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Analysis of true- and false-positive results for abnormal vocal fold uptake in positron emission tomography/computed tomography

N Seymour

From the Brighton and Sussex University Hospital NHS Trust, Brighton

Objectives

Positron emission tomography/computed tomography (PET/CT) has a major role in the investigation of head and neck cancers. Interpretation difficulties of PET/CT scans are common, producing false-positive results (Purohit *et al.*, 2014). This study aimed to investigate patients detected as having abnormal vocal fold uptake during PET/CT.

Methods

We identified PET/CT scans, conducted over 15 months, in which reports contained evidence of laryngeal pathology. Patient notes and laryngoscopy findings were analysed. Standardised uptake values of the vocal folds were statistically analysed.

Results

Forty-six patients were identified as having abnormal vocal fold uptake. Sixty-one per cent had true-positive PET/CT scan findings and 39 per cent of patients had false-positive results. There was a statistically significant difference between the standardised uptake values of the true- and false-positive findings on laryngoscopy.

Conclusion

The majority of patients referred to ENT because of abnormal findings on PET/CT scans had true-positive findings. Abnormal 18 F-Fluorodeoxyglucose uptake should raise suspicion of vocal fold pathology, accepting a false-positive rate of approximately 40 per cent.

Evaluating nasal cautery techniques in epistaxis

C Saxby¹, P Coyle², G Mochloulis²

From the ¹Lister Hospital, Stevenage, and ²Stevenage Hospital

Introduction

Silver nitrate and bipolar diathermy are commonly used in the treatment of epistaxis. There are no recommendations regarding optimum application time or wattage.

Aim

To examine the depth of burn achieved with silver nitrate and bipolar diathermy on porcine septum at varying contact times and wattage.

Methods

Silver nitrate and bipolar diathermy (varying wattage) were applied to porcine septum for pre-determined times. The depth of burn was measured. A national survey was conducted of ENT consultants regarding nasal cautery.

Results

Silver nitrate applied for 5 seconds caused a superficial burn and at 30 seconds caused a partial thickness burn. Bipolar diathermy at 10 W caused a full thickness burn in 78 per cent of the specimens. Of those consultants surveyed, 51.6 per cent applied silver nitrate for 10 seconds or less, and 28.6 per cent set bipolar diathermy at 10 W or higher.

Conclusion

Consultant practice varies widely in the UK. Bipolar diathermy should be set at less than 10 W. Silver nitrate application for up to 30 seconds did not cause a full thickness burn.

Three-dimensional endoscopy – the future of surgical training?

A Nassimzadeh, S Ahmed

From the University Hospital Birmingham

Background

Endoscopic surgery has a distinct disadvantage compared to direct vision, that of loss of binocular vision. Three-dimensional (3D) endoscopy has been welcomed in light of the promise of improving stereopsis.

Methodology

A prospective randomised study was conducted of junior doctors with minimal endoscopic experience, using both two-dimensional and 3D endoscopes. Data were collected using validated, standardised training models, both objectively and subjectively.

Statistical methodology

Paired comparisons between variables relating to the endoscopes were performed using Wilcoxon signed rank tests. Operators were then split into groups based on preference, with comparisons made using Mann–Whitney U tests for the Likert scale responses, Kendall's tau for ordinal variables and Fisher's exact tests for nominal variables.

Results

For 3D endoscopy, there was a reduction of field of vision by 2.38 per cent. Significant findings included decreased pass-pointing, and improved depth and image quality.

Conclusion

The benefits of using an endoscopic endonasal approach with 3D technology are more pronounced in novice users. The findings support the potential tailoring of future surgical training.

The role of the novel cytokine interleukin-35 in the regulation of macrophage-mediated anti-tumour immunity against head and neck cancer

A Al-Hussaini¹, D Owens¹, X Wei²

From the ¹University Hospital of Wales, Cardiff, and ²Cardiff University, Wales

Introduction

Cancer cells have the ability to induce immune tolerance. Head and neck squamous cell carcinoma (SCC) cell lines constitutively express interleukin (IL)-35, and this is up-regulated by tumour necrosis factor (TNF)- α and interferon γ . This study aimed to investigate cytokine secretion in the co-culture of macrophages and dendritic cells with cancer cells.

Methods

Human THP-1 macrophages were co-cultured with human head and neck SCC cell lines (H357, FADU and C1) or their conditioned media, with or without human dendritic KG-1 cells. THP-1 cells were re-stimulated with bacterial endotoxin to determine macrophage phenotype. The production of TNF α , interferon γ , IL-18 and IL-10 were measured by enzyme-linked immunosorbent assay.

Results

The co-culture of THP-1 and KG-1 cells with head and neck SCC conditioned medium stimulated interferon γ production. Co-culture for 5 days resulted in diminished TNF α production by THP-1 cells in response to endotoxin stimulation.

Conclusion

Head and neck cancer cells induce a tolerogenic phenotype in macrophages, which may promote tumour survival.

Determination of the mechanisms by which this occurs may identify novel therapeutic targets.

Allocation of critical care facilities in high-risk adenotonsillectomy cases: a study of 35 paediatric tertiary referral centres in the UK

R C T Cheong¹, P Bowles², S Watts²

From the ¹Broomfield Hospital, Mid Essex Hospital Services NHS Trust, Chelmsford, and ²Brighton and Sussex University Hospitals NHS Trust, Brighton

Background

Published guidance offers criteria for identifying children with obstructive sleep apnoea at high risk of post-operative respiratory complications, and recommends referral to tertiary care for surgery where paediatric critical care facilities are available (Robb, 2009). However, the allocation of critical care facilities for this group of children is less clear, and the practice of peri-operative planning and management varies.

Methods

An 8-point questionnaire, developed using a cloud-based software platform, was sent via a secure server to the clinical leads for paediatric ENT at 35 UK tertiary referral centres.

Results

In 70.6 per cent of UK paediatric tertiary referral centres, 'day of surgery' cancellations for high-risk adenotonsillectomy cases were high because of the unavailability of pre-booked critical care facilities. Our study identifies six variations in the selection criteria applied by tertiary units for identifying which patients may require pre-booked critical care beds.

Conclusion

A consensus statement on best practice for the peri-operative management of high-risk paediatric adenotonsillectomy patients might be beneficial.