insertion of Air-Q was 13.300 ± 3.471 s, whilst that of ILMA was 19.640 ± 4.737 s ($p < 0.001$). In group I, peak airway pressure was 26.400 ± 2.176 cmH_2O, whilst, in group II, it was 25.260 ± 1.468 cmH_2O ($p < 0.01$). Full view of vocal cords amounted to 78% and 26% of Groups I and II patients, respectively ($p < 0.001$). Time of insertion of ETT was 33.5 ± 6.795 s in group I, whilst in group II, it was 39.5 ± 6.566 s ($p < 0.001$). Blood stain was found on supraglottic device in 46% and 22% of cases in Groups I and II, respectively ($p < 0.01$).

Conclusion: Air-Q proved to be an excellent conduit for endotracheal intubation compared to the ILMA.

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1. Introduction

One third of mortality, from anesthesia, is due to difficult airways. Airway management is one of the cornerstones of anesthesia. For many types of surgery, supra-glottic airway devices have become the airway of first choice which provided

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that there is no contraindication to their use [1]. In normal airways, proper insertion of the Intubating Laryngeal Mask Airway causes a smaller hemodynamic response than rigid laryngoscope. Therefore, it can be used in patient with cardiovascular instability [2].

The Air-Q Intubating Laryngeal Airway (ILA) (*Cook gas LLC*, *Mercury Medical*, *Clearwater*, *FL*) is a supra-glottic airway which is used as a primary airway and as an aid for intubation in situations of anticipated or unanticipated difficult airways. The Air-Q ILA's special features make it superior to the classical LMA. Therefore, it has the potential to overcome the limitations of the classical LMA [3].

The advantages, of the Air-Q, are that the device's breathing tube is shorter; wider; and, due to the removable connector, which enables the placement of a standard tracheal tube. For example, a 6.0-mm cuffed tracheal tube, which is 28–30 cm in length, may not be long enough to permit positioning, in the mid-trachea, or to allow the safe removal of the LMA Unique; with the Air-Q, the same tube can be inserted easily into the mid-trachea [4]. Unlike the LMA Fastrach, the Air-Q devices are available in sizes small enough to allow its use in small children (< 30 kg). The Air-Q has no epiglottic elevating bar and, therefore, as described for the LMA Fastrach specialized maneuvers are not needed to negotiate this with the fiberoptic bronchoscope [5].

2. Methods

After receiving the hospital local ethical committee's approval and informed written consent; this study was conducted on 100 adult patients, of both sexes, who underwent elective operations under general anesthesia. The study was done at Al-Azhar University Hospitals from April 2012 to April 2013. Patients with a history of obstructive sleep apnea, patients with potentially full stomach (trauma; morbid obesity; pregnancy; history of gastric regurgitation; and heart burn), those with esophageal reflux (hiatus hernia), and those with coagulation disorders were excluded from the study. Patients were assessed preoperatively by El-Ganzouri airway score [6] to assess the expected difficulty of intubation. Patients with airway scores $\geqslant 5$ were excluded from the study.

2.1. Anesthetic technique

As per the standard recommended dosages, all patients were pre-medicated with atropine sulfate (0.4 mg) and ranitidine intravenously. Standard monitoring devices (ECG; pulse oximeter; non-invasive blood pressure) were attached before the induction of anesthesia. Patients were pre-oxygenated for 3 min. Induction drugs included fentanyl 2 μg/kg; propofol 2.5 mg/kg; and atracurium 0.5 mg/kg. Manually assisted ventilation, with 3% sevoflurane, was carried out till the patient became completely relaxed. Neuromuscular function was monitored via accelerometry at the adductor pollicis (AP) muscle (TOF stimulation of the ulnar nerve every 15 s). Insertion of the supraglottic device and subsequent tracheal intubation were performed once AP muscular response obtained with TOF was abolished. By the closed envelope technique, patients were placed randomly into 2 equal groups.

2.2. Group I (50 patients)

The Air-Q ILA group: insertion of the proper size of the Air-Q ILA size 3.5 for female and size 4.5 for male patients was carried out. The Air-Q was inserted with the aid of wooden tongue depressor. The cuff, of the Air-Q was inflated according to the manufacturer's instructions (5–10 cm^3 of air was sufficient to inflate the cuff of the Air-Q). Proper placement was confirmed by listening for signs of a leak; observing the chest rising; and noting, under manually assisted ventilation, the presence of a normal capnograph tracing. Our goal was to achieve a minimum leak (*seal pressure or oropharyngeal leak pressure*) at less than 40 cmH_2O. Leak pressures could be assessed by auscultation over the anterior neck and chest whilst observing the ventilator manometer during positive pressure ventilation. It could be measured by closing the expiratory valve, of the circle system, at a fixed gas flow of 3 l/min and noting the airway pressure.

2.2.1. Insertion of the ETT

Size 7 and 7.5 mm ID conventional oral endotracheal tubes (ETT) were used for intubation via the Air-Q ILA in women and men, respectively. Fiberoptic bronchoscope (Karl Storz, Endoskope, Intubation fiberscope 5.2 mm OD, 65 cm) was used for assessment of the airway's endoscopic grading. The Brimacombe scale [3] was used to grade the glottis view. The images were graded according to a score of 1–5 defined as follows: *grade 1* only larynx seen; *grade 2* larynx and epiglottis posterior surface seen; *grade 3* larynx and epiglottis tip of anterior surface seen, 50% visual obstruction of epiglottis to larynx; *grade 4* epiglottis down folded and its anterior surface seen; and *grade 5* epiglottis down folded and larynx cannot be seen directly. Once the carina was visualized with the bronchoscope, the tracheal tube was passed, through the Air-Q ILA into the trachea. An independent observer measured, with a stopwatch, the time from the fiberoptic bronchoscope (FOB) entering the ILA until the anesthesia circuit was reconnected to the ETT. Successful tracheal intubation was confirmed with auscultation of bilateral breath sounds and end tidal carbon dioxide. The duration of insertion of ETT was defined as the time from loss of CO_2, due to disconnection of the circuit for tracheal intubation, to the time of reappearance of the CO_2 from the tracheal tube with no evidence of cuff leak during positive pressure ventilation. The Air-Q was then removed with the aid of Air-Q removal stylet.

2.3. Group II (50 patients)

The Intubating "Fastrach" LMA group (*Laryngeal Mask Company*, *Jersey*, *UK*): insertion of size 3 for female and size 4 for male patients was carried out.

2.3.1. Insertion of the ETT

Size 7 and 7.5 mm ID silicone ETTs were used for intubation through the intubating LMA (ILMA) in female and male patients, respectively. The ETT was well lubricated to ensure smooth passage during intubation.

The ETT was railroaded over a fiberoptic endoscope (Karl Storz; Endoskope; Intubation fiberscope 5.2 mm OD; 65 cm). The scope was then passed through the ILMA into the trachea

under direct vision. A view of the glottic opening was graded and recorded from the airway tube of the ILMA. Once the carina was visualized with the bronchoscope, the tracheal tube was passed through the ILMA into the trachea. An independent observer measured the duration of insertion of endotracheal tube; this was from the time the FOB entered the ILMA until the anesthesia circuit was reconnected to the tracheal tube.

2.4. Measurements

Measurements were carried out by an independent observer, including the following:

(1) Ease of insertion of the Air-Q ILA and the ILMA. The ease of insertion of the study device was graded on a scale of 1–3 (1 = easy, 2 = moderate, 3 = difficult). Easy means obtaining an effective airway (defined as normal chest movement and a square wave capnograph trace) from the first attempt. Moderate means obtaining an effective airway in the second or third attempt with some manipulation of the technique of insertion. Difficult means failure to obtain an effective airway after three attempts.
(2) Number of attempts of insertion of the Air-Q ILA and the ILMA.
(3) Duration of insertion of the Air-Q ILA and the ILMA.
(4) Peak airway pressure measured by closing the expiratory valve of the circle system at a fixed gas flow of 3 l/min and noting the airway pressure on the manometer.
(5) Fiberoptic grading of the laryngeal view through the study device.
(6) The number of attempts to insert the ETT through the study device and the duration of insertion of ETT.
(7) Hemodynamic and gas exchange parameters: pulse, MAP, oxygen saturation (SpO_2) and End tidal carbon dioxide ($EtCO_2$) were recorded at the following intervals: 1 min pre-induction, 1 min after insertion of the Air-Q ILA or ILMA; and 1 min after insertion of the ETT.
(8) Immediately after removing the study device, the incidence of blood stain on the device was recorded and the sore throat grading in the first post-operative hour was also recorded.

2.5. Statistical methods

Statistical analyses were carried out using the Computerized Statistical Package for the Social Sciences (SPSS) for Windows, Version 18 (SPSS Inc, Chicago, IL). All data, as appropriate, were expressed as mean (standard deviation) or number of patients (percentage). One-way analysis of variance (ANOVA) was conducted to detect differences among the treatment groups with respect to parametric variables. Meanwhile, using the paired *T*-test, intragroup comparisons were analyzed. Categorical variables such as age; sex; and ASA status were analyzed using the Chi-Squared test. A significant level was considered to be $p < 0.05$; a moderately significant level was considered to be $p < 0.01$; a highly significant level was considered to be $p < 0.001$; and no significant level was considered to be $p > 0.05$.

3. Results

The study included 100 patients (55 males and 45 females) scheduled for elective operations under general anesthesia. In regard to demographic data and clinical characteristics of patients there were no statistically significant differences ($p > 0.05$), between the two groups (Table 1).

As regards the ease of insertion of the supraglottic device (Table 2), there was no significant statistical difference between the Air-Q ILA and the ILMA ($p > 0.05$).

As regards the number of attempts of insertion of the study device, there was no significant statistical difference between the Air-Q ILA and the ILMA ($p > 0.05$). The study device was successfully inserted from the first attempt in 45 (90%) patients of group I and in 38 (76%) patients of group II. Second attempt was required in 5 (10%) patients in group I and in 12 (24%) patients in group II.

As regards the duration of insertion of the study device the following was noted:

(1) Duration of insertion of the Air-Q ILA was 13.300 ± 3.471 s, whilst, the duration of insertion of ILMA, was 19.640 ± 4.737 s.
(2) As shown in Fig. 1, the comparison, between groups I and II, shows a significantly high statistical difference ($p < 0.001$).

The peak airway pressure (seal pressure), in group I, was 26.400 ± 2.176 cm H_2O whilst, in group II, it was 25.260 ± 1.468 cm H_2O. As shown in Table 3, the comparison between groups I and II, showed a moderately significant statistical difference ($p < 0.01$).

As regards fiberoptic grading of laryngeal view through the device: comparison, between groups I and II, showed that there was a highly significant statistical difference ($p < 0.001$) in favor of group I (Table 4).

With regard to the number of attempts to insert the ETT through the study device, the following were noted:

(1) In group I, the ETT was successfully inserted from the first attempt in 49 patients and from the second attempt in only one patient.
(2) On the other hand, in group II, successful insertion of the ETT was achieved, at the first attempt in 47 patients and, at the second attempt in 3 patients.
(3) There was no significant statistical difference between the two groups ($p > 0.05$).

The duration of insertion of the ETT via Air-Q (group I) was 33.5 ± 6.79 s and it was 39.5 ± 6.56 s in group II. As shown in Table 5, the comparison between the two groups shows a highly statistical significant difference ($p < 0.001$).

3.1. Hemodynamic and gas exchange parameters

3.1.1. Heart rate

There was no significant statistical difference between groups regarding baseline heart rate values ($p > 0.05$). Also, there was no statistically significant difference in heart rate between groups after insertion of the study device ($p > 0.05$). Meanwhile, there was a highly significant statistical difference in

Table 1 Patients' demographic data.

	Group I (AIRQ-ILA) (n = 50)	Group II (ILMA) (n = 50)	p-Value
Age (year)	34.24 ± 7.91	32.86 ± 8.04	0.389
Sex (male/female)	25/25	30/20	0.421
BMI (kg/m^2)	22.70 ± 0.78	23.20 ± 1.30	0.167
Mallampati class			
Class 1	40 (80%)	42 (84%)	0.792
Class 2	10 (20%)	8 (16%)	
ASA I/II	40/10	43/7	0.5955

Data are expressed as mean ± SD or number (ratio). ASA: American Society of Anesthesiologists.

Table 2 Ease of insertion of the supraglottic device.

Grading scale	Group I (AIRQ-ILA) (n = 50)	Group II (ILMA) (n = 50)	Chi-Square	
			χ^2	p-Value
Easy	47 (94%)	42 (84%)	1.634	0.201
Moderate	3 (6%)	8 (16%)		
Difficult	0 (0%)	0 (0%)		

The data are presented as number (%).

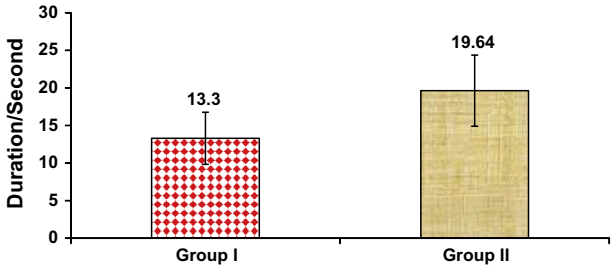

Figure 1 Duration of insertion of the Air-Q ILA (group I) and the ILMA (group II).

heart rate (p < 0.001) after insertion of the ETT in group I (93.74 ± 4.009 bpm) compared to group II (87.22 ± 6.656 bpm).

3.1.2. Mean arterial blood pressure (MAP)

The MAP was measured in groups I and II in the following intervals:

(1) One minute pre-induction.
(2) One minute after extra-glottic device insertion.
(3) One minute after ETT insertion.

Table 3 Peak airway pressure in the Air-Q ILA and the ILMA.

Leak pressure (peak airway pressure) cmH_2O	Group I (n = 50)	Group II (n = 50)	T-test	
			T	p-Value
	26.400 ± 2.176	25.260 ± 1.468	3.071	0.003*

The data are represented as mean ± SD.
* Statistically significant.

Table 4 Fiberoptic grading of laryngeal view through the device.

Fiberoptic grade	Group I (n = 50)	Group II (n = 50)	p-Value
Grade 1	39 (78%)	13 (26%)	<0.001**
Grade 2	8 (16%)	20 (40%)	0.0143*
Grade 3	3 (6%)	12 (24%)	0.0251*
Grade 4	0 (0%)	5 (10%)	0.066
χ^2	23.369		
p-Value	<0.001**		

The data are represented as number (%).
* Statistically significant.
** Highly statistically significant.

Table 5 Duration of insertion of ETT through the study device.

Duration of insertion of ETT (s)	Group I (n = 50)	Group II (n = 50)	T-test	
			T	p-Value
	33.50 ± 6.79	39.50 ± 6.56	4.808	< 0.001**

Data are presented as mean ± SD.
** Highly statistically significant.

There were insignificant statistical differences between groups I and II in MAP ($p > 0.05$) in the above-mentioned intervals.

3.1.3. Oxygen saturation (SpO_2%) after ETT insertion

Comparison between the two groups showed no statistical significant difference ($p > 0.05$).

3.1.4. End tidal CO_2 (mmHg)

The $ETCO_2$ was measured at the following intervals: after insertion of the study device and after ETT insertion. Comparison between the two groups showed that there was no statistically significant difference after ETT insertion ($p > 0.05$).

3.1.5. Incidence of complications

With regard to sore throat in the first post-operative hour after extubation, there was no significant statistical difference between the two groups ($p > 0.05$).

Blood stain was present on the Air-Q ILA in 23 cases (46%) and was present on ILMA in 11 cases (11%). Comparison between the two groups (Fig. 2) shows a moderately significant statistical difference ($p < 0.01$).

4. Discussion

The Air-Q Intubating Laryngeal Airway is a C pre-shaped intubating laryngeal airway which is easy to use, with a rapid learning curve. The inner diameter of the airway is wide and oval which allows easy passage of the standard endotracheal tube [8]. In the present study, as regards comparison of the ease of insertion and number of attempts of insertion of the Air-Q ILA with that of the ILMA, the ease of insertion was superior in the Air-Q ILA (94% of cases) than in the ILMA (84% of cases), however, this was statistically non-significant. In order to avoid undue trauma to the pharyngeal and laryngeal structures, the number of insertion attempts, of the Air-Q ILA and the ILMA, was limited to two attempts. This was in accordance with the study done by Neoh and Choy [9] which showed no significant statistical difference in comparison with the insertion of the Air-Q ILA with that of the ILMA ($p > 0.05$). In contrast to the present study, Sastre et al. [10] found that there were significant differences in the percentage of successful ventilation on the first attempt; an optimal ventilation, in 90%, of the patients, was achieved with the ILMA and in 60% of the patients with the Air-Q ($p = 0.0019$). In addition, the present study's results agreed with El-Ganzouri et al. study [11] in which they compared between size 3.5 and size 5.4 of the Air-Q according to body weight. They found 100% first time ease of insertion in group 3.5 and 93.3% in group 4.5. In the present study, the duration of insertion of the Air-Q ILA was 13.300 ± 3.471 s, whilst, in the ILMA group, it was 19.640 ± 4.737 s (p-value < 0.001). This was in agreement with the results of Karim and Swanson's study [5] in which they found that time of insertion of the LMA Fastrach was 25 ± 3.56 s whilst, in the Air-Q, it was 22 ± 3.34 s when used for blind tracheal intubation. Also, our results were in accordance with the study done by Joffe et al. [12] in which they reported a successful insertion time of 22 ± 14 s and a successful insertion rate of 100% in 70 adult patients. In another earlier study, Bakker et al. [13] conducted a pilot study of the Air-Q ILA in 59 patients, intubating 19 patients blindly through the ILA. They reported a mean Air-Q ILA insertion time of 26 ± 13 s, and a 100% success rate of ILA insertion.

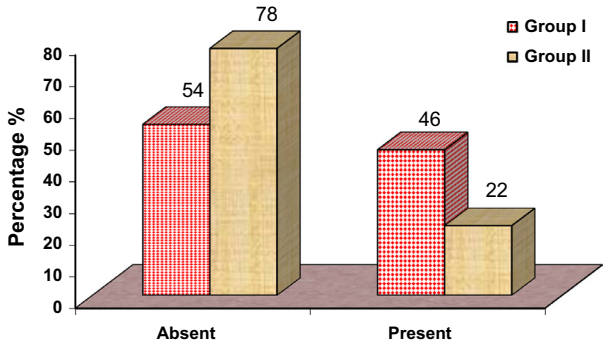

Figure 2 Blood stain percentage on the Air-Q ILA and the ILMA.

Regarding the peak airway or the seal pressure, the present study showed that, in group I, the seal pressure was 26.40 ± 2.176 cm H_2O whilst, in group II, it was 25.26 ± 1.468 cm H_2O with a moderately significant statistical difference ($p < 0.01$). To date, there have been no tests and, consequently, no data about the peak air way pressure or seal pressure between the Air-Q ILA and the ILMA. Galgon and his colleagues [14] found that the airway seal pressure, of the Air-Q was comparable with the ProSeal. They found that the airway seal pressures, for the Air-Q and ProSeal were 30 ± 7 cmH_2O and 30 ± 6 cmH_2O, respectively ($p = 0.47$).

As regards the fiberoptic grading of the laryngeal view, this study showed that grade I was recorded in 78% of group I patients and in 26% of group II patients ($p < 0.001$). This was in agreement with the results of Sastre et al.'s study [10] which showed a successful advance of the tracheal tube at the first or second attempt. In that study, the view, of the glottis (grades 4 and 3) was significantly better with the Air-Q at the second attempt (84.62% vs. 37.50%). At the first attempt with the Air-Q, the $p = 0.0017$ and, the percentage, of patients with grade 4, was double that of the ILMA. Samir and Sakr's study [15] showed that (as seen through the Air-Q) the fiberoptic quality of the laryngeal view, recorded a full view of the

vocal cords in 60% of patients and a partial view of the vocal cords was reported in 36.7% of group I Air-Q patients. On the other hand, grade III (view of the epiglottis only) was reported in one (3.3%) patient of that group. No patients, in Samir and Sakr's study, had a grade IV view and this result agreed with our study.

As regards the number of attempts of insertion of ETT, the present study showed no statistically significant difference between the two studied groups. This was in agreement with the results of Samir and Sakr's study [15]. As regards the duration of insertion of ETT, our study showed that, in the Air-Q ILA group, the insertion duration was 33.5 ± 6.79 s and was 39.5 ± 6.56 s in the ILMA group ($p < 0.001$). This was in agreement with the results of Samir and Sakr's study [15]. Their patients were divided into two groups: Group I (F) fiberoptic alone, had a mean time, to successful intubation, of (29.8 ± 6.2) s, whilst in the second group's (Air-Q ILA) patients, the mean time to successful intubation, was 21.6 ± 5.7 s. The insertion time was significantly shorter than group F ($p = 0.0001$). Also, the results of the present study were consistent with the reported results of Jagannathan et al. [7] who studied, in 100 children, the use of the Air-Q ILA as a conduit for ETT. In their study, insertion of the ILA, at the first attempt, was successful in 99 children, and, with an average time of 24.8 ± 10.6 s, there was successful intubation, at the first attempt, in 97 of their patients and in 3 patients at the second attempt.

With regard to the heart rate, the present study found no significant statistical difference between the two studied groups at pre-induction and after insertion of the supraglottic device, whilst we found a highly significant statistical difference between the two groups after endotracheal tube insertion. In this study, as regards the mean arterial blood pressure, there was no statistical significant difference between the two groups. Bashandy and Boules [16] found that, after the induction of anesthesia in both groups, there was a significant reduction in MAP. Immediately after intubation and compared to the pre-intubation values, there was a significant increase in MAP. To our knowledge hemodynamic stress response due to fiberoptic tracheal intubation via the Air-Q in comparison with ILMA, until now, had not been tested. With regard to the comparison between the hemodynamic stress responses due to intubation via the ILMA and via direct laryngoscopy (DLS), Kihara et al. [17] found that, compared to the DLS in hypertensive patients but not in normotensive patients, ILMA accentuated the hemodynamic stress response to tracheal intubation. They attributed their results to less oro-pharyngo-laryngeal stimulation in the case of ILMA rather than in the case of DLS; however, this was clinically detectable only in hypertensive patients. On the other hand, Zhang et al. [18] showed that, intubation via ILMA and via DLS, pressor and tachycardiac responses, due to tracheal intubation, were both similar. This suggested that ILMA had no advantage over laryngoscopy in accentuating the hemodynamic responses to endotracheal intubation. This was because, during tracheal tube insertion via ILMA, the epiglottic bar elevated the epiglottis which resulted in stimulating the epiglottis and periepiglottic structures.

As regards oxygen saturation (SpO_2%), the comparison, between the two Groups, had no statistical significant difference throughout the present study. As regards end tidal CO_2 ($ETCO_2$), this study showed that there was no statistical significant difference after the insertion of the device and after ETT insertion. In their study, Galgon et al. [14] found, from the hemodynamics and respiratory data at baseline and over the first 5 min after device placement, that, over time, they observed no significant changes for heart rate and SpO_2 in both the Air-Q and the ProSeal groups, whilst systolic, diastolic and mean arterial blood pressures decreased over time ($p < 0.05$).

As regards sore throat as a complication in this study, there was no significant statistical difference between the two groups ($p > 0.05$). After general anesthesia using supra-glottic devices, the causes, of post-operative sore throat, were dependent on the depth of anesthesia; the method of insertion; the cuff volume with inflatable devices; the number of insertion attempts; and on the provided type of post-operative analgesia. The results of the present study were in agreement with those from Neoh and Choy's study [9]. With regard to the frequency of occurrence, of a sore throat, and hoarseness of voice between the Air-Q ILA and the LMA Fastrach, their results did not show any significant statistical difference ($p > 0.05$). Our results were, also, in agreement with the results of Karim and Swanson's study [11] which showed that, there were no significant differences in the incidence of sore throat and hoarseness of voice between the LMA Fastrach and the Air-Q, when used as conduits for tracheal intubation. Bashandy and Boules [16] found that more patients in the Air-Q group reported sore throat (46% versus 38%, $p = 0.03$). At a 24 h follow-up, more patients, in the Air-Q group, reported pain on swallowing ($p = 0.01$); however, there were no sore throats (30% versus 5%, $p = 0.07$).

As regards the complication of blood stained device, the present study showed that a comparison, between the two Groups, had a moderate significant statistical difference ($p < 0.01$). Blood stain on the Air-Q ILA, was more than on the ILMA. This might be explained by the Air-Q's large size (3.5–4.5) compared to the ILMA (3–4). This was in agreement with the results of Karim and Swanson's study [11]. Although they found that there was no statistical significant difference between Air-Q ILA and Fastrach LMA. However, there was evidence of visible blood on the LMA Fastrach in 7/75 (9%) of patients whilst, in the Air-Q, it was found in 7/68 (10%) of patients. Galgon et al. [14] found that, after removal in adults undergoing general anesthesia, a comparison of the Air-Q against the LMA-ProSeal, noted gross blood in 10 (19%) and 4 (8%) patients of Air-Q and ProSeal groups, respectively ($p = 0.15$). In contrast to the present study, Neoh and Choy [9] showed that the presence of blood on the Air-Q ILA was seen in significantly more patients than it was on the LMA Fastrach ($p < 0.001$).

5. Conclusion

The Air-Q is a supra-glottic device which can be used as an excellent ventilation device as well as a conduit for endotracheal intubation using the standard tube with the aid of fiberoptic bronchoscope. This is because of its ease of insertion; and a shorter time to insert the device or endotracheal tube. When used as a conduit for endotracheal intubation, the Air-Q provides better laryngeal view grades than the Fastrach ILMA.

Conflict of interest

None declared.

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