# Therapeutic concentrations of propofol protects mouse macrophages from nitric oxide-induced cell death and apoptosis.

陳瑞明
Chuang H;Tsai SY;Chen TL and RM Chen (Corresponding author)

## Abstract

PURPOSE: To evaluate the potential effect of a clinically relevant concentration of propofol (PPF) on cell viability and nitric oxide-induced macrophage apoptosis. METHODS: Mouse macrophages (cell line Raw 264.7) were cultured and incubated with a nitric oxide donor sodium nitroprusside (SNP), PPF, and a combination of PPF and SNP for one, six and 24 hr. Cell viability was determined by the colorimetric 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide assay. Apoptotic cells were determined by analyzing the percentages of sub-G1 phase in macrophages. The amounts of nitric oxide were assayed. RESULTS: The amounts of nitric oxide in macrophages were increased with time when incubated with SNP ($P < 0.05$). Simultaneously, SNP caused cell death of macrophages in a concentration-and time-dependent manner ($P < 0.05$). PPF per se did not alter the amount of basal and SNP-provided nitric oxide in macrophages. A therapeutic concentration of PPF (30 microM) exhibited no cytotoxicity. After incubation with SNP for one and six hours, PPF could completely or partially block nitric oxide-induced cell death, respectively ($P < 0.05$). Administration of SNP to macrophages resulted in a time-dependent pattern of increase of apoptotic cells ($P < 0.05$). Similar to the results of the cell viability analyses, PPF was able to protect macrophages from nitric oxide-induced apoptosis in one and six hour-treated groups ($P < 0.05$) but not in the 24 hr treated group. CONCLUSION: PPF, at a therapeutic concentration, can protect mouse macrophages in vitro from nitric oxide-induced cell apoptosis as well as cell death.