Efficacy of curcumin on prevention of drug-induced nephrotoxicity: A review of animal studies

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Drug-induced nephrotoxicity is a frequent serious adverse effect, contributing to morbidity and increased healthcare utilization. Prevention or reversal is key. Curcumin has useful biological features that include antioxidant, anti-inflammatory, and anticancer properties. This review covers aspects of curcumin in relation to prevention of drug-induced nephrotoxicity: dosage and schedule, effect on kidney biomarkers and histological changes, and mechanisms of curcumin's protective effects. Despite success in some animal models, human studies and clinical administration of curcumin for nephroprotection remains limited due to difficulty in achieving therapeutic levels following oral administration and in determining the optimal dosing schedule. Lack of sufficient evidence from animal studies, coupled with low systemic bioavailability, continues to limit the utilization of curcumin in addressing and controlling drug-induced nephrotoxicity. Therefore, human studies are required to fully assess and validate the therapeutic potential of curcumin.

acute kidney injury

Curcuma longa

Curcumin

nephroprotection

nephrotoxicity

creatinine

curcumin

nitrogen

urea

antiinflammatory agent

antioxidant

curcumin

methotrexate

paracetamol

clinical assessment

clinical effectiveness

clinical trial (topic)

creatinine blood level

drug bioavailability

drug efficacy

drug exposure

drug induced disease

drug utilization

histopathology

human

inflammation

kidney function

kidney injury

methodology

nephrotoxicity

nonhuman

optimal drug dose

oxidative stress

primary prevention

priority journal

regulatory mechanism

renal protection

Review

risk assessment

urea nitrogen blood level

acute kidney failure

animal

bioavailability

chemistry

Curcuma

drug administration

drug effect

isolation and purification

kidney

kidney function test

metabolism

oral drug administration

pathology

rat

Acetaminophen

Acute Kidney Injury

Administration, Oral

Animals

Anti-Inflammatory Agents

Antioxidants

Biological Availability

Curcuma

Curcumin

Drug Administration Schedule

Humans

Kidney

Kidney Function Tests

Methotrexate

Rats