



Canadian Society of Otolaryngology-Head and Neck Surgery

74th ANNUAL MEETING
September 26 – November 14, 2020

“Quality and Excellence in Otolaryngology-Head and Neck Surgery”

POLIQUIN RESIDENTS COMPETITION

SATURDAY, OCTOBER 31

11:05 a.m. - 11:15 a.m. **Development of a Standardized Assessment of Patient Reported Outcomes Following Endoscopic Sinus Surgery for Chronic Rhinosinusitis – C. Sommerfeld, J. Pyne, A. Mendez, D. Côté, Edmonton, AB**

LEARNING OBJECTIVES

1. To introduce a patient reported outcome measure tool developed through direct patient participation. 2. To discuss how grounded theory methodology with modified Delphi technique may be used in the creation of patient reported outcome measures. 3. To allow the audience to apply this patient reported outcome measure with patients who have chronic rhinosinusitis.

ABSTRACT

Background: Endoscopic sinus surgery is a minimally invasive, mucosa-preserving treatment modality for management of chronic rhinosinusitis. Clinicians report improved patient quality of life (QoL) following endoscopic sinus surgery, but few outcome measures have been developed through direct patient participation. Patient reported outcomes (PROs) are health outcome measures developed based on patient experience. The objective of this study was to create a questionnaire to assess PROs following management of chronic rhinosinusitis with endoscopic sinus surgery. **Methods:** This four-phase qualitative study employed grounded theory methodology and a modified Delphi technique. In Phase I, fifteen patients were interviewed, using open-ended questioning, for identification of QoL domains impacted by chronic rhinosinusitis. In Phase II, these QoL domains were presented to a focus group of four new chronic rhinosinusitis patients, who ranked them by order of importance. A conceptual framework of QoL domains impacted by chronic rhinosinusitis was created based on patient consensus. Itemization of the PRO questionnaire was done by a focus group of five Otolaryngologists in phase III. The questionnaire was completed in Phase IV by cognitive interviewing of ten new chronic rhinosinusitis patients, ensuring ease of understanding. **Results:** Patients identified 15 domains of QoL divided into three sub-scales: physical symptoms, psychosocial symptoms, and activity restriction. These domains provided the basis for the creation of a 19-item PRO questionnaire. **Conclusions:** Clinical application of the novel questionnaire produced by this study will allow for an objective assessment of patient reported effectiveness of endoscopic sinus surgery for management of chronic rhinosinusitis.

11:15 a.m. - 11:25 a.m. **Distance from Tertiary Care Centre Does Not Affect the Initial Stage and Survival Outcomes of Head and Neck Malignancy – S. Singh, Winnipeg, MB, D. Heinke, P. Laigou, Boston, MA, P. Kerr, Winnipeg, MB**

LEARNING OBJECTIVES

Upon completion of this presentation the attendee will be able to appreciate the need to assess geographic and socioeconomic factors in assessing patient outcomes in head and neck cancers.

ABSTRACT

Socioeconomic status and increased distance to treatment facilities for head and neck malignancies are associated with decreased survival in the United States but have been less studied in Canada. **Methods:** A retrospective population-based cohort of patients treated at a single institution between 2007 and 2017 was identified based on provincial cancer registry. The association between distance from tertiary care center and stage of presenting cancer, and time to treatment was assessed using a modified Poisson regression. Overall survival was assessed using multivariable Cox proportional hazard regression model. **Results:** A total of 1,111 patients were included in the analysis. Overall, no association between distance and increase stage at presentation was found. Intermediate and long distance from the tertiary care center was associated with wait times for treatment of longer than 6 weeks (distance of 51-250km: RR 1.31; 95% CI 1.12-1.53, p value <0.01, distance of <251km RR 1.29; 95% CI 1.02-1.63, p value 0.03). Overall survival was not affected by distance from treatment center. **Conclusions:** Patients at increased distances from the tertiary cancer treatment center did not show higher staging at presentation and did not have worse overall survival. However, longer wait times to treatment after diagnosis were shown for patients at distances <50km.

11:25 a.m. - 11:35 a.m.

Human Papillomavirus is Associated with Improved Survival in Hypopharyngeal Head and Neck Cancer – C. Lane, N. Viallet, P. Kerr, Winnipeg, MB

LEARNING OBJECTIVES

1) The audience will be able to describe the prevalence of HPV in different sites of pharyngeal cancer 2) The audience will consider the value of HPV testing in non-oropharyngeal sites of head and neck cancer 3) The audience will be able to compare the prognosis of HPV positive disease between three pharyngeal sites.

ABSTRACT

Background: Human papillomavirus (HPV) is associated with improved overall survival in oropharyngeal carcinoma. The etiologic and clinical implications of HPV need to be established for mucosal malignancy in other sites of the head and neck. The objective of our study was to determine the association between HPV status and survival in patients with squamous cell carcinoma originating from all pharyngeal sites. **Methods:** Population-based retrospective cohort study from the Surveillance Epidemiology and End Results (SEER) Database. Data were collected from patients with head and neck cancer and known HPV status between 2010 and 2016. Five-year overall survival was calculated using the Kaplan-Meier method for HPV positive and HPV negative patients with nasopharyngeal, oropharyngeal, and hypopharyngeal carcinoma. Multivariate cox-regression analysis was completed for each site to determine the effect of HPV on survival. **Results:** A total of 15,394 pharyngeal cancer patients with established HPV status were identified from the SEER database; 4,941 were HPV negative and 10,453 HPV were positive. Five-year overall survival was 78.0% vs 53.9% for HPV positive vs negative oropharyngeal carcinoma ($p < 0.00001$), 59.3% vs 35.7% for hypopharyngeal carcinoma ($p < 0.00001$), and 59.2% vs. 65.5% for nasopharyngeal carcinoma ($p = 0.34$). Cox-regression showed an association between HPV status and overall survival in oropharyngeal (hazard ratio HR=2.13, 95% CI=1.96-2.30) and hypopharyngeal sites (HR=1.64, 95% CI=1.23-2.19), but not nasopharyngeal site (HR=0.84, 95% CI=0.62-1.13). **Conclusions:** Human papillomavirus is associated with improved overall survival in oropharyngeal and hypopharyngeal tumors and is not associated with improved survival in nasopharyngeal cancer. The role of HPV in non-oropharyngeal head and neck sites warrants ongoing investigation.

11:35 a.m. - 11:45 a.m.

Investigating the Impact of Pollution on the Rate of Adenotonsillectomy in Southwestern Ontario – A. Dickie, S. Bota, A. Ouodraogo, S. Shariff, M. Husein, London, ON

LEARNING OBJECTIVES

1. To review the risk factors and surgical indications for pediatric adenotonsillar disease, 2. To discuss data suggesting that environmental exposures in early childhood may contribute to upper airway disease

ABSTRACT

Background: Waldeyer's ring is routinely exposed to the same atmospheric pollutants which have been linked to an increased risk of respiratory dysfunction and disease. There is a paucity of research into the effect of increased environmental exposure on adenotonsillar disease. **Objectives:** To determine whether a difference in atmospheric pollutant composition and concentration correlates with a change in adenotonsillectomy (AT) risk to the pediatric population in Southwestern Ontario. **Methods:** A longitudinal retrospective cohort study of children born in three sub-regions of Southwestern Ontario (London-Middlesex, Lambton [Sarnia], and Windsor) was performed, with the production of hazard ratios adjusted for baseline characteristics and available pollution data to determine their effect on the risk of adenotonsillectomy in children. **Results:** The records of 112,186 patients were analyzed of whom 7,205 had an adenotonsillar procedure by age 10. Those born and living in London had the lowest risk of AT (HR 0.748, 0.697-0.803, $p < 0.0001$), while those from Windsor had the highest risk (HR 1.187, 1.103-1.278, $p < 0.0001$) compared to Lambton. Correcting for SO₂ and combined pollution exposure normalized the risk of AT in Windsor, while correcting for SO₂ and combined pollution exposure further decreased the risk in London. Other pollutants (NO₂, O₃, PM_{2.5}) had little observed impact. **Conclusions:** The rates of adenotonsillectomy in Windsor and Lambton, two regions with higher levels of industrial atmospheric pollution, are higher than in London even after adjusting for baseline covariates. The results suggest that certain pollutants may have an effect on the development of pediatric adenotonsillar disease.

11:55 a.m. - 12:05 p.m.

National Access to Otolaryngology Surgical Care: Demographic and Geographic Variation in Rates of Otolaryngology Surgery in Canada – D. Piccott, L. Lethbridge, M. Dunbar, P. Hong, Halifax, NS

LEARNING OBJECTIVES

1. Compare rates of Otolaryngology surgery between visible minorities/Indigenous populations to the general population in Canada. 2. Compare rates of Otolaryngology surgery across provinces/regions for visible minorities/Indigenous populations to the general population. 3. Compare surgical rates between visible minorities/Indigenous populations to the general population for specific subspecialty procedures. 4. Compare rates of diagnostic procedure use in Otolaryngology between visible minorities/Indigenous populations to the general population in Canada. 5. To create better understanding of equitable access to Otolaryngology surgical care in Canada.

ABSTRACT

BACKGROUND: Little is known about surgical rates in Otolaryngology-Head and Neck Surgery in Canada. Studies in other specialties suggest inequality in access between visible minorities/Indigenous populations compared to the general population.

METHODS: The Hospital Discharge Database was linked to the Canadian longform census to provide a comparison of surgical rates in self-identified visible minorities/Indigenous populations to the general population, in different regions within Canada between 2006 to 2008. Point estimates for crude surgical rates were calculated using sample weights and age/sex adjusted rates were standardized to the 2006 Canadian population. Comparison of procedures was also completed between provinces. Logistic regression was used to determine the difference between surgery rates. **RESULTS:** Overall, age and gender adjusted crude rates of Otolaryngology procedures were significantly higher for the general population in all subspecialties ($P < .05$). Logistic regression showed that visible minorities/Indigenous populations were 11.2% less likely to have undergone Otolaryngology procedures ($P < .0001$). Visible minorities/Indigenous groups were also 17% less likely to have a diagnostic Otolaryngology-related procedure completed in any province. Significant variations in rates of surgical procedures were found between provinces. Sex, age, income, residential location, marriage status and comorbidities were found to have a variable impact on surgical rates. **CONCLUSIONS:** Significant discrepancy in surgical procedure rates were noted between visible minorities/Indigenous populations and the general population in Canada. These results varied by region. These findings have the potential to advise public health and healthcare policies, with the prospect of improving access and patient outcomes.>

12:05 p.m. - 12:15 p.m.

Placement Technique Predicts Gastrostomy Tube-Related Complications Amongst Head & Neck Cancer Patients – F. Mok, D. Forner, N. Verma, I. Karam, D. Goldstein, J. de Almeida, K. Higgins, D. Enepekides, A. Eskander, Toronto, ON

LEARNING OBJECTIVES

1. At the conclusion of the presentation, participants will have gained knowledge regarding the two main techniques for gastrostomy tube placement. 2. At the conclusion of the presentation, participants will be able to determine the possible complications associated with GT placement and their predictors. 3. At the conclusion of the presentation, participants will be able to discuss stoma metastasis rates.

ABSTRACT

Introduction: Gastrostomy tubes (GT) are essential for providing enteral nutrition in select head and neck cancer patients. Minimally invasive tube placement is achieved through one of two procedures known as the push-type and pull-type techniques. There has been significant contention regarding whether safety profiles of these procedures differ. **Objectives:** Determine predictors of GT-associated complications, including stoma metastasis, infection, and tube-related issues in a cohort of patients undergoing push-type or pull-type GT placement. **Study Design:** Multi-institutional retrospective cohort study of patients between January 1, 2008 and December 31, 2017. Key predictors of stoma metastasis were examined. Multiple logistic regression was used to identify predictors of GT-associated complications with adjustment for placement technique, age, gender, tumor and nodal stages, smoking and drinking statuses, and the presence of diabetes mellitus. **Results:** 1589 patients were included across three institutions. Despite a decreased rate of infection (5.4% versus 13.1%), the rate of stoma metastasis in patients undergoing pull-type GT placement was lower compared to patients undergoing push-type placement (5 (0.4%) versus 0 (0%)). Single-centre data (N=473) demonstrated the push-type technique to be predictive of any GT-associated complication in adjusted analysis (RR = 2.66, 95% CI [1.42, 4.97], $p = 0.022$). T4 disease was also associated with increased complication rates on adjusted analysis (RR = 4.62, 95% CI [1.58, 13.51], $p = 0.0052$). **Conclusions:** The push-type GT placement technique is associated with a greater risk of developing GT-associated complications. While stoma metastases developed only in patients undergoing pull-type placement, metastatic rates were exceedingly low, limiting definite conclusions.

12:15 p.m. - 12:25 p.m.

Psychometric Properties of the Skull Base Inventory Quality of Life Questionnaire in a Multi-Center Prospective Cohort Study of Patients Undergoing Open and Endoscopic Skull Base Surgery – D. Forner, K. Hueniken, T. Yoannidis, I. Witterick, E. Monteiro, A. Vescan, H.G. Zadeh, P. Gullane, C. Snyderman, J. de Almeida, Toronto, ON

LEARNING OBJECTIVES

1. At the end of this presentation, participants will have an understanding of the current issues in quality of life in patients undergoing skull base surgery. 2. At the end of this presentation, participants will have gained knowledge in how to accurately assess quality of life with the Skull Base Inventory in patients undergoing skull base surgery. 3. At the end of this presentation, participants will have learned of the psychometric properties of the Skull Base Inventory.

ABSTRACT

Background: The Skull Base Inventory (SBI) was developed to better assess quality of life (QOL) in patients with anterior and central skull base neoplasms treated by endoscopic and open approaches. This is the first study to assess the psychometric properties of the SBI using a gold-standard prospective design. **Methods:** This study is part of a multi-center, prospective cohort study examining endoscopic and open procedures. The SBI is an 11-domain questionnaire with 41 items, with an additional study-specific item assessing global QOL change (from 'much worse' to 'much better'). Patients also completed the Anterior Skull Base (ASB) questionnaire and the Sinonasal Outcome Test (SNOT-22). **Results:** One hundred eighty-seven patients were included across five centers, with 121 having an endoscopic procedure. Internal consistency (Cronbach's $\alpha = 0.95$) and test-retest at 12-months and 12-months plus 2 weeks (intraclass correlation < 0.90) were excellent. Concurrent validity was demonstrated by very strong correlation between total SBI scores and ASB scores ($r = 0.810$ to 0.869 , $p < 0.001$), and moderate correlation between nasal domain SBI scores and SNOT-22 scores ($r = -0.616$ to -0.738 , $p < 0.001$). Convergent validity was demonstrated by moderate correlation between change in SBI scores and global QOL change ($r_s = 0.4942$, $p < 0.001$). The minimally important clinical difference (global QOL change of 'a little better' or 'a little worse') was 6.0. **Conclusion:** The SBI

questionnaire is reliable and valid for patients treated by both endoscopic and open approaches and can be used for assessment of QOL in this setting.

12:25 p.m. - 12:35 p.m.

Quality Indicators for the Diagnosis and Management of Acute Otitis Media in Children – J. Cottrell, P. Campisi, Toronto, ON, N. Chadha, Vancouver, BC, P. Hong, Halifax, NS, L. Nguyen, Montreal, QC, J. Strychowsky, London, ON, W. Yunker, Calgary, AB, J.-P. Vaccani, Ottawa, ON, E. Monteiro, Toronto, ON

LEARNING OBJECTIVES

1. By the end of this session, Otolaryngology - Head and Neck Surgeons will have a better understanding of how quality indicators are developed and their role in quality improvement initiatives. 2. By the end of this session, Otolaryngology - Head and Neck Surgeons will learn eight quality indicators that can be utilized within their practice or institution to improve the quality of care provided to pediatric patients with acute otitis media.

ABSTRACT

Introduction: The high incidence of pediatric acute otitis media (AOM) lends importance to the societal implications of overdiagnosis and overtreatment. Quality indicators (QIs) are a tool that serve multiple purposes in quality improvement including documenting the quality of care, comparing institutions and providers, prioritizing quality improvement initiatives, and supporting accountability, regulation, and accreditation processes. As such, pediatric AOM QIs were developed to build a foundation for future quality improvement efforts. **Methods:** A guideline-based approach, proposed by Kotter et al. (2012) was utilized. Candidate Indicators (CIs) were extracted from guidelines deemed high quality using the Appraisal of Guidelines for Research and Evaluation II (AGREE II) tool. Each CI and its supporting evidence were summarized and reviewed by an eleven-member expert panel consisting of otolaryngology - head and neck surgeons, a pediatrician, and family physician based on their validity, reliability, and feasibility of measurement. Final QIs were selected from CIs utilizing the modified RAND/UCLA appropriateness methodology. **Results:** Twenty-four CIs were identified from the literature review. After the first round of evaluations, the expert panel agreed upon four QIs, with four additional CIs suggested for consideration. After an expert panel meeting and subsequent second round of evaluations the panel agreed upon eight final QIs as appropriate measures of high-quality care. **Conclusions:** Evidence of variable and suboptimal care persists in the diagnosis and management of pediatric AOM despite the existence of high-quality guidelines. This study proposes eight QIs meant to serve as a foundation for future quality improvement initiatives that improve patient outcomes.

12:45 p.m. - 12:55 p.m.

Safety of Outpatient Thyroid Surgery in Canada: A Multicenter Retrospective Cohort Study – J. Reid, J. Pyne, R. LeBlanc, T. Hudson, Edmonton, AB, M. Hier, R. Payne, Montreal, QC, V. Biron, D. O'Connell, H. Seikaly, J. Harris, Edmonton, AB

LEARNING OBJECTIVES

To determine whether outpatient thyroid surgery is safe. To allow Otolaryngologists-Head & Neck Surgeons to compare the safety of outpatient thyroid surgery in Canada to that of other nations.

ABSTRACT

Background: Thyroid surgery has historically been performed on an inpatient basis to mitigate the risk of airway compromise from postoperative hemorrhage or recurrent laryngeal nerve (RLN) injury. However, inpatient stay is costly and exposes patients to additional risks. Outpatient thyroid surgery has been shown in the United States to be safe, but Canadian data is lacking. **Objective:** We hypothesize that outpatient thyroid surgery in Canada has low rates of readmission, re-operation and complications. **Methods:** Patients undergoing at least hemi-thyroidectomy between 2011 and 2019 were identified by retrospective review of 5 high-volume thyroid surgeons' lists at tertiary centers in Edmonton and Montreal. Data was collected retrospectively from health records. Patients selected for outpatient thyroid surgery based on institutional guidelines were included. Those scheduled for an inpatient procedure were excluded. Descriptive statistical analysis was performed using SPSS. **Results:** The records of 444 patients at tertiary centers in Edmonton and Montreal were searched. Sixty-seven patients were scheduled for outpatient surgery, but one (1.5%) was admitted before discharge. No patients required readmission or re-operation. Seven patients had an emergency room visit within 30 days (10.4%), 3 of which (43%) were unrelated to the surgery. Two patients (3.0%) had post-operative complications, one with RLN injury (1.5%) and one with hematoma that was managed conservatively (1.5%). **Conclusions:** With low rates of readmission, reoperation and complications, the results from this large multicenter cohort suggest that outpatient thyroid surgery in Canada is safe among high-volume thyroid surgeons in patients who meet institutional criteria.

12:55 p.m. - 01:05 p.m.

The CardinalSim Virtual Reality Temporal Bone Surgical Simulator: A National Face and Content Validity Study – E. Compton, Calgary, AB, S. Agrawal, H. Ladak, London, ON, S. Chan, M. Hoy, S. Nakoneshny, Calgary, AB, L. Siegel, London, ON, J. Lui, Toronto, ON, J. Dort, Calgary, AB

LEARNING OBJECTIVES

Describe the utility and realism of a virtual reality temporal bone drilling platform, CardinalSim; Be able to describe the potential benefits of adding CardinalSim to a residency program.

ABSTRACT

Background: Trainees in the field of Otolaryngology-Head and Neck Surgery (OHNS) must gain proficiency in a variety of challenging temporal bone surgical techniques. Traditional teaching has relied on the use of cadavers, which is resource-intensive, and limits repeated practice. CardinalSim is a virtual reality (VR) temporal bone surgical simulator that offers a high-quality, inexpensive adjunct to traditional teaching methods. The objective of this study was to establish the face and content validity of CardinalSim through a national study. **Methods:** Otolaryngologists and resident trainees from across Canada were recruited to evaluate CardinalSim. A face and content validity questionnaire was distributed to participants following simulator use. Descriptive statistics were used to quantify questionnaire results. **Results:** Sixty-two participants from thirteen different OHNS residency programs were included in the study (32 attending otolaryngologists and 30 resident trainees). Face validity (realism) was achieved for 5 out of 7 domains, while content validity (usefulness) was achieved for 5 out of 6 domains. There were significant differences in responses between otolaryngologists and trainees for the realism of ergonomics ($p=0.002$) and whether CardinalSim could be used to teach drilling technique ($p=0.011$). Respondents universally agreed CardinalSim could be used for resident assessment in temporal bone surgery. Additionally, the global rating scores and overall attitudes towards CardinalSim were universally positive. Open-ended questions identified simulator limitations. **Conclusion:** Having met acceptable criteria for face and content validity, CardinalSim is positioned to enhance OHNS residency training and revamp preoperative rehearsal with patient-specific simulation.

01:05 p.m. - 01:15 p.m.

The Effect of Tongue-tie Release on Speech Sound Articulation in Children Presenting with Speech Concerns – J. Melong, E. Dellapina, P. Hong, Halifax, NS

LEARNING OBJECTIVES

1. Review the possible impact of ankyloglossia and the proposed effect of ankyloglossia on speech. 2. Review current evidence for tongue-tie release on speech outcomes. 3. Discuss the results of our current study and its implications for practice.

ABSTRACT

Introduction: The impact of ankyloglossia on speech and need for surgery has been controversial. The purpose of this study was to assess whether ankyloglossia can influence speech in children and determine the effect of tongue-tie release on speech articulation and intelligibility. **Methods:** New patients (<2 years old) referred for speech concerns perceived to be due to ankyloglossia were recruited at a pediatric otolaryngology clinic and speech was formally assessed by a speech-language pathologist using the Goldman-Fristoe Test of Articulation 2 (GFTA-2). Following evaluation, patients underwent tongue-tie release and were seen in follow-up to reassess speech with the GFTA-2. All sessions were audio-recorded and evaluated by five independent reviewers to assess speech intelligibility. **Results:** Twenty-five patients were included in the final analysis (mean age 3.7 years; 20 boys). At initial assessment, the most common speech errors identified were phonological substitutions (80%) and gliding errors (56%). Seven children (28%) had abnormal lingual-alveolar/interdental sounds. Most speech errors (87.9%) were considered developmentally appropriate. All children underwent uneventful tongue-tie release. GFTA-2 standard scores before and after tongue-tie release were 85.61 (SD 9.75) and 87.54 (SD 10.21), respectively ($p=0.5$). Mean intelligibility scores before and after tongue-tie release were 3.15 (SD 0.22) and 3.21 (SD 0.31), respectively ($p=0.43$). **Conclusion:** The majority of speech errors were considered to be age and developmentally appropriate at presentation. Ankyloglossia was not associated with isolated tongue mobility related speech articulation errors. There was no benefit of tongue-tie release in improving speech articulation or intelligibility.

01:15 p.m. - 01:25 p.m.

The Impact of Immigration Status and Ethnicity on Head and Neck Cancer Outcomes: A Population Based Study – C. Noel, R. Sutradhar, Q. Li, M. Cheung, S. Singh, N. Coburn, A. Eskander, Toronto, ON

LEARNING OBJECTIVES

1. To briefly review the US literature on ethnicity and immigration as a risk factor for HNC and how it is likely not applicable to Canada or other systems with universal health insurance. 2. To highlight the impact of immigration on HNC outcomes in Ontario. 3. To discuss the impact of Chinese and South Asian ethnicity on HNC outcomes, independent of immigration status.

ABSTRACT

Introduction: Head and neck cancer (HNC) incidence varies worldwide though it remains one of the most common cancers in East Asia and South Asia. We sought to determine the impact of Chinese and South Asian ethnicity, independent of immigration status, on HNC incidence and survival. **Methods:** This was a population-based retrospective matched cohort study using Ontario administrative databases between 1994-2017. Incident cancer cases were captured in Canadian born Chinese and South Asian individuals, Chinese and South Asian immigrants, as well as the general Ontario reference population. Cox proportional hazard models were used to estimate the impact of ethnicity on HNC incidence and survival, after adjusting for explanatory variables. **Results:** This study followed 3,328,434 matched individuals, over which 27,788 independent HNC diagnoses were made. After adjustment, the rate of time to incident HNC diagnosis was higher for Chinese individuals (hazard ratio[HR], 1.62; 95%CI 1.45-1.82) and South Asian individuals (HR, 1.37; 95%CI 1.19-1.58) though lower for immigrant populations (HR, 0.50; 95%CI 0.46-0.54). The HR for incident diagnosis of oropharynx cancer was lower in immigrants compared to non-immigrants (0.26, 95%CI 0.22-0.31). There was no difference in the incidence of nasopharynx cancer when comparing immigrants and non-immigrants of Chinese ethnicity ($p=0.99$). For those diagnosed with HNC, the adjusted rate of all-cause mortality was lower for immigrants than

for non-immigrants(HR 0.76 95%CI 0.69-0.83). **Conclusion:** Chinese and South Asian ethnic groups experience higher cancer incidence when compared with the general population. Immigration status appears to offer a protective affect against an incident diagnosis of HNC, as well as a survival advantage.

01:35 p.m. - 01:45 p.m.

The Relationship Between Lymph Node Ratio and Depth of Invasion in cN0 Oral Tongue Squamous Cell Carcinoma – M. Xie, Hamilton, ON, H. Seikaly, J. Harris, D. O’Connell, V. Biron, Edmonton, AB, B.S. Jackson, M. Gupta, S. Archibald, T. Young, H. Zhang, Hamilton, ON

LEARNING OBJECTIVES

Understand the role of depth and invasion and lymph node ratio in risk stratification and treatment decision making for oral tongue SCC. Understand the association between depth of invasion and lymph node ratio in cN0 oral tongue SCC

ABSTRACT

Background: Risk stratification of patients with oral tongue squamous cell carcinoma (OTSCC) and a clinically negative neck (cN0) remains suboptimal. Recent clinical data highlight the prognostic importance of primary tumor depth of invasion (DOI) and lymph node ratio (LNR). Although preliminary evidence suggests an association between DOI and LNR, the relationship has not been fully characterized within the cN0 population. **Objective:** To examine the relationship between DOI and LNR in cN0 OTSCC undergoing elective neck dissection. **Methods:** This study was a retrospective review of a combined prospective database from McMaster University and University of Alberta. Newly diagnosed OTSCC patients receiving primary surgical treatment from 2004-2014 were identified. Inclusion criteria included age \geq 18 years old, pathological diagnosis of OTSCC (cT1-4, cN0) and available histopathological data. Exclusion criteria included palliative intent or previous head and neck surgery/radiotherapy. Primary outcome was the association between DOI subgroups $<$ 5mm, 5-9.9mm, 10-19.9mm, and \geq 20mm and LNR. **Results:** Overall 266 OTSCC patients were included. The mean age was 60.45 and mean follow-up was 58 months. The mean number of dissected nodes were 33.06, with pN0 67%, pN1 9%, pN2a 4.5%, pN2b 18%, and pN2c 4.5%. The median LNR was 5.4 (range 0-16.67), 27% had extracapsular extension (ECS), 34.8% had perineural invasion, and 30.4% had lymphovascular invasion. On multivariate analysis DOI ($p<$ 0.001) and ECS ($p=$ 0.015) were predictors of high LNR. **Conclusion:** Higher LNR is associated with higher DOI in OTSCC patients. Consideration should be given towards more aggressive adjuvant therapy for these patients in future trials.

01:45 p.m. - 01:55 p.m.

A Retrospective Study of the Natural History of the Thyroid Nodules with Indeterminate Cytopathology– S. Hamilton, D. MacNeil, K. Fung, A. Nichols, J. Yoo M. Weir, C. Zeman-Pocrnich, London, ON, E. Aleska, Sudbury, ON

LEARNING OBJECTIVES N/A

ABSTRACT N/A

01:55 p.m. - 02:05 p.m.

Utility of Droplet Digital Polymerase Chain Reaction for TERT and BRAF Mutational Profiling of Thyroid Nodules– B. Rosvall, M. Kostiuik, A. Matkin, J. Williams, D. O’Connell, J. Harris, H. Seikaly, V. Biron, Edmonton, AB

LEARNING OBJECTIVES

1. By the end of this session, participants will understand the utility of molecular testing in thyroid cancer. 2. By the end of this session, participants will appreciate the benefits of droplet digital PCR over traditional PCR. 3. By the end of this session, participants will appreciate the utility of BRAFV600E and TERT in improving the diagnostic accuracy of thyroid fine needle aspirate biopsy.

ABSTRACT

Background: Mutations involving BRAF and TERT are important predictors of disease severity in thyroid cancer, but pre-operative molecular testing is limited by cost and lack of adequate tissue sample. Droplet digital PCR (ddPCR) is an ultrasensitive method of detecting gene targets, with advantages over other molecular techniques in specimen containing low amounts of nucleic acid. This study aimed to assess the utility of BRAFV600E and TERT ddPCR testing as a diagnostic adjunct for thyroid fine needle aspirate biopsy (FNAB). **Methods:** Patients with thyroid nodules meeting indication for FNAB were prospectively enrolled from March 2015 to September 2018. Pre-operative FNAB was collected for standard cytology and molecular testing. BRAFV600E and TERT levels were analyzed by ddPCR. Cytology (Bethesda system) and ddPCR results were correlated to final surgical pathology. **Results:** A total of 210 patients were prospectively enrolled, of which 112 received thyroid surgery. Pre-operative cytology alone with Bethesda \neq 5 was 100% specific and 65.5% sensitive for malignancy on final surgical pathology. FNAB ddPCR results showing BRAFV600E or TERT positivity was 100% specific and 60.7% sensitive. Combining cytology (Bethesda \neq 5) with BRAFV600E and TERT testing increased the sensitivity of a malignant diagnosis to 75.9%. High TERT levels or dual positivity for TERT and BRAFV600E was associated with aggressive or advanced stage pathology. **Conclusions:** Combining cytology with ddPCR analysis of BRAFV600E and TERT can improve the diagnostic accuracy of thyroid FNABs.

02:05 p.m. - 02:15 p.m.

Visual Biofeedback for Treatment of Paradoxical Vocal Fold Motion – R. LeBlanc, M. Boonstra, M. Quinlan, A. Seibel, D. Aalto, C. Jeffery, Edmonton, AB

LEARNING OBJECTIVES

1) To assess the change in subjective Dyspnea Index scores pre- and post- routine biofeedback therapy over time. 2) To measure the change in bronchodilator and corticosteroid use pre- and 2-month post-routine biofeedback therapy.

ABSTRACT

Paradoxical vocal fold motion (PVFM) is a common condition where the vocal cords come together instead of apart during breathing. This results in shortness of breath and occasionally significant distress. Since the condition is primarily functional, behavioural therapy and visual feedback are considered mainstays in therapy. However, prospective studies examining the efficacy of these modalities is lacking. This is a prospective, non-randomized clinical study. Patients were excluded if they presented in acute distress, had alternate diagnosis to explain their breathing issues, or coexisting airway or lung pathologies. Visual biofeedback was performed. Based on a minimally clinically important difference (MCID) of 8 points on the dyspnea index, a sample size of at least 20 patients is needed. Basic descriptive statistics were performed for patient demographics. A paired sample t-test and Wilcoxon signed-rank test were used to compare pre and post-measures of dyspnea index scores, and bronchodilator use. Twenty patients with PVFM have been enrolled in the study. The Wilcoxon signed-rank test was used to compare the difference in bronchodilator use and showed a reduction in early results ($Z = 3.29, p = 0.001$). The paired t-test of dyspnea index for ten patients from baseline to follow up testing showed significant improvement in symptoms. ($t(9)=4.69, p = 0.001$). This is a prospective study that evaluates the potential role of visual biofeedback in managing patients with PVFM. Our early data suggests that visual biofeedback effectively reduces subjective symptoms of shortness of breath when using the dyspnea index for evaluation.