Asthma medication inhibits changes in diabetic retinopathy in type 1 diabetes mouse

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In a study published July 26 online in the journal *Diabetes*, physician-researchers from University Hospitals Rainbow Babies and Children's Hospital and Case Western Reserve University School of Medicine, found that the asthma medication montelukast (brand name Singulair), can inhibit early changes in diabetic retinopathy, the eye disease which develops due to diabetes, in a mouse model of type 1 diabetes.

"We found that montelukast (Singulair) was able to disrupt the signaling of inflammatory molecules called leukotrienes. This disruption significantly reduced small blood vessel and nerve damage that we see in the early stages of diabetic retinopathy," said senior author Rose Gubitosi-Klug, M.D., Ph.D., Chief of Pediatric Endocrinology at UH Rainbow and the William T. Dahms Professor of Pediatrics at CWRU School of Medicine.

"While most therapies target the late stages of the eye disease in diabetes , these findings offer a much-needed approach to treat the disease much earlier."

"The re-purposing of a medication already FDA-approved for use in children and adolescents sets the stage for rapid translation of these animal model findings to human subjects," said Dr. Gubitosi-Klug. "The daily dose equivalent used in the current study is similar to the once daily dose used in the treatment of asthma. Reassuringly, in our diabetes model as in asthma studies, this dose allows effective suppression of chronic inflammation, which can prevent pathology, but avoids complete

inhibition of inflammation, which can compromise innate immunity."

"Moreover, montelukast was efficacious in both prevention and delayed intervention approaches, which implies relevance to patients with newly-diagnosed diabetes as well as individuals living with diabetes of longer duration," she said. "Thus, there is promise that a safe treatment that effectively stabilizes airways in asthma may also preserve small blood vessels and nerve cells in diabetes."

Provided by University Hospitals Cleveland Medical Center