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Review

The harmonic scalpel versus electrocautery for parotidectomy: A meta-analysis

Delong Li, Yurong Kou*, Shaohui Huang**, Zechen Wang, Chunliu Ning, Tengfei Zhao

Department of Oral and Maxillofacial Surgery, School of Stomatology, China Medical University, 117 Nanjing Bei Jie, Heping, Shenyang, Liaoning 110002, PR China

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ABSTRACT

Objective: Parotidectomy is the most classic and unequivocal intervention for parotid neoplasm. The operative outcomes and postoperative complications of parotidectomy between harmonic scalpel and electrocautery gained more prominence in physician. In spite of much research work within the past years, there was an obvious lack of randomized controlled trial to resolve this question. Hence, a quantitative and qualitative meta-analysis was essential to evaluate the differences in these two types of hemostasis method.

Method: The major electronic databases, including Pubmed, Embase, Cochrane library, Google Scholar, China National Knowledge Infrastructure and Chinese Scientific and Technological Journal databases were using the key words “electrocautery”, “electrocoagulation”, “harmonic scalpel”, “ultrasonic scalpel”, “ultrasonic dissector”, “parotidectomy” and “parotid surgery”. 9 articles were included in our systematic review and meta-analysis. The operative time, intraoperative blood loss, hospital stay, salivary fistula and transient facial nerve paralysis were the outcome measures. Odds ratios (ORs) with 95% confidence intervals (CIs) were employed to evaluate the effect size for categorical outcomes and mean differences (MDs) with 95% confidence intervals (CIs) for continuous outcomes.

Results: In our meta-analysis, there was a significant reduction in operation time [mean difference: -20.97 ; 95%CI= $(-24.02, -17.92)$; $P < 0.00001$], intraoperative blood loss [mean difference: -20.75 , 95%CI= $(-22.32, -19.18)$; $P < 0.00001$], hospital stay [mean difference: -0.83 ; 95%CI= $(-1.10, -0.57)$; $P < 0.00001$], salivary fistula [ORs: 0.30, 95%CI= $(0.08, 1.14)$] and transient facial nerve paralysis [OR:0.33, 95%CI= $(0.19, 0.58)$, $P = 0.0001$] in harmonic scalpel group compared with electrocautery group.

Conclusion: This meta-analysis indicated that compared with electrocautery, harmonic scalpel (HS) was transcendent in the aspects of operative time, intraoperative blood loss, hospital stay, salivary fistula and transient facial nerve paralysis. The harmonic scalpel, as an efficient and useful instrument, was advocated in parotidectomy.

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1. Introduction

Salivary gland neoplasm, the incidence of which is approximately 3–4/100, 000 people annually (Eng et al., 2007), accounts

for 5% of all head and neck tumors. Up to 85 percent of salivary gland tumors occur in the parotid gland and parotidectomy has become one of the most frequent procedures in the treatment of parotid gland tumors (Quiriny et al., 2017).

The main surgical concern while performing a parotidectomy is meticulous preservation of all facial nerve branches which distribute in the substance of the parotid gland and innervate facial expression muscles. Safe surgical excision of the parotid gland demands discrimination and dissection of the branches of facial nerve without disrupting their integrity during the course of removal of the gland itself. However, bleeding from the cut tissues of parotid gland in the surgical field, especially adjacent to the facial

* Corresponding author. Department of Periodontics, School of Stomatology, China Medical University, 117 Nanjing Bei Jie, Heping, Shenyang, Liaoning 110002, PR China

** Corresponding author.

E-mail addresses: 2285683820@qq.com (D. Li), kouyurong2005@aliyun.com (Y. Kou), huangshaohui@hotmail.com (S. Huang), 121238028@qq.com (Z. Wang), 411406621@qq.com (C. Ning), 470853073@qq.com (T. Zhao).

nerve, will render the surgical procedure much more difficult and tedious. In the parotidectomy, the major sources of bleeding are from the external carotid artery and retromandibular vein which traverses and nourishes the parotid gland (Kochhar et al., 2016). Given the extensive vascular network and the direct vicinity to facial nerves, accurate dissection and punctilious hemostasis are extremely imperative to avoid inadvertent damage to adjacent vital structures such as facial nerve, as the most momentous complication with incidence pertaining to transient facial paralysis varies between 12.1% and 40% (Jackson et al., 2010). Hence, prompt and secure intraoperative hemostasis can provide good visualization, shorten surgical time, and reduce the risk of postoperative complications.

The conventional methods for achieving hemostasis during parotidectomy rely on electrocautery, which proved to be effective in clinical practice. Electrocautery is a procedure that employs the high current generating thermal energy to make surgical cuts and/or provide hemostasis. Using either monopolar or bipolar electrocautery (Dagtekin et al., 2011), the heat induced could be delivered to the tissue and the vessel wall would be sealed through the denaturation of collagen and elastin at high temperatures (150–400 °C) (Deganello et al., 2014). Nevertheless, vessel closure by electrocautery may carry the risk of injury to the surrounding tissues from diffusion of energy, even accompanied with carbonization of tissue (Diamantis et al., 2006). The ultrasound-based harmonic scalpel (HS), which simultaneously possesses the properties of both tissue dissection and vascular coagulation, has been adopted in many head and neck area operations such as tonsillectomy, thyroidectomy, neck dissection and oropharyngeal tumor resection since its first introduction in 1993 (Deganello et al., 2014; Koh et al., 2008; Dean et al., 2014). The ultrasonic vibrations of HS with high frequency (55.5 kHz) transfer energy to the collateral tissue, in which hydrogen bonds of the proteins are ruptured and thus proteins are denatured to form coagulum sealing the vessel. Superficial denaturation and coagulation of proteins for hemostasis can be achieved with HS at a much lower temperature (55°C–100 °C) than that with electrocautery, which allows the water present within the tissues not to boil to destroy the structure of protein (Blankenship et al., 2004). Theoretically, the HS could have less influence on adjacent tissue, thereby the possibility of unwanted nerve damage could be less (Cannizzaro et al., 2016). It was reported that thermal injury could be significantly reduced when compared with electrocautery (Ecker et al., 2010).

Despite the fact that the literature is replete with articles assessing the effects of various hemostasis methods, results were often inconsistent and it was difficult to compare the clinical efficacy attributed to the variety of operative methods and limited cases reported. Ecker noted that harmonic scalpel for hemostasis significantly reduced operating time and blood loss, while there was no significant difference in volume of drainage fluid, complication rate, or hospital stay (Ecker et al., 2010). In contrast, Deganello indicated that the application of harmonic scalpel extensively reduced hospital stay and Frey syndrome (Deganello et al., 2014); however, it had no advantage in the aspects of operation time and blood loss. Nevertheless, Yang (Yang et al., 2017a) and Zhu (Xin et al., 2014) et al. noted that the performance of the harmonic scalpel was superior to electrocautery in terms of the volume of drainage fluid, complication rate and hospital stay. To the best of our knowledge, there was a dearth of trials to systematically evaluate the role of harmonic scalpel (HS) in parotidectomy.

This current research was conducted to compare the difference between harmonic scalpel (HS) and electrocautery with regard to operation time, intraoperative blood loss, hospital stay, salivary fistula, and transient facial nerve paralysis, aiming to comprehensively evaluate the hemostasis methods presently used. The

outcomes of this analysis might provide some guidelines for the management of parotidectomy. However, the safest, most efficient and cost-effective way to achieve these goals is still under debate.

2. Methods

2.1. Search protocol

We used “electrocautery” OR “electrocoagulation” AND “harmonic scalpel” OR “ultrasonic scalpel” AND “parotidectomy” OR “parotid surgery” as search terms. Electronic database searches were conducted in PubMed, Embase, Cochrane Central, China National Knowledge Infrastructure and Chinese Scientific and Technological Journal databases for articles that were published with restrictions on article language involving English and Chinese. In order to include all relevant articles, we also reviewed the reference lists of the studies which were cited in the included papers.

2.2. Selection of studies

The inclusion criteria were specified by an eligibility protocol in the process of searching the literature. The eligibility criteria included: 1. neoplasms were pathologically confirmed as parotid tumor. 2. articles were RCTs, retrospective studies, and prospective studies. 3. languages were limited to English or Chinese. Exclusion studies involved: 1. animal studies, case report and reviews. 2. the data were repeated and unavailable.

2.3. Data extraction and quality analysis

Data were extracted from the eligible studies such as operative time, intraoperative blood loss, hospital stays, salivary fistula, and transient facial nerve paralysis. Two authors independently retrieved the information from all the included studies. Dissensions were resolved by discussion or consultation with the third author, who thereby reach a final decision.

Quality assessment was according to the Cochrane Handbook. Six main criteria were examined: random sequence generation, allocation concealment, blinding of participants and researchers, blinding of outcome assessors and a description of any patients that were lost to follow-up. Two reviewers assessed the quality of articles and risk of bias independently; disagreement was counseled by a third author. The risk of bias could be divided into three criteria as low, unclear, and high risk.

2.4. Statistical analysis

9 articles were included to analyze the heterogeneity. The criterion of low heterogeneity was values less than 50%; other values were regarded as high heterogeneity. If the I^2 test <50%, we used the fixed-effects model; If the I^2 test >50%, we employed the random-effects model in our meta-analysis. Statistical stability was evaluated by sensitivity analysis. Bias of publication was assessed by funnel plot.

3. Result

3.1. The characteristics and quality evaluation of included articles

Based on the inclusion criteria, 9 feasible articles were eventually incorporated into the meta-analysis. We followed the PRISMA guidelines, and the search procedure was presented in Fig. 1. The characteristics of these articles were demonstrated in Table 1. There were 806 patients in these 9 articles including 438

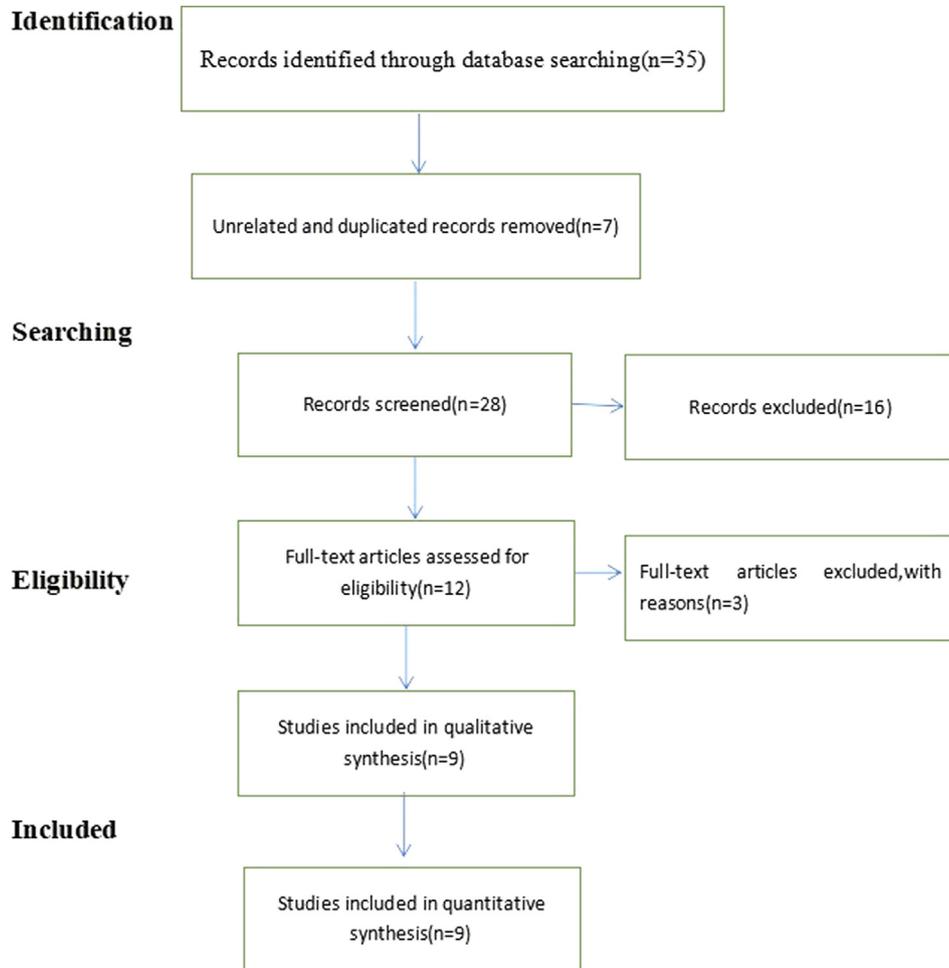


Fig. 1. Flow diagram for the study selection process.

harmonic scalpel groups and 368 electrocautery groups respectively.

3.2. Meta-analysis

The results of this article were presentation in the form of forest plots (Fig. 2). All patients in terms of age, gender and race were not significantly different.

For surgical time, the fixed effect model was used because of the high heterogeneity ($I^2 = 21\%$). The harmonic scalpel was statistically significantly different with electrocautery, with an MD

of -20.97 (95% CI = -24.02 to -17.92). The harmonic scalpel method showed shorter surgical time compared with the electrocautery method.

For intraoperative blood loss, the random effects model was used due to the high heterogeneity ($I^2 = 86\%$). The harmonic scalpel was statistically significantly different from the electrocautery method, with an MD of -20.75 (95% CI = -22.32 to -19.18). The harmonic scalpel method showed shorter surgical time compared with electrocautery. Given the significant statistical heterogeneity, a sensitive analysis was performed in two articles (Marc A. Polacco, Lana L. Jackson). When the two articles were excluded, the

Table 1
Characteristic of articles.

Author	Year	Country	Case	Operative technique	Study design	Index	NOS
D.RUSS	2003	America	40	Superficial	retrospective	①②⑤	6
A.Deganello	2014	Italy	108	Superficial or total	RCT	①③⑤	5
Nidal Muhanna	2014	Israel	58	Superficial	retrospective	①⑤	7
Xiaoyong Yang	2016	China	94	Partial or total	retrospective	①②③④⑤	5
Marc A.Polacco	2017	America	174	Superficial or total	retrospective	①②③	7
Lana	2005	America	85	Superficial or total	retrospective	①②③	6
L. Jackson							
Yunchao Xin	2014	China	73	superficial	RCT	①②③④⑤	5
Xudong Wang	2010	China	24	superficial	retrospective	①②③④	6
Xin Zhu	2016	China	69	Not reference	RCT	①②③④	5

Note: ① operation time, ② intraoperative blood loss, ③ hospital stay, ④ salivary fistula, ⑤ transient facial nerve paralysis.

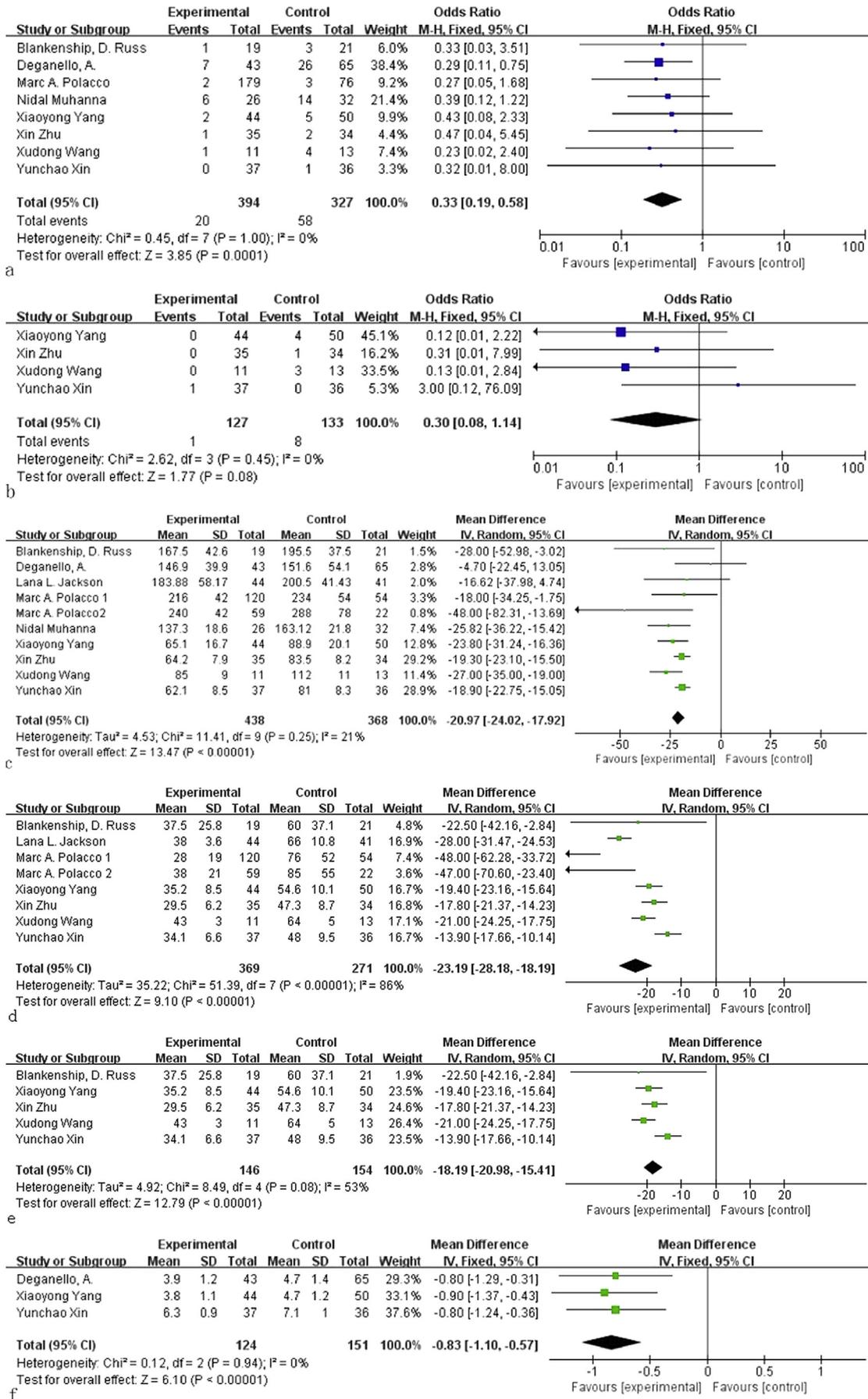


Fig. 2. Forest plot in our meta-analysis. a: transient facial nerve paralysis forest plot. b: salivary fistula forest plot. c: surgical time forest plot. d: intraoperative blood loss forest plot. e: intraoperative blood loss sensitive analysis forest plot. f: hospital stay forest plot.

heterogeneity and effect measure was accepted ($I^2 = 53\%$) with an MD of -18.28 (95% CI = -20.06 to -16.51) then, the fixed effects model was used because of low heterogeneity. The harmonic scalpel method showed less intraoperative blood loss compared with the electrocautery method.

For hospital stay, the fixed effects model was used because of high heterogeneity ($I^2 = 0\%$). The harmonic scalpel was statistically significantly different from the electrocautery method, with an MD of -0.83 (95%CI = -1.10 to -0.57). The harmonic scalpel method showed a shorter hospital stay compared with electrocautery.

For transient facial nerve paralysis, the fixed effects model was used because of low heterogeneity ($I^2 = 0\%$). Compared with the electrocautery method, the harmonic scalpel with lower incidence of transient facial nerve paralysis was validated with an OR of 0.33 (95%CI = 0.19 to 0.58).

For salivary fistula, the fixed effects model was used because of low heterogeneity ($I^2 = 0\%$). There was no statistically significant difference compared with the electrocautery method ($P = 0.08$). Nevertheless, the harmonic scalpel could reduce the incidence of salivary fistula compared with the electrocautery method, with an OR of 0.30 (95%CI = 0.08,1.14). In the process of funnel plot, there was no publication bias in all assessments.

4. Discussion

Electrocautery was a traditional hemostasis procedure in surgical operation. For extensive vascular areas such as parotidomasseteric region, it is routine to apply electrocautery to provide effective hemostasis (Liboon et al., 1997). The current involved in monopolar cautery is emitted from the active electrode through the patient's body to a neutral electrode. Here, unintended burns associated with capacitive coupling, direct coupling and insulation failure attracted increasing attention (Bart et al., 2010). It was reported that 1–2 cm apart from the site of electrocoagulation could be greatly affected (Dagtekin et al., 2011). However, with bipolar cautery, the current flow was only limited between adjacent tips of forceps and only tissues between the tips could be coagulated. Accordingly, the effect of hemostasis was much better than monopolar cautery. Bart et al. conducted a clinical trial and indicated that bipolar cautery was more convenient to coagulate vessels, especially active bleeding and small bleeders (Bart et al., 2010). It was acknowledged that monopolar electrocautery could produce substantial thermal or electrical energy to surrounding tissues. Moreover, the desiccation of cells of severely cauterized pieces of tissues would make the adequate histological analysis very difficult. So surgeons nowadays resort more to bipolar electrocautery which could work at a lower power and with less tissue damage (Diamantis et al., 2006). Nevertheless, it has been shown that electrocautery, irrespective of the type and form of application, may cause proximity-related thermal injury due to the high temperatures of 150–400 °C produced (Deganello et al., 2014). In addition, the electrocautery smoke containing a great deal of airborne particles such as Benzene, a kind of carcinogen, can barely be completely evacuated and filtered by present operating room equipment, the potential hazards of which could not be negligent (Gatti et al., 1992). Keeping these in mind, advanced techniques of hemostasis should achieve the goal of minimizing iatrogenic damage to the surrounding tissues and accelerating working efficiency. In addition, compromising tissue integrity should be overcome in new advanced applications (Yang et al., 2017b).

Piezoelectric transducer, a device inducing acoustic waves at the functional tip, was involved in the harmonic scalpel. The mechanical vibrations of the HS cause denatured collagen fibers and form a glue-like substance to coagulate vessels at relatively low temperatures. Electrical current was not incorporated in the harmonic

scalpel. Meanwhile, compared with bipolar electrocautery, thermal energy from the blade to the tissues is much lower (Blankenship et al., 2004). Furthermore, the smoke, which not only obscures the surgical field but also contains numerous toxic particles, was eliminated in the ultrasonic system. These distinctive features make the harmonic scalpel very appropriate for parotidectomy when clear surgical field and preservation of adjacent structures are imperative (Yang et al., 2017b).

Given the high density of blood vessels and the affinity of facial nerve to the parotid gland, facial paralysis is the most common sequela of parotidectomy influencing the postoperative quality of life (Coulson et al., 2004). It was reported that the incidence of facial nerve paralysis after parotidectomy ranged from 12.1% to 40% (Jackson et al., 2010). Patients suffering from facial nerve paralysis not only must bear the inconvenience brought from facial muscle weakness, but also must go through the puzzlement in social intercourse and the enormous emotional trauma. Whether the technique used will affect the postoperative nerve function or its recovery is still far from conclusive. Several studies indicated that there was no significant difference in facial nerve paralysis between harmonic scalpel and electrocautery methods (Blankenship et al., 2004; Yang et al., 2017a). Nevertheless, quite a few articles demonstrated that harmonic scalpel was conducive to enhancing operative security and reducing the occurrence of facial nerve paralysis (Jackson et al., 2010; Muhanna et al., 2014). Sufficient evidence was found to substantiate that harmonic scalpel had less adverse impact on nerve function than the electrocautery method (Deganello et al., 2014; Blankenship et al., 2004; Muhanna et al., 2014). For example, several patients on whom selective neck dissection was performed had a faster and better recovery of spinal accessory nerve function with harmonic scalpel as compared to the electrocautery method (Mathialagan et al., 2016). In our meta-analysis, the incidence of facial nerve paralysis in the HS group was much less than that in the electrocautery group [ORs: 0.33, 95% CI = (0.19, 0.58), $P = 0.0001$], despite that it is opposite to the Blankenship study (Blankenship et al., 2004).

It was believed that using a harmonic scalpel resulted in less heat produced and less lateral thermal damage to the facial nerve, without compromising the effect of coagulation even at a much lower temperature. Because the temperature is mild (80 °C), the water present within the tissues does not boil and destroy the structure of protein. Theoretically, the HS could have less influence on adjacent tissue, thereby the possibility of unwanted nerve damage could be lower (Blankenship et al., 2004). It was reported that the ability of the HS to coagulate vessels was equivalent to electrocautery (Armstrong et al., 2001). A study on rabbits provided histological evidence to prove that both monopolar electrocoagulation and bipolar electrocoagulation induced severe lesions of the adjacent tissue, while ultracision demonstrated much milder inflammatory response and a faster healing process. Thermal spread from the ultrasonic system is restricted to an area less than 1.5 mm beyond the tissue bundle or vessel (Armstrong et al., 2001). Ultrasonic energy delivered from a harmonic scalpel has been indicated to be sufficiently secure in demanding clinical circumstances, such as parotidectomy. Nevertheless, it was reported that relative “low” temperature could also affect the function of nerve despite that the temperature rise caused by harmonic scalpel is much less than caused by electrocautery (Diamantis et al., 2006; Yang et al., 2017a). Compared with electrocautery modalities, there was no significant difference in the occurrence of recurrent laryngeal nerve palsy in total thyroidectomy with harmonic scalpel (Revelli et al., 2016). The temperature and the lateral thermal injury depend on various factors such as instrument type, power setting, the time of the continuous application, and the distance from the energy-based instrument. Therefore, great attention should be paid

to a secure range of distance from the critical structure and duration of the application when using a harmonic scalpel. An investigation of the effects of the heat from the ultrasonic system on rat nerve proved no damage to the nerve in histology if the duration was less than 20 s and the distance less than 3 mm (Owaki et al., 2002). Lee et al. also reported that a safety range of 3 mm could be assumed according to their research outcomes (Kyu-Eun et al., 2012). Jiang et al. showed in their experimental study that the safe length of activating time should be ≤ 3 s if HS was used around the recurrent laryngeal nerves (RLN) at output level 3 (Jiang et al., 2014). Therefore, surgeons should refrain from being too confident with the harmonic scalpel and keep a safe margin from the nerve, with short continuous working time and as low a power level as possible.

Salivary fistula is considered to form due to disruption of the salivary tissues after parotidectomy, and subsequently the saliva spills into the surrounding tissues and drains onto the epithelial surface. It was reported that the incidence of salivary fistula after parotidectomy is 5%–39% (Britt et al., 2016). The incidence of salivary fistula following parotidectomy was relatively low. In this analysis, only 4 articles concerning the salivary fistula were included, in which 3 articles indicated that there was no significant difference in salivary fistula between harmonic scalpel and electrocautery (Yang et al., 2017a; Xin et al., 2014; Zhu and HuangXu, 2016; Wang et al., 2010). Our meta-analysis demonstrated that the incidence of salivary fistula with harmonic scalpel was obviously lower than electrocautery, although there was no statistical significance. (OR:0.30, 95%CI = [0.08, 1.14], $P = 0.08$). In light of the reporting discrepancy in the articles, our results indicated there was no significant difference between harmonic scalpel and electrocautery. Nevertheless, it was reported that the principle of salivary fistula prevention is similar to hemostasis; the harmonic scalpel applying a high frequency of vibrations coagulates the exposed acinus and branch pipe by formation of an endovascular coagulum (Zhao et al., 2015) and the effect of salivary fistula prevention is safe and effective. With respect to salivary fistula, therefore, we speculate that the harmonic scalpel could perform better in the future.

As is known to all, a patient-centered point of view is more focused on operation time, which is closely related with hospital cost and surgical trauma. By reducing operation time allocated to performing a parotidectomy, postoperative recovery is more uneventful, with relatively low postoperative complications. Moreover, time resource may be redistributed to endeavors such as additional cases, research, or education (Polacco et al., 2017). The meta-analysis demonstrated that compared with electrocautery, mean operation time with harmonic scalpel could be significantly reduced by 20.97 min, and it could be an efficient alternative to electrocautery in parotidectomy. The properties of cutting and coagulating simultaneously contribute to significantly decreased operation time, especially where the surgical field is limited and thorough hemostasis is necessary. There is significantly 48 min reduction in harmonic scalpel time compared with electrocautery, which demonstrates much more time-saving than the pooled estimate of 20.97 min. In the total parotidectomy, variable branching patterns of the facial nerve and blood vessel lead to more sophisticated than superficial parotidectomy. Therefore, harmonic scalpel combined with cutting and coagulation simultaneously accelerate the process of surgery, especially in total parotidectomy. However, Deganello et al. and Jackson et al. indicated that the operation time in harmonic scalpel was comparable to that of electrocautery. (146.9 \pm 39.9 min vs 151.6 \pm 54.1 min and 183.88 \pm 58.17 min vs 200.50 \pm 41.43 min). It is acknowledged that effective hemostasis contributes to shorter operation time. The

author indicated that harmonic scalpel may not be appropriate to seal some larger arteries, in which electrocautery performed much better (Deganello et al., 2014). Therefore, the difference in operation time may be attributable to various vessel diameters. The advantage of harmonic scalpel is not obvious in large arteries compared to small or medium vessels. Nevertheless, we believe the effect of hemostasis with harmonic scalpel is sufficient and operation time could be significantly reduced according to our results.

Intraoperative blood control is essential to guarantee a clear surgical field, thereby reducing the possibility of injury to adjacent important structured (Deganello et al., 2014; Coulson et al., 2004). To our best knowledge, the major sources of bleeding are from the external carotid artery and the retromandibular vein which traverses and nourishes the parotid gland. Hence, meticulous hemostasis, especially the area adjacent to the facial nerve, could reduce postoperative complications and accelerate the surgical procedure. Our research indicated that the harmonic scalpel was better than electrocautery in the aspect of intraoperative blood loss [mean standard difference: -20.75, 95%CI = (-22.32, -19.18) $P < 0.00001$]. This result is in complete agreement with all included studies regarding the effect of scalpel on blood loss. Nevertheless, the high heterogeneity ($I^2 = 86\%$) was worth considering regarding this tissue. The high heterogeneity may be owing to the unclear measurement standard of intraoperative blood loss. We attempted to resolve the problem by contacting the authors but were unsuccessful. In order to resolve the high heterogeneity, a sensitive analysis was applied to exclude two articles, Marc A. Polacco (Pons et al., 2009) and Lana L. Jackson (Jackson et al., 2010) [mean standard difference: -18.28, 95% CI = (-20.06, -16.51) $P < 0.00001$]. In Lana's article, the sample size was so small that this contributed to a large heterogeneity. In addition, due to the different inclusion criteria in Marc's article, the results regarding intraoperative blood loss were distinguished from most included articles. Although harmonic scalpel is excellent regarding blood control, it was reported that this equipment can seal vessels that have a diameter less than or equal to 5 mm, which was sufficient in parotidectomy (Pons et al., 2009). Hence, surgeons should pay more attention to large diameter vessels in parotidectomy with harmonic scalpel.

As stated previously, harmonic scalpel could reduce operation time, intraoperative blood loss and postoperative complications were associated with hospital stay. Moreover, as is true with any surgical procedure, the operative time was associated with the risk of operation area infection and patient recovery time (Luo et al., 2017). Fewer complications yields a quicker healing of the tissues, and less intraoperative blood loss leads to less postoperative reaction accelerating the process of rehabilitation. Hence, patients treated with harmonic scalpel could have reduced hospital stay and improved patient satisfaction (Deganello et al., 2014). In spite of the fact that outcomes of hospital stay were based on only 3 articles, our meta-analysis indicated that the duration of hospital stay was much shorter in the harmonic group than the electrocautery group. [mean standard difference: -0.83 days, 95% CI = (-1.10, -0.57), $P < 0.00001$]. Therefore, harmonic scalpel could be an appropriate alternative treatment to reduce the duration of hospital stay.

Our study had some limitations. Non-randomized controlled trials were the majority of our study, and the authority of this research was discounted by the relatively small sample size, limited data available, and some unknown measurement standards. In addition, it was worth paying attention to the inherent heterogeneity in our meta-analysis. Patient populations, surgical techniques and follow-up duration can also have effects on the heterogeneity. Hence, more large multi-center RCTs in the future, with standardized protocols to eliminate heterogeneity, are essential.

5. Conclusion

Our meta-analysis demonstrated that harmonic scalpel was superior to reduce operation time, intraoperative blood loss, post-operative complications and hospital stay compared with the electrocautery method. Harmonic scalpel should be regarded as a potential method that could be very popular in clinical work because of these distinct characteristics.

Availability of data and materials

The data and material is available.

Consent for publication

All the authors consent to publish the study; this manuscript has not been published and is not under consideration for publication elsewhere.

Ethics approval and consent to participate

Not applicable.

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None.

Conflicts of interest

We have no competing interest in our submission.

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