

• 系統編號	RC8901-0284		
• 計畫中文名稱	一氧化氮及興奮性氨基酸對於壓力引起胃潰瘍的作用角色之研究		
• 計畫英文名稱	Role of Nitric Oxide (NO) and Excitatory Amino Acids(EAAs) in the Stress-Induced Gastric Ulcers		
• 主管機關	行政院國家科學委員會	• 計畫編號	NSC88-2314-B038-108
• 執行機構	台北醫學院醫學系		
• 本期期間	8708 ~ 8807		
• 報告頁數	0 頁	• 使用語言	中文
• 研究人員	陳盛？ Chen, Sheng-Hsuan		
• 中文關鍵字	一氧化氮；興奮性胺基酸；壓力性胃潰瘍；環腺單磷酸酯		
• 英文關鍵字	Nitric oxide (NO)；Excitatory amino acid (EAA)；Stress induced gastric ulcer；Cyclic adenosine monophosphate (cAMP)		
• 中文摘要	本研究探討興奮性胺基酸(Excitatory amino acids)及其受體亞型對於壓力性胃潰瘍的保護作用及 cAMP 濃度變化之影響。於腹腔注射投藥 30 分鐘後,將小白鼠放入恆溫箱(4.plmin.1.degree.C)並限制其行動,觀察不同的壓力時間導致胃潰瘍的程度與 cAMP 之間的關係。結果得知,潰瘍程度和 cAMP 濃度成正比。當投與 L 型麩胺酸(2、4 和 8mg/kg,i.p.)30 分鐘後,以壓力(4.plmin.1.degree.C,2 小時)引起胃潰瘍,其呈現劑量-依存性地(Dose-dependent)抑制胃潰瘍發生。而 NMDA(N-methyl-D-aspartic acid)(0.2、1 和 2mg/kg)、QA(Quisqualic acid)(2 and 5mg/kg)和 KA(Kainic acid)(1、2 and 5mg/kg)同樣呈現劑量-依存性地抑制潰瘍的產生。並探討 NO 和 NMDA 在此保護作用中所扮演的角色。以 L-NNA、L-arginine 及 NMDA 對於壓力性潰瘍的保護作用和 cAMP 變化。以推測 NO 和 NMDA 在此保護作用中所扮演的角色。當投與 NMDA 1mg/kg 時,對降低潰瘍面積產生可達 70%的預防效果;此潰瘍減少時鼠胃中 cAMP 有下降之現象。且在 L-NNA(NO synthase inhibitor) 10mg/kg 時可拮抗 NMDA 對壓力性潰瘍的保護作用。上述結果顯示,L 型麩胺酸在壓力性潰瘍上可能參與胃黏膜障(Mucosal barrier)之生理調節。其機制可能是由於降低 cAMP 的生成。而 NMDA 可促使內生性 NO 的釋放,且降低 cAMP 來參與胃黏膜障(Mucosal barrier)之生理調節。		
• 英文摘要	Excitatory amino acids and it's subtypes including N-methyl-D-aspartate (NMDA), kainic acid (KA) and quisqualic acid (QA), which functions to protect mucosal damage and reduce cyclic AMP concentration were also investigated in stress-induced gastric lesions. L-Glu and it's subtypes were administered before cold-restraint stress (4.plmin.1.degree.C, 2 hrs). The cAMP concentration of cold		

restraint-induced mucosal lesion was significantly different from the normal stomach. The present study was conducted to evaluate the effect of these drugs on the development of cold and restraint-induced gastric ulcers. Two hours of restraint at 4.plmin.1.degree.C resulted in the production of gastric lesions in all mice. The cAMP concentration of cold restraint-induced was inhibited by L-Glu and it's subtypes. L-Glu at 2, 4 and 8mg/kg i.p. injection 30 min before stress significantly and dose dependently prevented gastric lesions. NMDA at 0.2, 1 and 2mg/kg, QA at 2 and 5mg/kg or KA at 1, 2 and 5mg/kg administered 30 min before stress prevented gastric ulcer in dose dependently. On the other hand, whether NMDA protects gastric mucosa via NO by changing cAMP production were studied using cold-restraint stress (CRS)-induced gastric lesions in mice. NMDA at 1mg/kg (i.p.) had about 70% prevention on the development of gastric ulcers. NMDA treatment and reduction of CRS-induced ulcer index by CRS was observed. NMDA significantly attenuated the increase in the cAMP and gastric lesions on the CRS stomach. L-NNA (NG-nitro-L arginine, a NO synthase inhibitor, i.p.) at 10mg/kg potentiated the CRS induced gastric lesions. All these results suggest that 1. L-Glu and it's subtypes also may participate in a physiological modulation of the gastric mucosal barrier, 2. NMDA may participate in a physiological modulation of gastric mucosal barrier by releasing endogenous NO and attenuating the elevation of cAMP in the CRS stomach.