POTENTIAL IMPLICATIONS OF QUERCETIN IN CARDIOPROTECTION

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Since there are still no cardioprotective drugs on the market for prevention/treatment of myocardial ischemia-reperfusion (I/R) injury, searching for novel cardioprotective compounds is very much needed. Quercetin (QCT), a natural polyphenol enriched in human food, is a promising substance that exerts several beneficial effects in cardiovascular system including preventing cardiac I/R injury. Cardioprotective potential of QCT was largely documented in healthy young animals but only limited data are available regarding cardiac effects of QCT in presence of comorbidities, co-medications and in ageing subjects.
The aim of the current study is to summarize data obtained in our experimental group documenting potential of QCT for preventing myocardial I/R injury in different experimental settings including presence of selected comorbidities, co-medications, and in aged subjects.
QCT in the dose 20mg/kg/day was administered orally for 4/6 weeks to rats of different age and rats with selected comorbidities/co-medications. After the end of treatment hearts were isolated and *ex vivo* exposed to I/R (30-min global ischemia/2-hour reperfusion). Recovery of cardiac function and infarct size were assessed as the physiological outputs of the experiments. Molecular mechanisms of QCT action were evaluated as well.
The results showed that QCT exerts cardioprotective effects in I/R injury in healthy young and doxorubicin-treated rats but it was inefficient in preventing I/R injury in aged rats and in rats with comorbidities (hypertensive/type 2 diabetic). In conclusion, QCT might be potentially cardioprotective in preventing myocardial I/R injury; however, ageing and/or presence of comorbidities may decrease or even abolished anti-ischemic effects of QCT.

Keywords: Ischemia-Reperfusion, Quercetin, Cardioprotection, Ageing, Comorbidities

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