Acute bronchodilator effect of quercetin in experimental allergic asthma.
Joskova M, Franova S, Sadlonova V
Department of Pharmacology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia, joskova@jmed.uniba.sk

Abstract
OBJECTIVES: The aim of our study was to investigate the acute effect of quercetin on experimental allergic asthma after single-dose oral administration.

BACKGROUND: Airway hyperresponsiveness is one of the main features of allergic asthma. None of quercetin experimental studies analysed the acute effect of this flavonol on the reactivity of airways both, in vivo and in vitro conditions.

METHODS: Our experiment was realized 21 days after the sensitization of guinea pigs with ovalbumin suspension. Changes in the reactivity of airways were studied using the whole body plethysmography in order to compare changes of the specific airway conductance between groups with and without quercetin treatment. Also changes in the reactivity of the tracheal smooth muscle dipped into the organ bath with Krebs-Henseleit solution were measured as the reaction on cumulative doses of the bronchoconstrictor mediators histamine and acetylcholine. Quercetin was added into the solution 30 minutes before the chemical mediators. The amplitude of tracheal smooth muscle precontracted with histamine or acetylcholine was used as a tracheal smooth muscle reactivity parameter in vitro.

RESULTS: Our results showed that quercetin (20 mg/kg) caused significant bronchodilation, both in vivo and in vitro.

CONCLUSION: Quercetin proved in laboratory conditions its ability to reduce hyperreactivity of airways as one of the main attributes of allergic asthma (Fig. 2, Ref. 23).