Learning Objectives

- Identify and recognize common operative workflow delays and inefficiencies.
- Apply surgery specific checklists, and understand the potential safety concerns of skull base surgery.
- Improve efficiency in the operative work environment by preventing delays.

Abstract

Objective: To evaluate the impact of a specific skull base surgery aviation-style challenge and response checklist on surgical efficiency and safety. Methods: This prospective observational study is designed as a quality improvement initiative, which monitors the occurrence of any safety or equipment issues before and after implementation of the surgical checklist. In a four-month study period, 54 consecutive cases were audited, first 27 without the checklist and the following 27 with the checklist. The checklist was developed by mapping out patients’ operative journey, utilizing the available literature, expert consensus, and re-evaluation with audit type cases. The checklist evaluates equipment, imaging, patient positioning, and operative room ergonomics. Workflow delays were recorded and used to compare study groups. Results: Implementing this specific surgical checklist in 27 cases at our institution allowed us to identify and rectify 42 separate instances of potentially unsafe, improper or inefficient pre-operative setups. These incidents included issues with availability, function, and/or position of video monitors/image guidance (7, 17%), suction (6, 14%), microdebrider (10, 24%), bipolar cautery (8, 19%), epinephrine (3, 7%), pedal (5, 12%) and endoscrub (3, 7%). No significant total procedure time difference was observed between cases with or without the checklist. Conclusion: Implementation of a surgical checklist in 27 cases allowed us to identify and rectify 42 separate instances that may be potentially unsafe, improper or inefficient without compromising surgical workflow. Design and integration of this surgical checklist for skull base surgery can potentially improve patient safety and efficiency in the operating room.


Learning Objectives:

- To appreciate the significant wait time for surgery as it pertains to patients undergoing endoscopic sinus surgery for patients with chronic rhinosinusitis in Canada
- To understand the relationship between surgical wait times for endoscopic sinus surgery for patients with chronic rhinosinusitis on patient-reported surgical outcomes

Abstract

Objective: Chronic rhinosinusitis (CRS) is a common condition with significant morbidity for which Endoscopic Sinus Surgery (ESS) is a proven, effective therapy. However, in several jurisdictions wait times for surgery are increasing and little is known about the impact of these delays on patient outcomes. This study aims to evaluate the effect of wait times on patient-reported surgical outcomes as measured by pre and post-surgical SNOT-22 scores. Methods: All patients consented for ESS for CRS refractory to medical treatment in the Vancouver Costal Health Authority between September 2012 - July 2016 were
invited to participate. They were asked to complete a disease-specific quality of life measure (SNOT-22) when assigned to the surgical wait list and 6 months post-operatively. The change in SNOT-22 score was then correlated with surgical wait time. Results: Eighty-three patients were included for analysis. The mean wait time was 33.4 weeks ranging from 0-130 weeks. The mean SNOT-22 improvement was 20 points after surgery. Regression analysis revealed no significant correlation between wait time and improvement in SNOT-22 scores after surgery (p=0.087). Conclusions: Wait times do not significantly affect patient reported improvement following ESS for CRS. Despite an average wait time of 8 months; patients’ independent of wait time. This suggests patients may benefit from surgical management regardless of how early or late they are in the course of disease.

Abstract

Objectives: Patients with chronic rhinosinusitis (CRS) often have to endure significant wait time for endoscopic sinus surgery (ESS). Recent UK publications suggest that delayed ESS for CRS may be associated with less post-operative improvements in quality-of-life. The aim of our study is to assess the effect of ESS wait time on the post-operative quality-of-life in CRS patients in a Canadian tertiary referral centre. Methods: In this single-centre retrospective study, 141 patients who underwent primary ESS for CRS from January 1, 2013 to December 31, 2015 were identified and divided into two groups: group 1, ≤6 months from the time of consent to ESS (n=35); and group 2, ≥6 months (n=106). Six months is the recommended wait time in our provincial guideline. Prospectively collected pre-operative and post-operative Sino-Nasal Outcome Test scores (SNOT-22) were analyzed. Results: The mean wait time was 9.33±4.64 months. There was no significant difference in the absolute SNOT-22 scores between the two groups at 1 month (group 1: 20.7±18.0, group 2: 18.0±15.7), 6 months (group 1: 25.2±16.0, group 2: 21.9±18.0), and 12 months (group 1: 26.5±30.0, group 2: 21.8±16.0) after ESS. The improvement in SNOT-22 scores at 1 month (group 1: 42.9±22.3, group 2: 35.6±23.3), 6 months (group 1: 32.8±21.5, group 2: 35.0±26.2), and 12 months (group 1: 28.9±22.0, group 2: 35.5±26.3) after ESS was also not significantly different between the two groups. Conclusions: Our data suggests that delayed primary ESS for CRS does not affect the post-operative SNOT-22 scores. Other factors including surgical technique may be more important in determining quality-of-life outcomes in CRS patients.

A Cost Analysis of Anterior Epistaxis Treatment Methods at a Canadian Centre – H. Nithianandan, K. Thavorn, F. Banaz, K. Macdonald, A. Lasso, S. Kilty, Ottawa, ON

Learning Objectives

- By the end of the session, the audience member will be able to identify the major treatment modalities utilized for the treatment of anterior epistaxis and the institution costs associated with each modality.
- By the end of the session, the audience member will be able to appreciate the impact of treatment choices on institutional cost for anterior epistaxis management.

Abstract

The Effect of Endoscopic Sinus Surgery Wait Time on Quality-of-Life Outcomes in Patients with Chronic Rhinosinusitis – W. Hao, J. Lee, Toronto, ON

Learning Objectives

- Review outcome measures in CRS patients.
- Determine whether ESS wait time affects the post-operative quality-of-life in CRS patients.
- Identify factors that may potentially affect the quality-of-life outcomes in CRS patients following ESS.

Abstract

Objectives: Patients with chronic rhinosinusitis (CRS) often have to endure significant wait time for endoscopic sinus surgery (ESS). Recent UK publications suggest that delayed ESS for CRS may be associated with less post-operative improvements in quality-of-life. The aim of our study is to assess the effect of ESS wait time on the post-operative quality-of-life in CRS patients in a Canadian tertiary referral centre. Methods: In this single-centre retrospective study, 141 patients who underwent primary ESS for CRS from January 1, 2013 to December 31, 2015 were identified and divided into two groups: group 1, ≤6 months from the time of consent to ESS (n=35); and group 2, ≥6 months (n=106). Six months is the recommended wait time in our provincial guideline. Prospectively collected pre-operative and post-operative Sino-Nasal Outcome Test scores (SNOT-22) were analyzed. Results: The mean wait time was 9.33±4.64 months. There was no significant difference in the absolute SNOT-22 scores between the two groups at 1 month (group 1: 20.7±18.0, group 2: 18.0±15.7), 6 months (group 1: 25.2±16.0, group 2: 21.9±18.0), and 12 months (group 1: 26.5±30.0, group 2: 21.8±16.0) after ESS. The improvement in SNOT-22 scores at 1 month (group 1: 42.9±22.3, group 2: 35.6±23.3), 6 months (group 1: 32.8±21.5, group 2: 35.0±26.2), and 12 months (group 1: 28.9±22.0, group 2: 35.5±26.3) after ESS was also not significantly different between the two groups. Conclusions: Our data suggests that delayed primary ESS for CRS does not affect the post-operative SNOT-22 scores. Other factors including surgical technique may be more important in determining quality-of-life outcomes in CRS patients.
Objective: Anterior epistaxis is a common problem affecting up to 60% of the population, with up to 10% of patients seeking treatment. The costs of treatment are as of yet unknown. Therefore, the purpose of this study was to estimate the costs of managing anterior epistaxis at a Tertiary Care centre in Canada. Methods: We conducted a retrospective review of emergency department (ED) visits from January 2012 to May 2014 for adult patients with a diagnosis of anterior epistaxis. Patient demographic data, comorbidities, and treatment methods were documented. The effectiveness of different treatment modalities was determined. Both the direct and indirect costs ($CDN) attributable to the hospital for anterior epistaxis treatment were calculated. Results: A total of 353 cases of anterior epistaxis were included. The mean age was 70 years and 51% of patients were male. Six treatment modalities were identified from the database. In general, direct costs were higher than indirect costs for all treatment modalities. The mean (SD) total cost per treatment modality ranged from $411.37 (±336.87) (CDN) for silver nitrate treatment to $620.54 (±393.22) (CDN) for merocel packing. The total hospital cost for anterior epistaxis treatment was higher for all treatment modalities when the patient had one or more comorbid illnesses. Conclusions: The hospital-associated costs for treating anterior epistaxis at a Canadian center have been determined. Treating physicians may be better able to choose treatment modalities when managing anterior epistaxis based on treatment success and cost.


Learning Objectives

At the end of this presentation, attendees will

- Be familiar with the importance of the microbiome in maintaining local and systemic health.
- Appreciate the safety of probiotic bacteria introduced into the nasal and sinus cavities.

Abstract

INTRODUCTION: Dysbiosis of the sinus microbiome is now believed to contribute to persistence of chronic sinus disease by interfering with sinus homeostasis and equilibrium between bacterial species. This may offer therapeutic opportunities for CRS, as modulation of the dysbiotic gut microbiome by ingesting "healthy" bacteria or probiotics is increasingly recommended for several digestive disorders. It is thus possible that introduction of live, "healthy" probiotic bacteria into the nasal and sinus cavities may have a similar therapeutic benefit. While this has been shown to be safe and effective in animal models (Cope, 2015), experience with this innovative approach in humans is limited, and safety concerns remain. PURPOSE: We wished to review existing evidence on safety of probiotic bacteria applied directly to the nasal and/or sinus cavities. METHOD: PubMed and EMBASE databases were searched for clinical trials incorporating topical intranasal or intrasinus administration of probiotic bacteria in order to identify adverse events associated with topical probiotic administration. RESULTS: Five published trials were identified. These included 85 treated patients and 42 healthy volunteers trials (Tano, 2002; Skovbjerg, 2009; Santagati, 2015; Marchisio, 2015, MÃ¥rtensson, 2016). No ill effects were seen in any of the trials. In the one trial where nasal secretions were analyzed, there was no change in cytokine levels in fluid samples from the nasal cavities. CONCLUSION: Administration of probiotic bacteria directly to the nasal and sinus passages appears safe in humans, and suggests that microbiome modulation via topical probiotic administration may be safely explored as a novel therapeutic avenue for CRS.


Learning Objectives
After attending this presentation, learners will be able to:

- Better understand the clinical benefits of Budesonide-impregnated saline irrigation for the treatment of chronic rhinosinusitis
- Summarize the results of the current literature on Budesonide safety
- Understand how the results of this study fit into the current body of literature and draw their own conclusions on the safety of Budesonide-impregnated nasal saline irrigations

Abstract

Background: Increasingly over the last decade, Rhinologists have been adding Budesonide to nasal saline rinses as a novel topical therapy for patients with Chronic Rhinosinusitis (CRS). Prior safety studies of Budesonide-impregnated irrigations have employed a small number of patients or included a short follow-up period. Objectives: Further elucidate the long-term safety profile of Budesonide-impregnated nasal saline irrigations in a larger cohort of patients with CRS. Methods: Patients receiving once or twice daily Budesonide-impregnated nasal saline irrigations for at least 4 months were screened for side effects and symptoms of HPA axis suppression, as well as underwent AM serum cortisol testing. Characteristics of patients with and without evidence of HPA axis suppression were compared retrospectively. Results: 69 total patients were reviewed. 87% of patients experienced improvement in their CRS symptoms. 2 of the 69 patients (3%) had depressed AM serum cortisol levels. Both were treated with 0.5 mg doses of budesonide in saline nasal rinse twice daily for 36 and 54 months, respectively. Both concurrently used a nasal steroid spray and had a remote history of oral prednisone use. One of these patients was asymptomatic and one experienced hypertension and sleep disturbance. Conclusions: This study is the largest to date evaluating the safety of budesonide-impregnated saline nasal irrigations. Our results suggest that this widely practiced intervention is safe and effective. Clinicians should consider evaluating for subclinical HPA axis suppression when treatment is prolonged (greater than 36 months in this study) or accompanied by other corticosteroid containing medications.


- To be familiar with the extent of sinonasal surgery that may be performed in an outpatient clinic setting.
- To understand the patient and disease factors which go into selecting appropriate patients for in-clinic rhinological surgery.
- To learn an office-based protocol for applying local anesthetic within the nasal cavity that makes various rhinological surgeries tolerable.
- To learn the benefits that may be experienced by patients and the healthcare system as a whole if certain sinonasal surgeries are performed in clinic with amenable patients.

Abstract

Background: Office-based rhinologic procedures have become popularized in recent years with the advent of several minimally invasive techniques. There is a paucity of literature, however, supporting more robust in-clinic procedures such as true endoscopic sinus surgery (ESS). There is a high volume of this work being done at our center and the objective of this paper was to review the safety and tolerability of in-clinic surgeries. Methods: A retrospective chart review was conducted. All adult patients undergoing in-clinic sinonasal procedures and surgery with a minimum of 3 months follow-up were included. Information regarding intra-operative and post-operative complications and revision procedures were recorded. For the ESS procedures the indication, sinuses operated on and type of revision were also collected. Results: A total of 315 patients met inclusion criteria. There were 166 turbinoplasty, 118 ESS, 35 septoplasty, 34 rhinoplasty and 4 septorhinoplasty surgeries performed. For the ESS procedures, 74 (62.7 %) were bilateral and experience was had operating in all
paranasal sinuses - these were not just polypectomies. Mean follow-up for the ESS cases was 13.4 months (Range 12 - 65 months). Complication rates and tolerability measures were comparable to those of other reported in-office sinonasal procedures under local anesthetic. Conclusion: Office-based rhinological surgery is safe and well tolerated by patients. The need for revision ESS in our series was low considering the extent of surgery being performed. An in-clinic procedure may avoid a general anesthetic in the operating room for appropriately selected patients.


Learning Objectives

At the end of this presentation, attendees will be able to do the following:

- Describe overall how cognitive task analysis can help develop a simulation-based curriculum aimed at training residents in complex procedures.
- Identify the 7-core skills junior-otolaryngology residents must develop when learning FESS and describe simulated tasks that teach these skills.
- Assess for common errors that otolaryngology residents make when learning FESS on a simulator or in the operating room.

Abstract

Functional Endoscopic Sinus Surgery (FESS) is a technically demanding procedure where residents must learn to navigate a narrow passage bordered by vital structures, using a 2d endoscope. By exploring skills and knowledge experts apply, Cognitive Task Analysis (CTA) helps deconstruct complex procedures into core-proficiencies residents should learn. This study used CTA to inform the development of a simulation-based curriculum and task-trainer targeted at training junior-otolaryngology residents. Our CTA study used semi-structured interviews with experts in FESS to identify key steps, common resident errors and special manoeuvres. Interviews were recorded, transcribed and coded. Data was cumulated across interviews, and results were used to develop curriculum modules. Supplemented with intraoperative observation, CTA results guided the design of a 3d-printed task-trainer using a freehand 3d modeling software, Rhinoceros5. Seven experts were interviewed: 5 rhinologists and 2 paediatric otolaryngologists. A comprehensive list comprising 132 concepts was generated; 67, 46 and 19 operative steps, resident errors and special manoeuvres were identified, respectively. The following 7 core junior-level skills were identified: telescopic navigation, pledget placement, injecting vasoconstrictor, working with dissection tools, and performing an uncinectomy, maxillary anstrostomy and ethmoidectomy. CTA results informed the development of 7 modules, each comprising learning objectives, tasks and an assessment plan. Modules are taught on a 3d-printed model, designed as low-cost, dissectible and replaceable cartridges that fit into a base model. Tasks allow deliberate and repetitive practice of 7 core skills, while assessments monitor common resident errors. This simulation-based curriculum provides guided teaching of core-skills in FESS to junior-otolaryngology residents.

Case-Control Trial of Endoscopic Polypectomy in Clinic (EPIC) versus Endoscopic Sinus Surgery (ESS) for Chronic Rhinosinusitis with Polyps – S. Kilty, A. Lasso, Ottawa, ON, L. Mfuna-Endam, M. Desrosiers, Montreal, QC

Learning Objectives
By the end of the session, the audience member will be able to identify the appropriate patient population in which to consider an endoscopic polypectomy in clinic (EPIC) treatment.

By the end of the session, the audience member will be able to appreciate the disease specific quality of life improvement provided by EPIC in comparison to endoscopic sinus surgery (ESS).

Abstract

Objectives: Endoscopic Polypectomy Clinic (EPIC) is a recently described deescalated form of endoscopic sinus surgery (ESS) performed in the Outpatient Clinic for patients with chronic rhinosinusitis with polyps (CRSwNP). The quality of life benefit of EPIC in comparison to ESS is not known. The purpose of this study was to determine if EPIC is as effective as ESS in terms of quality of life improvement for patients with CRSwNP. Methods: A multi-institutional observational case-control cohort study was performed to evaluate quality of life improvement in patients treated with ESS and EPIC for CRSwNP with minimal 3-month follow-up. Predicted probability of undergoing EPIC was calculated by fitting a logistic regression model using clinically relevant variables. EPIC patients were matched to ESS patients on the logit of the propensity score in a 1:1 fashion with nearest neighbor matching without replacement using calipers of width equal to 0.2 of the standard deviation of the logit of the propensity score. Paired t-test for continuous variables and McNemar’s test for binary variables with a 2-tailed probability of less than 0.05 denoted a statistically significant difference. Results: 24 pairs were analyzed after matching. Absolute standardized difference of means was $\lt;25\%$ and variance ratio was 1.45 on matched variables indicating adequate balance. There was no statistical difference in the post-treatment SNOT-22 scores ($p= 0.09$) or proportion of patients achieving a MCID ($p= 0.21$).


Learning Objectives

- To appreciate the breadth of nasopharyngoscope reprocessing methods available, and the requirements for proper reprocessing.
- To understand the differences, and advantages and disadvantages, of different nasopharyngoscope reprocessing methods.
- To have a better grasp of the potential risk of nosocomial infection, and how best to minimize this risk in a community practice.

Abstract

Functional Endoscopic Sinus Surgery (FESS) is a technically demanding procedure where residents must learn to navigate a narrow passage bordered by vital structures, using a 2d endoscope. By exploring skills and knowledge experts apply, Cognitive Task Analysis (CTA) helps deconstruct complex procedures into core-proficiencies residents should learn. This study used CTA to inform the development of a simulation-based curriculum and task-trainer targeted at training junior-otolaryngology residents.

Our CTA study used semi-structured interviews with experts in FESS to identify key steps, common resident errors and special manoeuvres. Interviews were recorded, transcribed and coded. Data was cumulated across interviews, and results were used to develop curriculum modules. Supplemented with intraoperative observation, CTA results guided the design of a 3d-printed task-trainer using a freehand 3d modeling software, Rhinoceros5.

Seven experts were interviewed: 5 rhinologists and 2 paediatric otolaryngologists. A comprehensive list comprising 132 concepts was generated; 67, 46 and 19 operative steps, resident errors and
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CTA results informed the development of 7 modules, each comprising learning objectives, tasks and an assessment plan. Modules are taught on a 3d-printed model, designed as low-cost, dissectible and replaceable cartridges that fit into a base model. Tasks allow deliberate and repetitive practice of 7 core skills, while assessments monitor common resident errors. This simulation-based curriculum provides guided teaching of core-skills in FESS to junior-otolaryngology residents.