Changing the name of diabetes insipidus: a position statement of The Working Group for Renaming Diabetes Insipidus

The Working Group for Renaming Diabetes Insipidus, Hiroshi Arima1,2, Timothy Cheetham3,4, Mirjam Christ-Crain5,6, Deborah Cooper7, Mark Gurnell6,8, Juliana B Drummond9,10, Miles Levy11,12, Ann I McCormack13,14, Joseph Verbalis15,16, John Newell-Price16,17 and John A H Wass18,19

1Department of Endocrinology and Diabetes, Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan, 2Japan Endocrine Society, 3Department of Paediatric Endocrinology, Newcastle University Faculty of Medical Sciences, Great North Children's Hospital, Royal Victoria Infirmary, Newcastle upon Tyne, UK, 4European Society for Pediatric Endocrinology, 5Department of Endocrinology, Diabetes and Metabolism, University Hospital Basel, University of Basel, Switzerland, 6European Society of Endocrinology, 7Pituitary Foundation, Bristol, UK, 8Wellcome-MRC Institute of Metabolic Science, University of Cambridge & Addenbrooke's Hospital, Cambridge Biomedical Campus, Cambridge, UK, 9Faculdade de Medicina da UFMG, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil, 10Brazilian Society of Endocrinology and Metabolism, 11Endocrinology, University Hospitals of Leicester, Leicester, UK, 12Society for Endocrinology, 13Hormones and Cancer Group, Garvan Institute of Medical Research, Sydney, New South Wales, Australia, 14Endocrine Society of Australia, 15Endocrinology and Metabolism, Georgetown University Medical Center, Washington DC, District of Columbia, USA, 16Endocrine Society, 17Department of Oncology and Metabolism, The Medical School, University of Sheffield, Sheffield, UK, 18Department of Endocrinology, Oxford Centre for Diabetes Endocrinology & Metabolism – Endocrinology, Oxford, UK, and 19Pituitary Society

This article is CC-BY and has been published in the following titles: Archives of Endocrinology and Metabolism, Clinical Endocrinology, Endocrine Connections, Endocrine Journal, European Journal of Endocrinology, Hormone Research in Pediatrics, Pituitary and The Journal of Clinical Endocrinology and Metabolism. The articles are identical except for minor stylistic and spelling differences in keeping with each journal's style. A citation specific to one of the journals may be used when citing this article.

Abstract

‘What’s in a name? That which we call a rose/By any other name would smell as sweet.’ (Juliet, from Romeo and Juliet by William Shakespeare). Shakespeare’s implication is that a name is nothing but a word and it therefore represents a convention with no intrinsic meaning. Whilst this may be relevant to romantic literature, disease names do have real meanings, and consequences, in medicine. Hence, there must be a very good rationale for changing the name of a disease that has a centuries-old historical context. A working group of representatives from national and international endocrinology, nephrology and pediatric societies now proposes changing the name of ‘diabetes insipidus’ to ‘arginine vasopressin deficiency (AVP-D)’ for central etiologies and ‘arginine vasopressin resistance (AVP-R)’ for nephrogenic etiologies. This editorial provides both the historical context and the rationale for this proposed name change.

Reasons for changing a disease name

Understanding of disease processes is a dynamic field, with rapidly evolving concepts of pathophysiology based on emerging molecular and genetic data. Consequently, a newer understanding of the pathophysiology is one of the major reasons for renaming diseases. In endocrinology, appreciation of hyperprolactinemia as the common pathophysiology underlying many different clinical situations causing galactorrhea and amenorrhea led to the effective abandonment of many previous eponymous names for these conditions such as Chiari-Frommel.
syndrome, Forbes-Albright syndrome, Ahumada-del Castillo syndrome, etc. (1). A second reason is based on historical discoveries that a previous eponymous name for a syndrome was inappropriately attributed to an individual who was not the first or even the most significant person involved in the description of the syndrome (2). A third reason is later appreciation of medically unethical behaviors of individuals with diseases eponymously named for them, as characterized by the renaming of Reiter’s syndrome to ‘reactive arthritis’ and Wegener’s granulomatosis to ‘granulomatosis with polyangiitis’, because of the association of the eponymous physicians with Nazi antihumanitarian crimes (3, 4). The first three of these reasons for changing disease names make a strong case for detaching eponyms from disease processes whenever possible (5). However, endocrinologists would be loath to abandon the eponyms of Addison, Cushing, Hashimoto and others for their unique and seminal contributions to our understanding of endocrine disease processes. However, a fourth reason for renaming diseases is when traditional disease names lead to confusion between pathophysiologically different processes, leading to treatment errors and consequent adverse outcomes for patients. This latter reason represents the major impetus to change the name of diabetes insipidus at this time.

**Rationale for changing the name of diabetes insipidus**

There are multiple reasons to change the name of diabetes insipidus at this time. First and foremost, although the terms mellitus and insipidus do differentiate between the clinical characteristics of these two very different causes of polyuria, and clearly are not eponyms, the use of the common term ‘diabetes’ in both has unfortunately led to confusion for both patients and their caretakers. This confusion with diabetes mellitus has been to the detriment of patients with diabetes insipidus when they are under the care of non-endocrine specialists. Some physicians and nurses do not appreciate the difference between these two very different disorders. In several patients with central diabetes insipidus, desmopressin treatment was withheld with serious adverse outcomes, including death (9). This has led to high-profile litigation cases and coroners’ inquests involving the police, with wide media coverage. Subsequent to these unfortunate but avoidable cases, national safety alerts, surveys amongst endocrinologists and a global task force consisting of a wide range of senior clinicians involved with the care of patients with diabetes insipidus have led to a strong impetus to change the name of the condition. Second, patients with diabetes insipidus strongly support changing the name of the condition. Second, patients with diabetes insipidus have led to a strong impetus to change the name of diabetes mellitus (7). These terms persisted as valid clinical descriptions without known pathophysiology until the vasopressor and antiuretic actions of posterior pituitary extracts were discovered in the late 19th and early 20th century, including the use of posterior pituitary extracts to treat diabetes insipidus. In the mid-20th century, arginine vasopressin was synthesized and identified as the antiuretic hormone, and the distinct central and nephrogenic etiologies of diabetes insipidus were recognized and characterized (8). Despite new knowledge of the underlying pathophysiology of the different etiologies of diabetes insipidus by the late 20th century, no attempts were made to rename diabetes insipidus according to the known causes of the disorder, namely deficiency of arginine vasopressin or resistance to the receptor-mediated actions of arginine vasopressin.

**Historical context**

Before explaining the rationale for the name change, it is instructive to review the historical context for the name of diabetes insipidus. The polyuria and polydipsia of diabetes were first described by Demetrius of Apameia (1st–2nd century BC), who used the term ‘diabetes’, meaning ‘passing water like a siphon’ to describe the polyuria characteristic of this condition. Araetus of Cappadocia (81–138 AD) further defined the clinical characteristics of this disease (6). Although observations that the urine was sweet were alluded to in both Greek and Indian history, the first documented report of the sweet character of diabetic urine was published by the English physician Sir Thomas Willis in 1674 (‘The Diabetes or Pissing Evil’). However, the differentiation between the saccharine urine of glucosuria and the non-saccharine urine of other forms of polyuria is attributed to the Scottish physician William Cullen, who appended the Latin word ‘mellitus’ (sweet) to the Greek term diabetes to distinguish between these two types of polyuria (7). In 1794, Johann Peter Frank first introduced the term ‘diabetes insipidus’ to differentiate these patients from those with diabetes mellitus (7). These terms
resulting clinical confusion affected the management of their condition, e.g. repeated blood sugar measurements or prescription of medication for diabetes mellitus during hospitalization. Finally, we believe the names of medical disorders optimally should reflect the underlying pathophysiology, which in the case of diabetes insipidus is now well known to be deficient secretion and/or end-organ effects of the hormone arginine vasopressin (AVP). Hence, for all the above reasons, the working group proposes that the name diabetes insipidus should be changed to ‘arginine vasopressin deficiency (AVP-D)’ for central etiologies and ‘arginine vasopressin resistance (AVP-R)’ for nephrogenic etiologies, and this proposal has been endorsed by the following societies represented by the working group members: Endocrine Society, European Society of Endocrinology, Pituitary Society, Society for Endocrinology, European Society for Paediatric Endocrinology, Endocrine Society of Australia, Brazilian Endocrine Society and the Japan Endocrine Society and is under review at several other societies.

Implementation of the name change for diabetes insipidus

In order to ease the transition in terms of online searches and avoid confusion in the literature, we propose that for several years we keep the previous name in parentheses. Therefore, we will begin using the terms AVP-deficiency (cranial DI) and AVP-resistance (nephrogenic DI) in manuscripts and chapters. Once the transition is complete, it is likely that the parenthetic term will be lost, albeit people can still use it if they wish. In addition, we have initiated a request to the ICD Coordination and Maintenance Committee to have the ICD-11 coding changed to reflect the new names.

We fully recognize that changing a name for a long-standing disease is never easy. But just as the rheumatologists who proposed the name change of granulomatosis with polyangiitis (Wegener’s granulomatosis) (4), we hope our medical colleagues will recognize and accept the above rationale for making this change, both in the interest of scientific accuracy, but more so for the benefit and safety of our mutual patients with diabetes insipidus so that their disease and its treatment will no longer be confused with diabetes mellitus.

Declaration of interest
The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of this guideline.

Funding
This work did not receive any specific grant from any funding agency in the public, commercial, or not-for-profit sector.

Authors contribution statement
All authors wrote and reviewed the commentary.

Acknowledgements
The Working Group for Renaming Diabetes Insipidus: Hiroshi Arima for the Japan Endocrine Society; Timothy Cheetham for the European Society for Paediatric Endocrinology; Mirjam Christ-Crain for the European Society of Endocrinology; Juliana B Drummond for the Brazilian Society of Endocrinology and Metabolism; Miles Levy and Mark Gurnell for the Society for Endocrinology; Ann I McCormack for the Endocrine Society of Australia; Joseph Verbalis and John Newell-Price for the Endocrine Society; John Wass for the Pituitary Society.

References
1 Venturini PL, Capitanio GL, Boccardo E, Ferraro R, Rossato P & De Cecco L. The amenorrhoea-galactorrhea syndrome: present diagnostic and therapeutic perspectives. Acta Europaea Fertilitatis 1975 6 331–338.
2 Matteson EL. Notes on the history of eponym idiopathic vasculitis: the diseases of Henoch and Schönlein. Arthritis Care and Research 2000 13 237–245. (https://doi.org/10.1002/1529-0131(200008)13:4<237::aid-anr7>3.0.co;2-j)
3 Lu DW & Katz KA. Declining use of the eponym ‘Reiter’s syndrome’ in the medical literature, 1998–2003. Journal of the American Academy of Dermatology 2005 53 720–723. (https://doi.org/10.1016/j.jaad.2005.06.048)
4 Waywoot H, Haubitz M, Haller H & Matteson EL. Wegener’s granulomatosis. Lancet 2006 367 1362–1366. (https://doi.org/10.1016/S0140-6736(06)68583-8)
5 Matteson EL. All medical eponyms should be abandoned. Presse Med 2008 37 250–251. (https://doi.org/10.1016/j.pmed.2007.11.005)
6 Gemmill CL. The Greek concept of diabetes. Bulletin of the New York Academy of Medicine 1972 48 1033–1036.
7 Lindholm J. Diabetes insipidus: historical aspects. Pituitary 2004 7 33–38. (https://doi.org/10.1023/b:pitu.0000044633.52516.e1)
8 Robertson GL. Thirst and vasopressin function in normal and disordered states of water balance. Journal of Laboratory and Clinical Medicine 1983 101 351–371.
9 Prentice M. Time for change: renaming diabetes insipidus to improve patient safety. Clinical Endocrinology 2018 88 625–626. (https://doi.org/10.1111/cen.13578)
10 Atila C, Loughrey PB, Garrahy A, Winneler B, Refardt J, Gildroy P, Hamza M, Pal A, Verbalis JG, Thompson CJ et al. Central diabetes insipidus from a patients’ perspective: management, psychological co-morbidities, and re-naming of the condition. Lancet: Diabetes and Metabolism 2022 In press. (https://doi.org/10.1016/S2213-8587(22)00219-4)

Received 30 August 2022
Accepted 30 August 2022

https://eje.bioscientifica.com