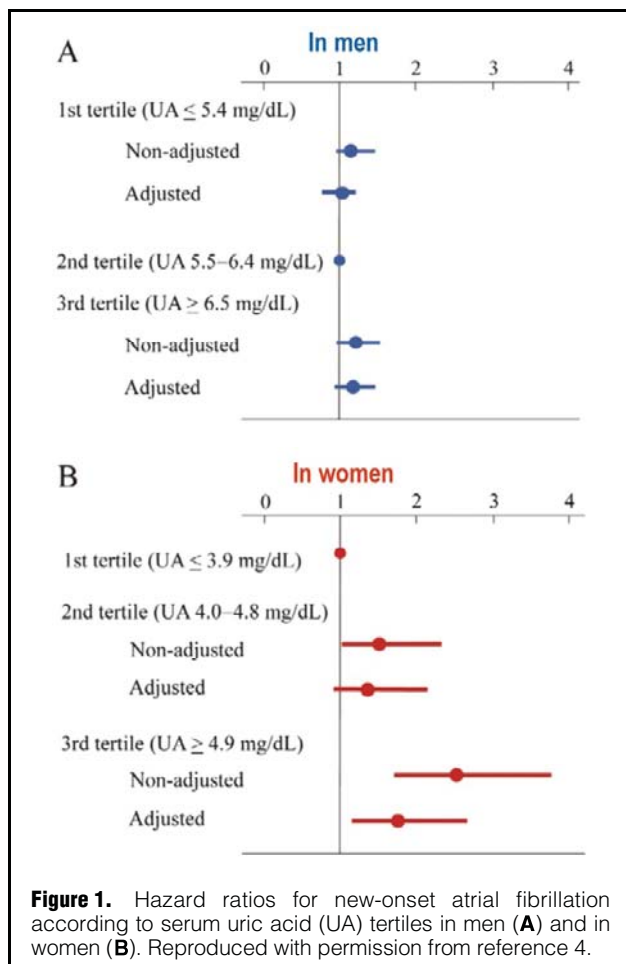


How Is Uric Acid Related to Atrial Fibrillation?

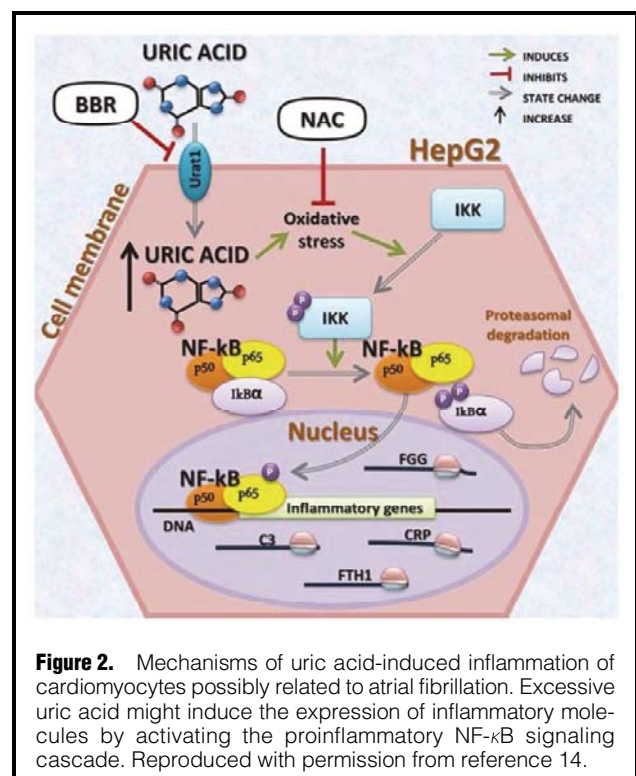
Katsushige Ono, MD, PhD

Uric acid (UA) is an end product of purine metabolism in humans, produced in the liver, muscles, and intestines. Xanthine oxidoreductase (XO) is the enzyme responsible for UA production. Under normal conditions its serum level is lower than 6 mg/dL in women and 7 mg/dL in men because of homeostatic regulation carried out mostly by the kidney. Dietary factors may influence serum UA, increasing its levels (meat, seafood, alcohol etc.) or decreasing them (coffee, ascorbic acid etc.). In addition, high cellular turnover conditions, such as in



Article p 718

neoplastic disease, may increase the UA concentration. When the serum UA concentration is higher, the condition is defined as hyperuricemia. UA may have an opposite role to oxidative stress, according to its intracellular (antioxidant) and extracellular (pro-oxidant) localization.¹ UA acts as an antioxidant and accounts for 50% of the total antioxidant capacity of biological fluids in humans. When present in the cytoplasm of cells or in the acidic/hydrophobic milieu of atherosclerotic plaques, UA converts to a pro-oxidant and promotes oxidative stress, participating in the pathophysiology of human disease, including cardiovascular disease (CVD), through this mechanism. Most epidemiological studies suggest the existence of an association between elevated serum UA level and CVD, including



The opinions expressed in this article are not necessarily those of the editors or of the Japanese Circulation Society.

Received February 17, 2019; accepted February 18, 2019; J-STAGE Advance Publication released online February 28, 2019

Department of Pathophysiology, Oita University School of Medicine, Yufu, Japan

Mailing address: Katsushige Ono, MD, PhD, Department of Pathophysiology, Oita University School of Medicine, 1-1 Idaigaoka, Hasama, Yufu 879-5593, Japan. E-mail: ono@oita-u.ac.jp

ISSN-1346-9843 All rights are reserved to the Japanese Circulation Society. For permissions, please e-mail: cj@j-circ.or.jp