Toho Journal of Medicine Vol. 5 No. 2 掲載論文の紹介

Pharyngeal Sensation and Dysphagia in Aspiration Pneumonia
Ebihara S
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要約：

Although the etiology of aspiration pneumonia is multifactorial, there is a strong association between dysphagia and the development of aspiration pneumonia. However, it is still not clear why swallowing function decline with aging. Although recent research focused on dysphagia due to sarcopenia, which was defined as sarcopenic dysphagia, we should pay attention not only to the motor aspect, but also to the sensory aspect of dysphagia. Impaired pharyngeal sensitivity results in a delay of triggering swallowing reflex, which is a most serious problem in dysphagia. It is postulated that sensory receptors located in the pharyngeal mucosa or submucosa are similar to those in glabrous skin. In addition to the mechanoreceptors such as Merkel cell, Ruffini ending, and Meissner and Pacinian corpuscles, another sensory nerve subtype is thought to subserve pruriceptive pain and thermosensation in pharyngeal mucosa. In these free nerve endings, the transient receptor potential (TRP) channels were identified as cellular sensors of temperature and pain. We found that mechanorecptors and thermosensing TRP channels in the pharynx work synergistically to enhance the afferent signal to the swallowing center located at the brainstem. Aging deteriorates pharyngeal sensitivity by affecting sensory receptors, the peripheral nervous system, and microcirculation, resulting in altered detection, reduced sensory conduction, and abnormal efferent response. In addition, pharyngeal sensation is affected by central nervous system deficits. Heretofore, understanding of the molecular mechanism concerning the sense of touch in the pharynx was seriously limited. Mechanisms of touch sensation in the pharynx are, in some parts, similar to those of skin, but there must be differential mechanisms. In order to stratify the treatment of dysphagia, understanding the detailed mechanism of pharyngeal sensation is crucial. Future studies revealing the molecular mechanisms of pharyngeal sensation are warranted to prevent aspiration pneumonia.

KEYWORDS: dysphagia, pharynx, aspiration pneumonia, temperature

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Impact of Cancer on Bleeding and Ischemic Stroke in Atrial Fibrillation Patients Taking Rivaroxaban, a Direct Oral Anticoagulant
Akitsu K, Nakanishi R, Kinoshita T, Yuzawa H, Fujino T, Ikeda T
Toho J Med 5 (2): 40—46, 2019

要約：

Introduction: The impact of cancer in atrial fibrillation (AF) patients who are undergoing anticoagulant therapy is not known because patients with cancer have been excluded from recent randomized clinical trials of direct oral anticoagulants (DOACs) for the prevention of stroke in patients with non-valvular AF (NVAF). Therefore, we examined whether cancer is associated with an increased risk of bleeding or ischemic stroke among patients with NVAF taking the DOAC rivaroxaban.

Methods: We enrolled 564 patients who were prescribed rivaroxaban to manage NVAF between July 2012 and July 2016 at our institution. We used multivariate Cox proportional hazard models to assess the relationship between cancer and the risk of bleeding or ischemic stroke.

Results: Bleeding events occurred in 19 patients (3.4%), including 6 with major bleeding (0.11%). Patients with cancer or cancer history had more bleeding (hazard ratio (HR), 7.23; 95% confidence interval (CI), 2.48-21.09; $P < 0.001$). A lower albumin level (<3.6 mg/dl) indicated a higher tendency for bleeding (HR, 2.87; 95%CI, 0.96-8.57; $P = 0.059$). Nine patients (1.6%) experienced ischemic stroke during therapy; one of them had cancer. The CHA_2DS_2-VASc score was

significantly associated with the incidence of ischemic stroke, whereas comorbidity with cancer was not.

Conclusions: Bleeding events in patients with NVAF treated with rivaroxaban were associated with comorbidity of cancer and a lower albumin level, whereas cancer was not correlated with an increased risk of ischemic stroke. Therefore, caution should be used when prescribing DOACs to patients with cancer or low albumin levels, and we should follow-up for bleeding events closely.

KEYWORDS: DOAC, cancer, atrial fibrillation, bleeding, ischemic stroke

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Comparison of Plasma Levobupivacaine Concentrations Following Single-Shot Thoracic Paravertebral and Retrolaminar Blocks

Sugiura T, Ochiai R

Toho J Med 5（2）: 47—53, 2019

要約：

Introduction: Retrolaminar blocks (RLBs) are effective, easy to perform, and safer than paravertebral blocks (PVBs). However, the pharmacokinetics of RLBs is not well understood. We compared changes in the plasma concentrations of levobupivacaine following a single-shot thoracic PVB or RLB.

Methods: The study protocol was approved by the ethics committee of Tokyo National Medical Center (R 15-135), and the trial was registered in the UMIN Clinical Trials Registry (UMIN000021759). The primary outcome was comparison of plasma levobupivacaine concentrations following single-shot thoracic PVB and RLB. A total of 46 women undergoing partial mastectomy were randomly allocated to receive either a thoracic PVB or RLB. In both groups, 2 mg kg^{-1} levobupivacaine (0.5%) was administered, and blood samples were collected at 5, 10, 20, 60, and 120 min after the injection.

Results: Forty-two patients were analyzed for plasma levobupivacaine concentration, and 30 patients were assessed for pain. The maximum plasma concentration and time to reach the maximum concentration were determined using nonlinear regression analysis and were 1.32 μg ml^{-1} and 9 min in the thoracic PVB group, respectively, and 1.47 μg ml^{-1} and 5.5 min in the RLB group, respectively. The intraoperative opioid consumption did not differ between groups, but the time to the first request for analgesics was significantly shorter for the RLB group ($p = 0.0318$).

Conclusions: The plasma concentration of levobupivacaine peaked earlier in the RLB group than in the thoracic PVB group. Therefore, local anesthetic toxicity should be avoided when performing RLB.

KEYWORDS: mastectomy, segmental, nerve block, pain, postoperative

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Antithrombotic Agents are not Associated with Outcomes of Diverticular Bleeding but Prolonged the Length of Hospital Stay

Ishii T, Sasaki Y, Maeda T, Komatsu F, Suzuki T, Urita Y

Toho J Med 5（2）: 54—61, 2019

要約：

Introduction: The prognosis of diverticular bleeding is subject to patient comorbidity and medication although colonic diverticular bleeding stopped spontaneously in 70-90% of cases. The aim of the study is to elucidate the risk factors of diverticular rebleeding and to determine a clinical approach that will achieve better outcomes.

Methods: We evaluated 140 patients admitted with colonic diverticular bleeding, diagnosed by colonoscopy, from 2004 to 2017. We collected clinical information on age, gender, past history of colonic diverticulitis, comorbidities, ongoing medication, diverticula locations, length of hospital stay, whether the patient required red blood cell transfusions, and the presence of stigmata of recent hemorrhage (SRH) observed by colonoscopy.

Results: Frequency analysis revealed that there were no risk factors for recurrent diverticular bleeding both during hospitalization and during outpatient visits after leaving the hospital. There was no significant independent risk factor

for transfusion requirements. The odds ratio for prolonged length of hospital stay was 2:1 for use of antithrombotic drugs and 1:7 for alcohol habits.

Conclusions: Using antithrombotic agents did not affect rebleeding during hospitalization or transfusion requirements in diverticular bleeding, but prolonged the length of hospital stay. This should induce a delay in restarting antithrombotic agents, possibly resulting in poor prognosis of underlying diseases.

KEYWORDS: diverticular bleeding, in-hospital rebleeding, transfusion requirement, antithrombotic agent, length of hospital stay

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Evaluation of Changes in the Neutrophil-Lymphocyte Ratio after *Helicobacter pylori* Eradication

Ishii T, Sasaki Y, Komatsu F, Kijima S, Maeda T, Urita Y

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要約：

Introduction: Low-grade inflammation is associated with important chronic diseases, such as diabetes, cardiovascular disease, and cancer. The neutrophil-lymphocyte ratio (NLR) has been widely used as a biomarker for systemic inflammation. *Helicobacter pylori (H. pylori)* eradication is widely recommended because *H. pylori* causes chronic inflammation and increases the risk of developing peptic ulcers and gastric cancer. The aim of this study was to determine the association between *H. pylori* infection and NLR.

Methods: Forty-four patients undergoing upper endoscopy, rapid urease test, and routine blood examination were recruited, and 23 of them were evaluated after eradication therapy.

Results: NLR significantly decreased after eradication ($p < 0.01$). The NLR values were 2.16 ± 0.97 and 1.72 ± 0.65 at baseline and 2 months after eradication, respectively. There was no significant difference in the grade of atrophic gastritis, presence of peptic ulcers, hyperplastic polyps, sex, and age between the patient groups. NLR significantly reduced after *H. pylori* eradication, and an increase in NLR might depend on systemic inflammation induced by *H. pylori* infection to a certain degree.

Conclusions: Changes in NLR might provide additional information to confirm *H. pylori* eradication.

KEYWORDS: neutrophil-lymphocyte ratio, *Helicobacter pylori*, chronic inflammation, eradication therapy

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Spontaneous Rupture of an Intracranial Epidermoid Cyst

Sakaeyama Y, Masuda H, Kondo K, Harada N, Sugo N, Nemoto M

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要約：

Background: Ruptured epidermoid cysts can cause aseptic meningitis, but spontaneous rupture is very rare. We report a case of spontaneous rupture of an intracranial epidermal cyst. Case presentation: A 44-year-old man developed occipitalgia and neck pain seven months ago. A brain tumor was detected on computed tomography, but was only followed up. After his headaches worsened, he visited our hospital. The tumor was located in the parasellar region with multiple small lesions in the sylvian fissure. We diagnosed it as a spontaneous ruptured epidermoid cyst and performed tumor resection. The patient did not develop fever or headache after surgery, and the postoperative course was uneventful. Nineteen months after surgery, the tumor has not relapsed. Conclusion: We treated a case of spontaneous rupture of an intracranial epidermal cyst. Since the risk of recurrence increases when the capsule remains, aggressive removal is suggested.

KEYWORDS: epidermoid cysts, spontaneous rupture, aseptic meningitis

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Contribution of Adequate Preoperative Circulatory Management to Uneventful Perioperative Course of Transurethral Resection of a Bladder Tumor for a Patient with Hypertrophic Obstructive Cardiomyopathy

Kimura H, Sugano T, Uzawa M, Kimura R, Sato K, Koda K, Kitamura T

Toho J Med 5（2）: 76—83, 2019

要約：

In noncardiac surgery for patients with hypertrophic obstructive cardiomyopathy (HOCM), there is no safety criterion of the left ventricular outflow tract (LVOT) gradient and no standardized anesthetic management. Transurethral resection of bladder tumor (TUR-Bt) was scheduled for a 67-year-old man with HOCM. Because the LVOT gradient at rest was 81 mmHg, we postponed the surgery and initiated preoperative pharmacological therapy for HOCM using carvedilol and cibenzoline. The LVOT gradient at rest decreased to 41 mmHg, and then TUR-Bt was rescheduled. Spinal anesthesia in combination with obturator nerve block was chosen for anesthetic management, and arterial blood pressure was continuously monitored. The surgery and postoperative course were uneventful. After the surgery, the patient underwent percutaneous transluminal septal myocardial ablation (PTSMA), by which the LVOT gradient at rest decreased to 3 mmHg. We suppose that adequate control of the LVOT gradient is essential in the management of noncardiac surgery for patients with HOCM.

KEYWORDS: diastolic left ventricular dysfunction, hypertrophic obstructive cardiomyopathy, left ventricular outflow tract gradient, perioperative management, systolic anterior motion of the anterior mitral valve leaflet