World Journal of Otorhinolaryngology-Head and Neck Surgery (2017) 3, 231–234

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.keaipublishing.com/WJOHNS; www.wjent.org

Research Paper

The influence of obesity on operating room time and perioperative complications in cochlear implantation

Jonathan L. Hatch*, Isabel M. Boersma, Forest W. Weir, Michael J. Bauschard, Meredith A. Holcomb, Paul R. Lambert, Ted A. Meyer

Department of Otorhinolaryngology Head and Neck Surgery, Medical University of South Carolina, SC 29425, USA

Received 6 November 2017; accepted 13 December 2017
Available online 19 January 2018

KEYWORDS
Cochlear implant;
Body mass index;
Operating time;
Perioperative complications

Abstract *Objective:* The rising incidence of obesity in the United States is associated with increased healthcare expenditures and resource allocation. Obesity has been associated with prolonged operating times during surgical procedures. The primary objective of this study is to compare body mass index (BMI) to length of surgery during cochlear implantation.
Methods: A retrospective case control study from a tertiary academic referral center was performed. Patients included were adults who underwent primary, single-sided cochlear implantation with documented BMI and operating room (OR) times from January 2009 to July 2015. The following data were collected: BMI, total operating room time (TORT), surgical operating room time (SORT), ASA status, perioperative and postoperative complications, age, and gender.
Results: Two hundreds and thirty-four patients were included and stratified into obese (BMI >30) and non-obese (BMI < 30) categories. Statistical analysis was performed comparing TORT against the obesity category along with other variables. Independent sample *t*-test demonstrated that obesity increases TORT and SORT by 16.8 min ($P = 0.0002$) and 9.3 min ($P = 0.03$), respectively, compared to the non-obese group. Multivariate linear regression analysis demonstrated no statistically significant impact of gender, or ASA status on total operating or surgical time. Obesity was associated with increased perioperative complications (odds ratio [*OR*], 6.21; 95% *CI*, 1.18–32.80; $P = 0.03$) and postoperative complications (*OR*, 3.97; 95% *CI*, 1.29–12.26; $P = 0.02$).

* Corresponding author. 135 Rutledge Avenue, MC 550, Charleston, SC 29425, USA. Fax: +1 843 792 0546.
E-mail address: hatchj@musc.edu (J.L. Hatch).
Peer review under responsibility of Chinese Medical Association.

Production and Hosting by Elsevier on behalf of KeAi

https://doi.org/10.1016/j.wjorl.2017.12.004
2095-8811/Copyright © 2017 Chinese Medical Association. Production and hosting by Elsevier B.V. on behalf of KeAi Communications Co., Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Conclusions: Obesity leads to longer TORT and SORT during primary cochlear implant surgery. Obesity is also associated with increased perioperative and postoperative complications compared to non-obese patients. These data have implications with utilization of operating room resources.

Copyright © 2017 Chinese Medical Association. Production and hosting by Elsevier B.V. on behalf of KeAi Communications Co., Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Introduction

The rising epidemic of obesity in the United States (U.S.) has great implications on healthcare resource allocation. Currently the World Health Organization estimates that approximately 66% of the adult population in the U.S. above the age of 60 years is overweight or obese.[1] In addition, the epidemic is expected to increase by greater than 33% over the next twenty years.[2] The U.S. currently spends over $200 billion in cost related to obesity, which is 20% of the total annual healthcare cost.[3] As part of rising medical costs associated with obesity and associated comorbidities, obese patients undergoing surgical procedures have shown an increased risk of postoperative complications and higher hospital readmission rates.[4] It has been shown that obese patients undergoing total hip arthroplasty have increase operating room (OR) times and increased duration of hospitalization stays following surgery.[5,6] These findings have also been demonstrated in patients undergoing thoracic surgery.[7] This has tremendous economic healthcare implications. A 2005 study of 100 U.S. hospitals found that OR charges averaged $62 per min (range: $22/min to $133/min).[8] The increased costs associated with obese surgical patients are usually covered by the facility caring for these patients and are not covered by increased payments from third parties. This can place a burden of financial risk on these facilities.[9]

The objective of this study was to compare the relationship between obesity in patients undergoing unilateral cochlear implantation and its impact on the duration of OR time. Secondary objectives were to determine if obesity is associated with increased perioperative and postoperative complications after cochlear implantation.

Materials and methods

Subjects

The study was approved by the Institutional Review Board at the Medical University of South Carolina (MUSC; #48185). The MUSC Cochlear Implant Database was used to identify subjects who underwent cochlear implantation from January 1, 2006 to June 30, 2015. Inclusion criteria were: adults 18 years or older, with documented BMI or weight and height, American Society of Anesthesiologists Physical Status Classification (ASA), OR time, procedure time and a post-operative follow up. Exclusion criteria included: bilateral implantation, revision implantation, second-sided implantation, history of meningitis, inner ear abnormalities or exclusion to the use of mono-polar cauterization (i.e. implantable defibrillators, pacemakers or other such devices). These exclusions were thought to increase operating time and could be confounding variables.

Subjects were divided into obese (BMI $\geq$ 30) and non-obese (BMI $<$ 30) groups. The following data were collected: age, gender, surgeon, ASA status, perioperative complications, postoperative complications. Complications were graded from 0 to 2, with 0 being no complication. Perioperative complications deemed a "1" included minor postoperative bleeding, excessive postoperative nausea and vomiting, dizziness, or others. If a patient required inpatient admission or observation for comorbidities, hypoxia, dizziness or excessive nausea and vomiting, this was deemed a perioperative complication score of "2". Postoperative complications were similarly defined by a score of 0 to 2. A postoperative score of "1" was given if a patient called their surgeon complaining of persistent dizziness, headache, recurrent epistaxis or if antibiotics were given due to concern for surgical site infection. A postoperative complication score of "2" was given for emergency department visits, admissions, revision surgery, or other significant events within 30 days after surgery.

The primary outcome variables of the study were total OR time (TORT) and surgical OR time (SORT). TORT was determined by the time the subject entered the OR to the time they exited the OR. SORT was defined as the start of the procedure to the placement of the dressing. All the data points regarding TORT and SORT were collected by the perioperative nursing staff and entered into the electronic medical record (EMR). The nursing staff was not involved in the study as this data was reviewed retrospectively. The two senior authors (PRL and TAM) perform the cochlear implantation using a similar technique. Both authors perform a mastoidectomy and utilize a well to help secure the device. The facial recess is opened and the cochlear implant is inserted through the round window membrane. Intraoperative device testing is performed in conjunction with wound closure.

Statistical analysis

Out of 367 patients, 234 subjects met inclusion criteria for this study. The top 1% and the bottom 1% of TORT and SORT were excluded to remove possible incorrect data points entered in the EMR and to remove outliers that could skew results. Two-tailed tests were run to compare the obese and non-obese patient populations. The patients were further divided into different BMI categories and the average TORT and SORT was calculated and step-wise comparisons were performed between the different BMI groups. Multivariate linear regression analysis was used to compare the effect of BMI category, age, gender, surgeon, ASA status, perioperative and postoperative complications against TORT and SORT.

Download English Version:

https://daneshyari.com/en/article/8744042

Download Persian Version:

https://daneshyari.com/article/8744042

Daneshyari.com