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**XXVI ENCONTRO GALEGO  
CONGRESO PORTUGUÉS DE QUÍMICA  
INTERNACIONAL**



abajando a  
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alimentaria



**2022**

**16 17 18** NOVIEMBRE

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**FACULTAD DE QUÍMICA**



**XXVI ENCONTRO GALEGO-PORTUGUÉS DE QUÍMICA.**

**Noviembre 2022**

**Coordinador Editorial**

Manuel Rodríguez Méndez

**Edita**

Colegio Oficial de Químicos de Galicia  
Rúa Lisboa, nº 10, Local 31E – Edificio Área Central Fontiñas.  
15707 Santiago de Compostela (A Coruña)  
www.colquiga.org

**Tirada**

30 Ejemplares y 450 en formato digital

**Imprime**

OCERO  
Sada (A Coruña)

**Depósito Legal**

VG699-2017

**ISBN**

978-84-09-45895-0

*Este libro de comunicaciones y conferencias, presentadas en el XXV Encontro Galego-Portugués de Química, Colegio Oficial de Químicos de Galicia*

**Catalogación recomendada** Libro de resúmenes del XXVI Encontro Internacional Galego-Portugués de Química.

Facultade de Química da Universidade de Santiago de Compostela. Santiago de Compostela (España) 2022

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## Low serum bromine levels in chronic hemodialysis patients – is there any clinical impact?

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**Background:** Patients on chronic hemodialysis therapy are at high risk for disturbed trace element status due to both the underlying disease and the hemodialysis process itself [1]. Data on serum bromine levels in these patients are scarce.

**Methods:** Using an ICP-MS analytical procedure, serum bromine levels were determined in a cohort of end-stage renal disease patients on chronic hemodialysis (n=57; 68.9±14.0 years old; male/female ratio: 1.37). The results were compared with those of a control group (individuals without evidence of kidney disease according to standard clinical laboratory criteria who attended the same clinical laboratory for routine analyses: n=59; 57.4±17.9 years old; male/female ratio: 0.90).

**Results:** Hemodialysis patients had much lower serum bromine levels than controls: **1086±244 vs. 4137±770 µg/L**; P<0.0001.

**Discussion:** Bromine (bromide in plasma) showed to be extensively removed from plasma due to the hemodialysis process. The actual impact of this bromine “deficiency” is unknown. Bromine has not generally been considered an “essential” element [2], however, evidence of possible essentiality has been growing [3].

In particular, bromine has been linked to brain metabolism: it is used as a sedative to induce sleep, increases in animals during hibernation as well as in sleeping humans; and a bromine compound with REM sleep-inducing and anti-choline esterase activities (1-methylheptyl gamma-bromoacetoacetate) was identified in human cerebrospinal fluid [4].

On the other hand, estimates suggest that 40-85% of hemodialysis patients have sleep disorders, mainly insomnia [5]. Thus, the possibility has been raised that the bromine “deficiency” found in these patients may be associated with sleep the disorders that affect them.

This is an interesting hypothesis that requires further clinical investigation.

**Funding:** This work received financial support from PT national funds (FCT/MCTES, Fundação para a Ciência e Tecnologia and Ministério da Ciência, Tecnologia e Ensino Superior) through the projects UIDB/50006/2020 and UIDP/50006/2020.

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