Bitter Taste Receptor and Its Role of Relieving Bronchospasm for the Asthmatics: An Evidence-Based Medicine Update, 2018
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Background and Aims: Bitter taste is sensed by type 2 taste receptors (TAS2Rs) which evoke G-protein cascade to release intracellular calcium and to activate transient receptor potential M5 (TRPM5) then stimulate vagal sensory fibre to complete communication with the brain. Two TAS2R agonists (chloroquine, quinine) inhibited mitogen-induced ASM growth for about 60% to 70% (P. Sharma 2016, LoE[S]). Most highly expressed ASM growth for about 60% to 70% (P. Sharma 2016, LoE[S])(level of evidence). Airway smooth muscle (ASM) relaxed by TAS2R agonists was observed under cryopreserved human precision-cut lung slices (hPCLSl)(as a robust bioassay (Bai Y. 2016, LoE[S]).

Methods: An EBM-based survey in Pubmed by searching keywords “bitter taste receptor”, “asthma”, “airway smooth muscle”, limited in English language and human study, published date between 2016/Jan/1 to 2018/Apr/30 was done. EBM level is followed the Oxford centre for EBM 2011 edition.

Results: HEK-293T cell surface TAS2R14 expression increased by ~5-fold when β2-adrenergic receptors were co-expressed and, with a prolonged β-agonist exposure, TAS2R14 internalized (Kim D. 2016, LoE[S]). Using Phospholipid-specific phospholipase C (PLC) inhibitor, researchers found calcium mobilized through the Quinine-T2R-Gai1-PLC pathway (Jaggupilli A. 2017, LoE[S]). Most highly expressed ASM and the absence of airway smooth muscle for about 60% to 70% (P. Sharma 2016, LoE[S]).

Conclusion: The situation of asthma exacerbation so healthcare provider should be concerned for asthma exacerbation management effectively.

THE CHANGE OF NASAL RESISTANCE AT THE ACUTE NASAL CHALLENGE WITH COLD AIR IN ASTHMATICS WITH COLD AIRWAY HYPERRESPONSIVENESS
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Background and Aims: Cold airway hyperresponsiveness (CAH) is quite common for asthmatics and associated with TRPM8-dependent genetic predisposition (Naumov D. et al. Respirology 2017; 22, Suppl. 3:93–94, doi: 10.1111/resp.12307_20). It is diagnosed when the FEV1 falls more than 10% after a test with isocapnic hyperventilation of cold air through the mouth. We aimed to assess the influence of cold air on the nasal resistance in asthmatics with CAH at the acute nasal provocation with cold air.

Methods: In 18 subjects with mild asthma (mean age 38 ± 3 years; FEV1 = 96. ± 5% of predicted) with CAH (the drop of FEV1 after 3-min isocapnic hyperventilation through the mouth with cold (−20°C) air was on average -16 ± 9%) the nasal breathing was assessed at frontal rhinomanometry and FEV1 change was measured by spirometry before and after nasal test with 3-minute isocapnic hyperventilation with cold air.

Results: Initially all the subjects had a higher nasal resistance to the airflow under the pressure 150 Pa (R150): on average in the group on the right-hand side (R) it was 0.8 ± 0.13, and on the left-hand side (L) it was 0.6 ± 0.13 Pa/(mL/s). After 3-minute isocapnic hyperventilation with cold air through the nose the nasal resistance grew: Rr till 1.5 ± 0.2 Pa/(mL/s) (P = 0.047), Rl till 1. ± 0.30 Pa/(mL/s) (P = 0.32). In 4 subjects the nasal provocation with cold air led to the sudden obstruction of nasal breathing and the absence of airflow during 30 minutes. A significant drop of FEV1 after nasal provocation with cold air was registered in 4 out of 18 subjects. On average in the group the change of FEV1 was -4. ± 1%.

Conclusion: An acute nasal provocation with cold air leads to the increase of the nasal resistance in asthmatics with CAH and in each fifth patient to significant drop of FEV1.

POLY-UNSATURATED FATTY ACIDS METABOLICOMICS STUDY REVEALS CHILDHOOD SERUM HETES LEVELS CLOSELY RELATED TO GLUTATHIONE PEROXIDASES IN ALLERGIC ASTHMA
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Background and Aims: Asthma is one of the most common chronic diseases in childhood and is the leading causes of morbidity. The prevalence of asthma disease has been increased rapidly in western and industrialized countries. It was reported that poly-unsaturated fatty acids (PUFAs), such as HETEs, were associated with the development of asthma disease. As well, Glutathione peroxidases (Gpx) and...
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Background and Aims: Resolvin E series are derived from the omega-3 fatty acid eicosapentaenoic acid (EPA) and act as potent pro-resolving mediators of inflammation. Resolvin E3 (RvE3) is a novel lipid mediator recently identified as a member of the Resolvin E series, though the role of RvE3 for asthmatic inflammation is unknown. We investigated the role of RvE3 in a model of house dust mite (HDM) -induced eosinophilic airway inflammation in mice. 

Methods: Allergic airway inflammation was induced by House dust mite (HDM) sensitization and challenge (Day 0–2, 14–17) in BALB/c mice. After the last HDM challenge (Days 17, 18), RvE3 was administrated intraperitoneally. Leukocytes from the bronchoalveolar lavage fluid (BALF) were evaluated, and the lung tissue was used for assessment of expression of cytokine in the lung and pathological analysis.

Results: RvE3 treatment significantly decreased the number of total inflammatory cell, eosinophils, and levels of mRNA expression of Th2 cytokine. Histopathological analysis revealed RvE3 improved goblet cell hyperplasia in lung tissue. 

Conclusion: RvE3 can facilitate resolution of allergic airway inflammation by regulating selective cytokines.

EFFECT OF NEBULIZED INHALED TRIPOLIDE IN MOUSE MODEL OF ASTHMA
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Background and Aims: to investigate the effect of nebulized inhaled triptolide to airway inflammation in mouse models of asthma and the feasibility of applying triptolide through nebulized inhalation.

Methods: 24 SPF grade BALB/c female mice were divided into three groups of 8 in each group: Normal Saline Group (NS), Dexamethasone Group (Dex), Triptolide (TP) Group. In the process of sensitizing mice through Ovalbumin + Al(OH)3, animals in each group were treated with nebulized NS, intraperitoneal injection of Dex and nebulized triptolide respectively. Mice were sacrificed after 25 days. Bronchoalveolar lavage fluid (BAL) and lung tissue were then collected, levels of IL6,IL10,IL17,IL23, TGF-β1 were assessed and compared (ELISA). Transcriptional levels of IL-17, RORγt, FoxP3 among lung tissues were also assessed and compared (RT-PCR).

Results: In assessing BAL, the experiments find that there were significant differences (P < 0.01) among levels of IL6, IL10, IL17, IL23, TGF-β1 in the three groups. IL6 level in NS Group is clearly higher than Dex Group and TP Group (P < 0.01). IL17, IL23 and TGF-β1 demonstrate significant difference among the three groups between two means in the following order: Dex Group < TP Group < NS Group (P < 0.01), while IL10 shows the opposite trend among the groups. In assessing transcriptional level of lung tissue cytokines, the experiments find that the Ct value of IL17 in Dex Group was significantly higher than NS Group and TP Group (P < 0.01). Ct value of RORγt demonstrated significant difference among the three groups between two means in the following order: Dex Group > TP Group > NS Group (P < 0.01). Ct value of FoxP3 in NS Group was markedly higher than the other Groups (P < 0.01).

Conclusion: Inhalation of nebulized triptolide can play a role in suppressing airway inflammation. It curbed the levels of cytokine IL6, IL17, IL23, TGF-β1, stimulated the expression of inhibitory cytokines IL10. At the transcriptional level, it decreased Th17 and increased Treg by influencing regulating factors RORγt and FoxP3.

VALIDATION OF RISK FACTORS OF ASTHMA ATTACK QUESTIONNAIRE AMONG MALAYSIAN ADULT ASTHMATIC PATIENTS
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Background and Aims: Identifying the risk factors of an asthma attack and addressing those factors can prevent the asthma-related emergency department visits and hospital admissions. The main objective of this study was to assess the reliability and validity of newly designed risk factors of asthma attack questionnaire among Malaysian adult asthmatic patients.

Methods: This cross-sectional study was conducted at two Respiratory Specialist Clinics in Universiti Teknologi MARA (UiTM), Malaysia. The newly designed questionnaire was translated into Malay language by two independent bilingual experts. The translation process included: forward translation, backward translation, harmonization, cognitive debriefing and proof reading. The content validation was done by three experienced clinical experts; whereas, face validation was carried out by distributing