

RENOPROTECTIVE EFFECTS OF EPIGALLOCATECHIN GALLATE AND CANDESARTAN ON STREPTOZOTOCIN INDUCED DIABETIC NEPHROPATHY IN MICE.



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INTRODUCTION AND AIMS:

Diabetic nephropathy (DMN) is one of the most serious complications in diabetes mellitus and has been the most common cause of end-stage renal diseases.

Epigallocatechin gallate (EGCG) have antioxidant properties and are known to be the most abundant in green tea.

Inflammatory cytokines, mainly IL-1 and IL-6, as well as TNF- α , are involved in the development and progression of DMN.

We examined whether GTE with candesartan (CDS) could be synergic protective effects on DMN and relationship of cytokines in mice.

METHODS:

The mice (n=50) were divided into 5 groups (n=10 each group). Control group was given intraperitoneal injection of 0.9% saline.

Streptozotocin (STZ) group was given intraperitoneal injection of STZ 200mg/kg and induced diabetic nephropathy.

CDS group was received 30 mg/kg CDS by oral route and EGCG group was received EGCG 100 mg/kg by oral route.

EGCG+CDS group was received EGCG 100 mg/kg with CDS 30 mg/kg from 4 weeks to 16 weeks.

Serum glucose, blood urea nitrogen, serum creatinine, urine volume and urine protein amounts were measured.

Mouse cytokine array panel A kit was used to examine the relative levels of mouse cytokines and chemokines, and histopathologic staining of mice's kidney were performed.

RESULTS:

Compared with control group, STZ-group showed an increase in blood glucose, blood urea nitrogen, creatinine levels and urine protein amounts, and a decrease in body weight.

All the above parameters were significantly reversed with EGCG treatment, especially EGCG+CDS group.

IL-1 α/β , IL-16, TNF- α , and C5/C5a levels are significantly elevated in STZ group compared with control group and reversed in EGCG and EGCG plus CDS groups.

EGCG+CDS treated mice kidney showed a reduced expression of above parameters and a reserved pathologic findings.

CONCLUSION:

These results suggest that EGCG with CDS has synergic renoprotective effects on STZ-induced DMN mice by suppression of IL-1 α/β , IL-16, TNF- α , and C5/C5a levels.

The potential use of EGCG with CDS is suggested in the treatment of diabetic nephropathy.