

Neurourology Transforms the Drug Development Experience

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Continuous efforts are being made to develop new drugs or dietary supplements from natural products. These efforts are important in improving the outcomes of many intractable diseases.

In an article published in this issue of the *International Neurology Journal*, the antiapoptotic effect of berberine against ischemic brain injury in gerbils has been reported [1]. The authors suggest that this antiapoptotic effect might be mediated through the inhibition of reactive astrogliosis and microglia activation.

Berberine is a type of isoquinoline alkaloid extracted from the root of *Coptis japonica*, the bark of *Phellodendron amurense*, and the root of *Berberis vulgaris*. Currently, the major clinical indications of berberine include bacterial diarrhea, intestinal parasite infections, and ocular trachoma infections. The diverse effects of berberine on tumors, diabetes mellitus, cardiovascular deregulation, immunology disorders, and neurodegenerative diseases have been studied [2-5].

Berberine has been shown to suppress the growth of bladder cancer and has been proposed as a novel chemotherapeutic agent [6]. Pretreatment with berberine elicited a protective effect against hypoxia/reoxygenation-induced apoptosis in human renal proximal tubular cells [7]. Berberine was suggested as a possible agent to improve neurogenic bladder in diabetic rats as well [8].

The effects of berberine on urological disorders have also been reported. Functional studies on the diverse mechanisms of berberine will be helpful for the treatment of stroke-associated neurourological diseases.

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