

Accepted Manuscript

Disturbed purine nucleotide metabolism in chronic kidney disease is a risk factor for cognitive impairment.

Muhammed Khairujjaman Mazumder, Banashree Chetia Phukan, Aradhana Bhattacharjee, Anupom Borah

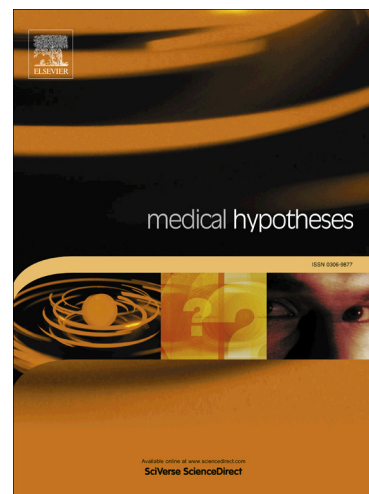
PII: S0306-9877(17)30503-0
DOI: <https://doi.org/10.1016/j.mehy.2017.12.016>
Reference: YMEHY 8753

To appear in: *Medical Hypotheses*

Received Date: 12 May 2017
Accepted Date: 12 December 2017

Please cite this article as: M.K. Mazumder, B.C. Phukan, A. Bhattacharjee, A. Borah, Disturbed purine nucleotide metabolism in chronic kidney disease is a risk factor for cognitive impairment., *Medical Hypotheses* (2017), doi: <https://doi.org/10.1016/j.mehy.2017.12.016>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Full Length Article

October ,2017

Title: Disturbed purine nucleotide metabolism in chronic kidney disease is a risk factor for cognitive impairment.

Authors: Muhammed Khairujjaman Mazumder, Banashree Chetia Phukan, Aradhana Bhattacharjee, Anupom Borah*

Affiliation: *Cellular & Molecular Neurobiology Laboratory,
Department of Life Science and Bioinformatics,
Assam University, Silchar-788011,
P.O.: Dorgakona, Cachar, Assam, India.*

*Corresponding author: **Dr. Anupom Borah, Ph.D.**

Address for correspondence:

Cellular and Molecular Neurobiology Laboratory
Department of Life Science and Bioinformatics,
Assam University, Silchar - 788011, Assam, India.
Phone: +91-9531194100 (Mobile)
E-mail: anupomborahh@gmail.com, anupom.borah@aus.ac.in

Abstract

Chronic kidney disease (CKD) is an increasing global health burden. Disturbance in purine metabolism pathway and a higher level of serum uric acid, called hyperuricemia, is a risk factor of CKD, and it has been linked to increased prevalence and progression of the disease. In a recent study, it has been demonstrated that purine nucleotides and uric acid alter the activity of acetylcholinesterase (AChE). Thus, we hypothesize that adenine, hypoxanthine, xanthine, 2,8-dihydroxyadenine and uric acid may potentially interfere with the activity of AChE. The hypothesis has been tested using computational tools. Uric acid has been found to be the most potent inhibitor of AChE, with a binding affinity higher than the known inhibitors of the enzyme. Further, since depleted AChE activity is associated with dementia and cognitive impairment, the present study suggest that disturbed purine nucleotide metabolism in CKD is a risk factor for cognitive impairment.

Key Words: Acetylcholinesterase; Alzheimer's disease; Chronic renal failure; Hyperuricemia; Molecular Docking

1. Background

Download English Version:

<https://daneshyari.com/en/article/8516004>

Download Persian Version:

<https://daneshyari.com/article/8516004>

[Daneshyari.com](https://daneshyari.com)