

Effect of *Panax ginseng* on morphine- and steroids-induced immunosuppression

김영란, 김경만

전남대학교 약학대학

Effects of *Panax ginseng* were tested on morphine- and steroids-induced immunosuppression, focusing on mechanism and identification of active components.

To investigate overall effects of morphine and ginseng total saponin (GTS) on immune system, body weight and lymphoid organ weight were measured. Morphine significantly reduced body weight, spleen/body weight, and thymus/body weight ratio. GTS, at 100mg/kg (oral), restored spleen/body weight ratio. Because morphine is known to increase corticosterone level, serum corticosterone level was measured by radioimmunoassay. Serum corticosterone was increased by morphine and it was restored to the control level by GTS 100mg/kg (oral). *In vitro* proliferation studies were also conducted to study the effects of ginseng on steroids-induced immunosuppression. While ginsenoside Rg₁ and ginseng alkaloids were effective on proliferation and dexamethasone-induced death of thymocytes, 50% ginseng ethanol extract and polysaccharides were effective on splenocytes. *In vivo* morphine-induced apoptosis of thymus was partly protected by GTS.

These results suggest that *Panax ginseng* restores morphine- and steroids-induced immunosuppression, HPA axis is involved in a mechanism of morphine-induced immunosuppression, and active component of steroid induced thymocyte death is ginsenoside Rg₁.