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Was Histamine toxicity known to Ayurveda & Siddha 5000 years ago?

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ABSTRACT

Histamine was discovered in the year 1910 and subsequently histamine toxicity was reported from several marine foods especially from fish. Detailed research has proved that different species of fishes are known to accumulate large quantity of histamine and the histamine is heat stable. Reason for the histamine toxicity was due to the consumption of fishes with high level of histamine. Ancient systems of medicine such as Ayurveda and Siddha are 5000 years old. Ayurveda and siddha clearly dictates the avoidance of fish by patients who suffer from various diseases such as psoriasis, vitiligo, eczema, urticaria, anemia, duodenal ulcer, irritable bowel syndrome, rheumatoid arthritis etc. In all the above diseases histamine is either the trigger or the cause of the disease, therefore reducing histamine burden is also one of the treatment strategies. Histamine toxicity in fish and sea foods are great concern and the histamine is harmful to many diseases. Ancient siddhars have advised the patients to suffer from various diseases to avoid fish may be due to histamine toxicity. In the light of the present revelation about histamine toxicity in fish and the fish avoidance prescription of Ayurveda and Siddha clearly indicates that the Ayurveda and Siddha scholars were clearly aware of histamine toxicity 5000 years ago. Details are presented in the paper

Keywords: Histamine toxicity, Fish, Siddha / Ayurveda, Tridosha

1. INTRODUCTION

The ancient health care systems of India such as Ayurveda & Siddha have great legacy, tradition, and philosophy. The prescriptions and tit bits of the system fundamentally aimed to address the wellness of mind and body. Ayurveda & Siddha further augurs upon the systemic

corrections within human body, calming the mind and taming the thoughts that makes chaos to human health & wellness [1-3].

Ayurveda pandits and divine Siddhars of ancient India had further emphasized a lot upon self-discipline, importance of strict diet restrictions, dress code to be followed during different seasons, faith in God, respect for elders, trust in vaidyar and his/her treatment etc., for achieving perfect mind- body balance [4-6].

It is well established that even in modern medical science the drugs/surgery only removes the primary etiology but the real healing happens from within in a programmed manner. May be after knowing the above science better than modern medical scientists, Ayush scholars had given greater importance to correct the tridosha imbalance to address various health problems rather than treating human body in compartments such as liver, lungs, spleen etc., Ayush always believes in holistic philosophy and look at human life in toto and the treatment is always directed towards the overall wellness and health.

2. IMPORTANCE OF FOOD RESTRICTIONS IN AYURVEDA & SIDDHA

It's a well-known proverb that the one who eats less lives long. The absolute essence of the above proverb is that the one who eat less shall remain healthy, therefore will live long. The fundamental thathuva and sloka of Ayush is to treat food as medicine. We should not misinterpret or sacrilege the above thathuva as it is against desire for food but the prescription is for one not being a glutton and has enormous urge for food and other worldly pleasures. The modern science has recently proved the above tenet of Ayush after enduring and experiencing several health problems and as a result the health experts have served warnings to prevent the consumption of various junk foods. Obesity, cardio-vascular diseases, over aging, memory loss, rapid tiredness etc. experienced predominantly by the present generation is due to the consumption of imbalanced diet/ junk food. For several medical problems the modern science of today has come up with strict diet restrictions proving the ancient wisdom is sacred & immortal [7].

3. IMPORTANCE OF AVOIDANCE OF FISH IN AYURVEDA & SIDDHA

The inclusion of fish as main or subsidiary food is contra indicated for the following health problems in Ayurveda & Siddha

Ayurveda	Siddha
<ol style="list-style-type: none">1. Kitibha (Psoriasis)2. Shvitra (vitiligo)3. Parinama Shula (Duodenal ulcer)4. Tamaka shwasa (Bronchial asthma)5. Sitapatta (Urticaria)6. Amavata (Rheumatoid arthritis)7. Panduroga (anaemia)	<ol style="list-style-type: none">1. Kalanjagapadai (Psoriasis)2. Karapan (Eczema)3. Santhu Vatha Soolai (Rheumatoid arthritis)4. Eraippu noi (bronchial asthma)5. Nunpuzhukkal (worms parasite)6. Kudal azharachi noi (Irritable bowel syndrome)

4. SCIENCE BEHIND FISH AND OTHER SEA FOOD AVOIDANCE

Until recently several questions have been raised over why fish and other sea foods should be avoided by patients who suffer from various diseases as mentioned in Ayurveda & Siddha literature. The ancient Ayurveda & Siddha literature forbid people from eating fish when they suffer from any of the above diseases but has not given clear explanation for why. Therefore questions and doubts always prevailed over the above instructions of Ayush.

5. HOW DR. JRK'S RESEARCH HAS TURNED THE CLOCK AND UNRAVELED THE SCIENCE BEHIND THE 'WHIP' OF AYUSH

Several scientific studies have proved that almost all species of fishes and many other sea foods are known to accumulate histamine in their body as soon as they are killed. Therefore processing the fish as soon it is captured is very important to avoid/minimize histamine toxicity. It is well established that within minutes after the death of fish and if the fish is left unattended would accumulate large quantity of histamine. Most of the developed countries these days clearly warns histamine toxicity in marine food and have served strict quality norms against histamine toxicity.

6. WHAT IS HISTAMINE?

Histamine is an organic nitrogenous compound released by a group of specialized cells in our body called granulocytes, especially the mast cells. Histamine is involved in the inflammatory process and also acts as mediator of itching. Histamine increases the permeability of the capillaries to white blood cells and some proteins, to allow them to engage in defense. When an allergen or antigen enters into the system the mast cell degranulates and release histamine and other vaso active amines to elicit appropriate immune response to defend the system. However, hyper release of histamine instead of protecting the system can cause harm to the system. Therefore the role of histamine should not be assumed in the parlance of immune defense and in many occasion histamine can be harmful to the system as well.

7. ROLE OF HISTAMINE IN WORSENING VARIOUS DISEASES

7. 1. Psoriasis

Psoriasis is an auto immune disorder of the skin with epidermal hyperplasia and chronic inflammation where tryptase- and chymase-positive MC (TC), mast cells are activated early. Because of the involvement of mast cell and subsequent release of histamine in the pathology of psoriasis and its definite contribution to inflammatory triggers and itching thus the treatment of psoriasis also requires anti-histamine or histamine release modulator [8, 9].

The histamine accumulated sea foods are therefore likely to worsen psoriasis and may even lead to inflammatory flare-up. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

7. 2. Vitiligo

Vitiligo is hypopigmentary disorder of the skin due to loss of melanin. Melanocytes are involved in the pathology however the etiology of the disease is auto-immune. High level of

histamine in the blood of vitiligo patients are observed scientifically by several studies. However its positive role is not clear [10]. When a patient with pre-existing high level of histamine burden in the blood and if such persons consume food which contain high histamine concentration such situation may complicate the disease. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

7. 3. Eczema

Eczema is a medical condition in which patches of skin become rough and inflamed with blisters which cause itching and bleeding. The role of histamine in the pathology of eczema is well known and histamine is responsible for severe itching and inflammatory reaction seen in eczema [11]. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

7. 4. Urticaria

Histamine is known to increase the permeability of small blood vessels, which allows fluid to move from the cells into tissues. This biochemical process would cause swelling and reddening of the urticarial lesions. Hives are always itchy, erythematous due to excess histamine presence [12]. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential

7. 5. Duodenal ulcer

Histamine is known to cause and corrode duodenal ulcer and therefore histamine blockers are widely used as one of the treatment options [13, 14]. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

7. 6. Bronchial asthma

Role of histamine in the trigger, pathology and worsening of bronchial asthma is well known [15]. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

7. 7. Rheumatoid arthritis

Rheumatoid arthritis (RA) is an autoimmune disease occurs due to the continuous presence of inflammation in the synovium resulting in the erosion of the articular cartilage and bone. Synovial mast cells and their effector molecule, histamine, receive increased attention as mediators of joint inflammation. The definite role of histamine in rheumatoid arthritis is still under the debate but considering immune- eliciting property of histamine, histamine rich food may worsen the disease as rheumatoid arthritis is an auto immune disease [16]. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

7. 8. Anemia

Iron deficiency anemia and allergy are linked at the pathological level. Research studies although could not prove whether anemia is due to or as a result of allergy. Role of histamine in allergic disorder is well established [17]. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

7. 9. Worms & parasites

The role of intestinal parasites especially helminthes in causing/triggering various allergic conditions and malnourishments is known. Fish is considered to be one of the cheap sources of nutrients and protein. In the earlier days powerful deworming therapies were not available [18]. When fish was consumed the increased flare-up of allergic reactions would have been observed in several patients therefore Ayush would have suggested such restrictions. The above restriction is quite scientific as fish is known to accumulate high level of histamine. The patient when suffer from intestinal worm infection are likely to have high level of histamine in the blood. A food with high level of histamine would certainly worsen the problem. Therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

7. 10. Irritable bowel syndrome (IBS)

The role of mast cells and histamine in the pathogenesis of irritable bowel syndrome is well known. Histamine blockers and mast cell degranulation inhibitors are explored largely for the treatment of IBS [19]. Considering the role of histamine in the IBS histamine rich food is not desirable therefore the avoidance of fish as instructed in Ayurveda and Siddha is scientific and essential.

11. CONCLUSIONS

The decarboxylation of certain free amino acids, the biogenic amines (organic, basic nitrogenous compounds of low molecular weights) is formed. Biogenic amines- Histamine is largely present in several foods and beverages. The most common food induced intoxications and intolerance caused by biogenic amines is histamine. The high histamine ingestion may cause life threatening complication and lower levels can cause headache, nausea, hot flushes, skin rashes, sweating, respiratory distress, and cardiac and intestinal problems.

The most astonishing aspect of histamine is that histamine is heat resistant. Therefore the level of histamine in the food that are prone to accumulate histamine shall remain unchanged even after cooking whether by pressure cooking, boiling or grilling method is adopted [20]. Therefore avoidance of food that might accumulate histamine should be safest strategy by all those who are vulnerable to histamine and those who suffer from several diseases that are triggered, caused, worsened by histamine.

The discovery of histamine by Sir Henry Hallett Dale happened in the year 1910. As early as 1973 a report of histamine toxicity from tuna fish was available from Central America. Subsequently several cases of histamine toxicity from various sea foods were reported [21].

The ancient Ayurveda and Siddha system of medicines is close to 5000 years of age. The paranormal intelligence shown by Ayurveda and Siddha experts by recommending the avoidance of fish by patients who suffer from certain diseases way back in 5000 years ago when we review in the light of discovery of histamine 1910 with credible proof of its toxicity and its accumulation in fish points towards the absolute possibility of ancient Ayurveda and Siddha scholars having sufficient knowledge about histamine toxicity 5000 years ago. This proves that the ancient Ayurveda and Siddha scholars were not mere mortal being but indeed were God and divine incarnations. This also validates the absolute science of Ayurveda and Siddha.

References

- [1] P. Mukherjee, P. Venkatesh, S. Ponnusankar. Ethnopharmacology and Integrative Medicine – Let the history tell the future. *J Ayurveda Integr Med* 1 (2010) 100-109
- [2] R. Rao. Encyclopedia of Indian Medicine (2nd ed.), Dr. P.V. Parameshvara Charitable Trust, Bangalore, India (1987)
- [3] Chopra, V. Doiphode. Ayurvedic Medicine – Core Concept, Therapeutic Principles, and Current Relevance. *Med Clin North Am* 86 (2002) 75-89
- [4] Atreya. Perfect Balance: Ayurvedic Nutrition for Mind, Body, and Soul. Penguin Penguin Putnam Inc, New York (2002)
- [5] Unnikrishnan, Payyappallimana and Padma Venkata subramanian. Exploring Ayurvedic Knowledge on Food and Health for Providing Innovative Solutions to Contemporary Healthcare. *Front Public Health* 2016; 4: 57
- [6] Jayesh Thakkar, S. Chaudhari and Prasanta K. Sarkar. Ritucharya: Answer to the lifestyle disorders. *Ayu*. 2011 Oct-Dec 32(4): 466–471.
- [7] Preetam Sarkar Lohith Kumar DH ChandaDhumal, Shubham Subrot, Panigrahi Ruplal Choudhary. Traditional and ayurvedic foods of Indian origin. *Journal of Ethnic Foods* Volume 2, Issue 3, September 2015, Pages 97-109
- [8] Harvima IT, Nilsson G, Suttle MM, Naukkarinen A. Is there a role for mast cells in psoriasis? *Arch Dermatol Res*. 2008 Oct; 300(9): 461-78
- [9] Petersen LJ, Hansen U, Kristensen JK, Nielsen H, Skov PS, Nielsen HJ. Studies on mast cells and histamine release in psoriasis: the effect of ranitidine. *Acta Derm Venereol*. 1998, 78(3): 190-193
- [10] Liu J, Xu Y, Lin TK, Lv C, Elias PM, Man MQ. Topical Histamine Stimulates Repigmentation of Nonsegmental Vitiligo by a Receptor-Dependent Mechanism. *Skin Pharmacol Physiol*. 2017, 30(3): 139-145
- [11] Ohsawa Y, Hirasawa N. The role of histamine H1 and H4 receptors in atopic dermatitis: from basic research to clinical study. *Allergol Int*. 2014 Dec; 63(4):533-42. doi:10.2332/allergolint.13-RA-0675.
- [12] White MV. The role of histamine in allergic diseases. *J Allergy Clin Immunol*. 1990 Oct; 86(4 Pt 2): 599-605.
- [13] Barth H, Lorenz W. Histamine and its role in peptic gastric diseases: the discovery of histamine-H2-receptor antagonists. *Acta Med Austriaca*. 1978; 5(2): 25-31
- [14] Lyle A. Hohnke. Gastric Acid Secretion and Ulcerogenesis in Histamine-Treated Guinea Pigs. *Gastroenterology*. The Williams & Wilkins Co. 1974: 66: 1161-1167.
- [15] Gelfand EW. Role of histamine in the pathophysiology of asthma: Immunomodulatory and anti-inflammatory activities of H1-receptor antagonists. *Am J Med*. 2002 Dec 16;113 Suppl 9A: 2S-7S
- [16] Adlesic M, Verdrengh M, Bokarewa M, Dahlberg L, Foster SJ, Tarkowski A. Histamine in rheumatoid arthritis. *Scand J Immunol*. 2007 Jun; 65(6): 530-7

- [17] Franziska Roth-Walter et al., Linking iron-deficiency with allergy: role of molecular allergens and the microbiome. *Metallomics*, 2017, 9, 1676--1692
- [18] Fangli Lu and Shiguang Huang. The Roles of Mast Cells in Parasitic Protozoan Infections. *Front Immunol.* 2017; 8: 363.
- [19] Adam Fabisiak, Jakub Włodarczyk, Natalia Fabisiak, Martin Storr, and Jakub Fichna. Targetting Histamine Receptors in Irritable bowel syndrome. A Critical Appraisal. *Journal of Neurogastroenterology and Motility* 2017; 23(3): 341-348
<https://doi.org/10.5056/jnm16203>.
- [20] Bo Young Chung, Sook Young Park et al., Effect of Different Cooking Methods on Histamine Levels in Selected Foods. *Ann Dermatol.* 2017 Dec; 29(6): 706–714.
- [21] Merson, MH; Baine, WB; Gangarosa, EJ; Swanson, RC (3 June 1974). Scombroid fish poisoning. Outbreak traced to commercially canned tuna fish. *JAMA* 228 (10): 1268 9.
[doi:10.1001/jama.1974.03230350040026](https://doi.org/10.1001/jama.1974.03230350040026). PMID 4406515