

NASH-linked changes impact metformin pharmacokinetics

June 4 2015



(HealthDay)—Nonalcoholic steatohepatitis (NASH)-associated changes in liver function affect kidney transporter expression and metformin pharmacokinetics, according to an experimental study published online May 27 in *Diabetes Care*.

John D. Clarke, Ph.D., from the University of Arizona in Tucson, and colleagues examined how NASH affects kidney transporter expression and [metformin](#) pharmacokinetics. They administered a single oral dose of [¹⁴C] metformin to C57BL/6 (WT) mice and mice with diabetes (*ob/ob*). Mice were fed a methionine and choline deficient (MCD) diet or a control diet.

The researchers found that, compared with WT/Control mice, metformin plasma concentrations were slightly elevated in the WT/MCD and *ob*/Control groups, and 4.8-fold higher in *ob*/MCD mice. In both

genotypes, the MCD diet significantly increased plasma half-life and mean residence time, and decreased oral clearance. These changes were attributable to *ob/ob* and MCD diet-specific reductions in the kidney mRNA expression of Oct2 and Mate1; Oct1 mRNA expression was reduced only in *ob/MCD* [mice](#).

"These results indicate that the diabetic *ob/ob* genotype and the MCD disease model alter kidney transporter expression and alter the pharmacokinetics of metformin, potentially increasing the risk of drug toxicity," the authors write.

More information: [Abstract](#)
[Full Text \(subscription or payment may be required\)](#)

Copyright © 2015 [HealthDay](#). All rights reserved.

Citation: NASH-linked changes impact metformin pharmacokinetics (2015, June 4) retrieved 14 December 2023 from <https://medicalxpress.com/news/2015-06-nash-linked-impact-metformin-pharmacokinetics.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--