

Allotriophagy and Allotriodipsia in Endocrinology

Sanjay Kalra^{1,2}, Avivar Awasthi³, Saurabh Arora⁴, Nitin Kapoor^{5,6}

Abstract

Allotriophagy is defined as food cravings that are different from the expected or the norm. It gives clinical pointers to an underlying diagnosis. We propose a new term, allotriodipsia which suggests a preference for beverages that are different from the norm. Taken together, these two entities may point towards certain endocrinological abnormalities and iatrogenic sequelae. In this communication we highlight the clinical relevance of allotriophagy and allotriodipsia.

Keywords: Allotriophagy, Allotriodipsia, Anorexia nervosa, Bulimia nervosa, Food fads, Orthorexia nervosa, Osteomalacia, Sheehan's syndrome

DOI: <https://doi.org/10.47391/JPMA.23-93>

Introduction

The word Allotriophagy, coined from the Greek word "allotrio" and "phagein" in endocrinology, implies food cravings that are different from the expected or the norm. A similar word, which we propose, is allotriodipsia, which suggests a preference for beverages that are different from the norm.

Allotriophagy and allotriodipsia are significant not for their semantic value, but for their importance in differential diagnosis in medicine. In this brief communication (Table), we describe how a history of preference for specific foods and beverages characterizes various endocrine conditions, and how it helps diagnose them.

Allotriodipsia

Classic clinical endocrinology uses a history of preferences for beverages to help suspect and diagnose various diseases. A preference for cold water is noted in persons with diabetes insipidus.¹ This helps differentiate it from

¹Department of Endocrinology, Bharti Hospital, Karnal, India; ²University Center for Research & Development, Chandigarh University, India.

³Department of Endocrinology, Kasturba Medical College, Manipal, Karnataka, India. ⁴Department of Endocrinology, Dayanand Medical College and Hospital, Ludhiana, India; ⁵Department of Endocrinology, Diabetes and Metabolism, Christian Medical College, Vellore, India; ⁶The Non communicable disease & the Implementation science unit, Baker Heart and Diabetes Institute, Melbourne, Australia.

Correspondence: Sanjay Kalra. e-mail: brideknl@gmail.com
ORCID ID: 0000-0003-1308-121X

Table: Examples of allotriophagy and allotriodipsia in endocrinology.

- | |
|--|
| <ul style="list-style-type: none"> • Ice cold water craving in diabetes insipidus • Salt craving in Addison's disease • Pica in hypocalcaemia • Fad diets • Eating disorders • Effect of GLP1RA • Vitamin D deficiency and opioid addiction . |
|--|

psychogenic polydipsia.

Elderly persons experience less thirst, due to perturbations in the osmotic set point.² Persons with uncontrolled diabetes have increased thirst, and prefer sweetened drinks.³ Those with Addison's disease report a craving for salt, and may share a liking for salted beverages.⁴

Allotriophagy

A liking for non-edible substances, like chalk, clay, dirt, ice or sand, is noted in certain medical disorders. This is termed as pica or parorexia. Pica is considered normal during growth and development of a child up to 2 years of age.⁵ Types of picas include amylophagia (liking for starch), geophagia (craving for earth/mud sand/dirt) and pagophagia (preference for ice).⁵ Causes include iron deficiency anaemia and hypocalcemia. These nutritional disorders are noted in conditions such as Sheehan's syndrome, hypoparathyroidism, osteomalacia/ rickets, and pancreatic diabetes.

It has been noted that subjects with vitamin D deficiency have cravings for and seek out opioid analgesics.⁶ Similarly, persons with primary adrenal insufficiency exhibit a craving for salted foods.⁴

Food Preferences

Allotriophagy may operate in various eating disorders like anorexia nervosa, bulimia nervosa and orthorexia nervosa. In orthorexia nervosa, for example, dietary likes and dislikes are determined by the information printed on food labels. An aversion for calorie-rich and 'carbohydrate-rich foods is characterized of orthorexia nervosa.⁷

Allotriophagy and allotriodipsia may be promoted as part of fad diets, eating high protein or keto diet (e.g., 10 eggs a day), taking protein-based beverages, or drinking folk remedies like fenugreek or coriander water in excess are examples of this.

Such a phenomenon, i.e., change in food preferences, is also seen with various endocrine medications. The glucagon-like peptide 1 receptor agonist liraglutide leads to a preference for low carbohydrate foods,⁸ while subjects on topiramate/phentermine have reduced caloric intake, increased satiety, and taste aversion.⁹ We have also noted, in some patients on sodium glucose transporter 2 inhibitors, allotriodipsia for cold drinks, including water.

References

1. Mutter CM, Smith T, Menze O, Zakharia M, Nguyen H. Diabetes Insipidus: Pathogenesis, Diagnosis, and Clinical Management. *Cureus*. 2021;13: e13523. Available from: <https://www.cureus.com/articles/45123-diabetes-insipidus-pathogenesis-diagnosis-and-clinical-management> doi: 10.7759/cureus.13523.
2. Tamma G, Goswami N, Reichmuth J, De Santo NG, Valenti G. Aquaporins, vasopressin, and aging: Current perspectives. *Endocrinol*. 2015;156:777–88.
3. Lin EL, Taylor R. Chapter 22 Clinical Presentations of Diabetes. In: Holt RIG, Cockram CS, Flyvbjerg A, Goldstein BJ, editors. *Textbook of diabetes*. 5th ed. Chichester, West Sussex, UK: Wiley-Blackwell; 2016. p. 306.
4. Huecker MR, Bhutta BS, Dominique E. Adrenal insufficiency - statpearls - NCBI bookshelf [Internet]. Treasure Island (FL): StatPearls Publishing. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441832/> Last accessed 1 November 2022
5. Al Nasser Y, Muco E, Alsaad AJ. Pica - statpearls - NCBI bookshelf [Internet]. Treasure Island (FL): StatPearls Publishing. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK532242/> Last accessed 1 November 2022
6. Kemény LV, Robinson KC, Hermann AL, Walker DM, Regan S, Yew YW, et al. Vitamin D deficiency exacerbates UV/endorphin and opioid addiction. *Sci Adv*. 2021;7): eabe4577.
7. Kalra S, Kapoor N, Jacob J. Orthorexia nervosa. *J Pak Med Assoc*. 2020;70:1282-1284.
8. Eren-Yazicioglu CY, Yigit A, Dogruoz RE, Yapici-Eser H. Can GLP-1 be a target for reward system related disorders? A qualitative synthesis and systematic review analysis of studies on Palatable Food, drugs of abuse, and alcohol. *Front Behav Neurosci*. 2021;4:614884.
9. Steffen KJ, Kolotkin RL. A Review of the Combination of Phentermine and Topiramate Extended-Release for Weight Loss. *Comb Prod Ther*. 2012;2:1-7.