Genetic and mechanistic basis for rotor syndrome uncovered

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The main symptom of Rotor syndrome is jaundice caused by a buildup of a substance known as conjugated bilirubin. Bilirubin is a yellow substance generated in large quantities when the body recycles red blood cells. It is conjugated in the liver to make it soluble in water so that it can be cleared from the body. Although Rotor syndrome is known to be a genetic disorder, it is not known which genes are involved.

However, a team of researchers — led by Alfred Schinkel, at The Netherlands Cancer Institute, The Netherlands; and Milan Jirsa, at the Institute for Clinical and Experimental Medicine, Czech Republic — has now linked genetic mutations predicted to cause complete and simultaneous deficiencies of the proteins OATP1B1 and OATP1B3 to Rotor syndrome in 8 families.

Detailed analysis in mice identified the underlying mechanism involved. Moreover, further screening of Rotor syndrome families suggested that although complete lack of either OATP1B1 or OATP1B3 alone does not cause Rotor syndrome, it could cause hypersensitivity to certain drugs.

More information: Complete OATP1B1 and OATP1B3 deficiency causes human Rotor syndrome by interrupting conjugated bilirubin reuptake into the liver, Journal of Clinical Investigation.

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