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Toho Journal of Medicine Vol. 4 No. 3 掲載論文の紹介

Investigating the Mechanisms of Alcohol-induced Asthma

Matsuse H, Yamagishi T, Kodaka N, Nakano C

Toho J Med 4 (3): 83—89, 2018

要約 :

Introduction: The purpose of the present study was to determine the mechanisms of alcohol-induced asthma.

Methods: Oral ethanol provocation test was performed in Japanese asthmatics to measure pulmonary function, blood ethanol, acetaldehyde and histamine. Acetaldehyde dehydrogenase 2 (ALDH2) genotype was determined by polymerase chain reaction (PCR) and ethanol patch test. Human bronchi and mast cells were stimulated with acetaldehyde in vitro. Pure ethanol was orally administered to ALDH2-deficient mice to determine the plasma concentrations of ethanol, acetaldehyde, histamine, and enhanced pause (Penh) values. Mite allergen-sensitized mice were inoculated with intranasal acetaldehyde.

Results: Approximately half asthmatic subjects developed bronchoconstriction with concomitant increases in blood acetaldehyde and histamine, which was associated with genetically reduced ALDH2 activities. In vitro acetaldehyde stimulation induces bronchoconstriction and degranulation of human mast cells. ALDH2-deficient mice caused bronchoconstriction following oral ethanol provocation. Acetaldehyde also induced granulocytes macrophage colony stimulating factor (GM-CSF) production and nuclear factor (NF)- κ B activation in human bronchi and deteriorated mite allergen-sensitized inflammation in a murine model of asthma.

Conclusions: Acetaldehyde has potential effects on human airway by two distinct mechanisms. As a metabolite of alcohol, its elevation following alcohol consumption induces airway mast cells to release histamine, which results in exacerbation of asthma in susceptible populations. As an air pollutant contained in products such as cigarette smoke, its inhalation potentially exacerbates airway inflammation.

KEYWORDS: alcohol-induced asthma, acetaldehyde, acetaldehyde dehydrogenase (ALDH) 2, histamine, mast cell

Impact of Immunological and Biochemical Parameters of Intake of *Agaricus Blazei Murill* (ABM) on Patients after Esophageal or Gastric Cancer Surgery

Oshima Y, Nanami T, Suzuki T, Yajima S, Shiratori F, Funahashi K, Shimada H

Toho J Med 4 (3): 90—94, 2018

要約 :

Introduction: While many cancer patients are using complementary and alternative medicine, few clinical trials have evaluated its effectiveness. In this study, we aimed to evaluate the clinical significance of *Agaricus Blazei Murill* (ABM) on patients after radical surgery.

Methods: A total of 30 patients with esophageal cancer or gastric cancer were enrolled. ABM were taken orally 50 ml per pack twice a day for one month. Changes of Natural Killer cell (NK cell) activity, neutrophil lymphocyte ratio (NLR), platelet lymphocyte ratio (PLR), Onodera's prognostic nutritional index (PNI), and various blood biochemistry were compared before and after ABM intake. Adverse events were assessed by Common Terminology Criteria for Adverse Events (CTCAE) v4.0.

Results: Red blood cell count and hematocrit decreased before and after intake of ABM, and potassium and CRP increased. No statistical differences were observed in NK cell activity, NLR, PLR, PNI before and after ABM intake. No severe adverse event was observed by ABM intake.

Conclusions: These results suggest that one month ABM intake on patients after radical surgery for esophageal can-

cer and gastric cancer does not affect immunological nor biochemical parameters.

KEYWORDS: complementary and alternative medicine, *Agaricus Blazei Murill*, esophageal cancer, gastric cancer

Survey of Patients Receiving Treatment at a Fertility Treatment Clinic Regarding Anxiety Toward Treatment

Nishida Y, Minoura S, Segawa T

Toho J Med 4 (3): 95—102, 2018

要約 :

Introduction: It is considered important understanding of the fertility treatment recipients to support them. Bearing it in mind, we surveyed patients on their initial visit to a clinic specializing in fertility treatment to clarify how medical personnel can best support these patients through understanding stressors and physical and mental burdens.

Methods: Participants comprised 150 (targeting) patients being examined for the first time at Shinbashi Yume Clinic between March and June 2015. Surveys were conducted using an anonymous self-completed questionnaire. Survey including patients' age, hope for pregnancy, anxiety toward fertility treatment, etc. were conducted.

Results: Responses were received from 121 women (response rate, 80.6%). In statistical analyses, values of $p < 0.05$ from χ^2 tests were taken as statistically significant.

The most common factor elicited for distress or impairment was “age” in the ≥ 40 -year-old group ($p < 0.05$). Responses of “economic burden” were the most common in patients who “did not want to become pregnant soon after marriage” ($p < 0.05$). In this study, $>70\%$ of women surveyed were ≥ 35 years old, and $>60\%$ were employed. This is predicted to be related to the declining working population as society ages and fewer children are born. In actual clinical practice, many women patients want to balance work and family and have children after working for a certain period or advancing their career, by which point pregnancy has become more difficult.

Conclusions: In this research, we have primarily analyzed impairments and distress among fertility treatment patients. From the research results, it is also suggested the necessity of investigation of the best way to provide support by medical staff including prenatal fertility treatment and sex education.

KEYWORDS: fertility treatment, in vitro fertilization, questionnaire survey, anxiety, age

Measurement of Phosphodiesterase Activity in the Conduction System and Contractile Muscle of the Rat Heart: Evidence of Regional Difference

Cao X, Nakamura Y, Izumi-Nakaseko H, Chiba K, Lubna NJ, Goto A, Hagiwara-Nagasawa M, Ando K, Naito AT, Takahara A, Sugiyama A

Toho J Med 4 (3): 103—106, 2018

要約 :

Given that information regarding the biochemical regulation of cyclic adenosine monophosphate (cyclic AMP)-mediated signal transduction pathway in the atrioventricular node is limited, we quantitatively measured the phosphodiesterase activity in the conduction system and compared it with that in the contractile myocardium of rats by using the enzymatic fluorometric assay with the histochemical method ($n=4$). The phosphodiesterase activities in the atrioventricular node, His bundle, and left ventricular myocardium were 87.9 ± 7.8 , 54.5 ± 2.7 , and 7.8 ± 0.5 pmol/min/mg as cyclic AMP hydrolyzing speed, respectively (mean \pm SE). These regional differences imply that cyclic AMP-mediated signal transduction pathway in the conduction system may be more dynamically regulated than in the contractile myocardium.

KEYWORDS: conduction system, phosphodiesterase activities, enzymatic fluorometric assay, histochemical analysis
