PTEROSTILBENE INHIBITS RENAL FIBROSIS BY BLOCKING TGF-BETA/SMAD SIGNALING IN MICE

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RESULTS

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OBJECTIVES

Renal fibrosis is the key pathological feature and the final common pathway leading to end-stage renal failure (ESRD) in chronic kidney disease. Pterostilbene (PTB) is a naturally derived compound that found primarily in berries and berries. PTB possesses an array of chemopreventive, anti-inflammatory, anti-diabetic, anti-dyslipidemic, anti-atherosclerotic and neuroprotective effects. However, PTB whether can influence the renal fibrosis is unknown.

Here, we investigated the mechanisms and antifibrotic activities of PTB.

METHODS

In a mice model of renal fibrosis after unilateral ureteral obstruction (UUO), the mice received daily gavage of PTB (25 and 50mg/kg/d) for 7 or 14 days. The HE and MASSON’s stainings of kidney tissues were tested. The infiltration of macrophage, mRNA level and protein expression of TGF-beta1 and the phosphorylation of Smad3 were investigated by RT-qPCR and western blot, respectively. The renal expression of a-SMA, Col I, Col IV and FN were also tested.

RESULTS

After euthanized, representative micrographs of HE and Masson’s staining demonstrated PTB significantly improved kidney injury in UUO mice. PTB inhibits expression of TGF-beta1 and the phosphorylation of Smad3 and suppressed renal expression of a-SMA, Col I, Col IV and FN.

CONCLUSIONS

These observations confirmed that PTB inhibited renal fibrosis by blocking TGF-beta/Smad signaling in macrophage, highlighting that PTB was a potential therapeutic strategy for renal fibrosis.

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