飲食中給予glutamine補充對於敗血症小鼠體內Th1/Th2平衡的改變及其器官中IL-6表現之影響

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實驗目的:過去的研究顯示，敗血症時體內Th1/Th2的平衡會改變，而偏向Th2反應會使病人更易造成器官衰竭。發生敗血症時給予Glutamine(Gln)添加有助於全身性免疫系統的調節，然而對於局部器官中免疫力的改變及T淋巴球內的細胞激素的調節目前並無相關的研究，因此本實驗期望能透過給予小鼠飲食中Gln的添加，來觀察敗血症後器官組織中細胞激素IL-6的濃度變化，及淋巴球中Th1/Th2的平衡改變的情形。

實驗方法:

實驗結果:

Table 1. Composition of the experimental diets

Component (g/kg)	Control	Glutamine
Soybean oil	100	100
Casein	200	150
Glutamine	0	41.7
Salt mixture	35	35
Vitamin mixture	10	10
Methy cellulose	31	31
Choline chloride	1	1
Methionine	3	3
Corn starch	620	628.3

Table 2. The concentration of IL-6 in lung, kidney, and intestines tissue homogenate during sepsis

	Lung	Kidney	Intestines
		Pg/mg tissue	
NC group	1.33±0.24	12.1±0.9	1.05±0.73
6h			
Control group	1.99±0.56	12.35±0.97	1.02±0.25
Gln group	1.70±0.56	11.56±2.33	1.57±1.68
12h			
Control group	28.3±7.18*‡#	31.6±1.08*‡#	27.1±0.86*‡#
Gln group	11.9±1.7‡#	28.9±3.04‡#	15.1±2.88‡#
24h			
Control group	13.8±3.18*‡	26.96±0.75*‡	3.5±0.66‡
Gln group	5.54±2.54	18±0.91‡	4.03±0.82‡
0h			
Control group	15.1±2.47*‡	20.2±0.61*‡	3.58±0.8‡
Gln group	1.23±0.03	13.9±1.44	2.08±1.32

*: significantly different from correspondent group in the same time point
‡: significantly different from normal control group and time 0h in the same group
#: significantly different from the same group at various time points

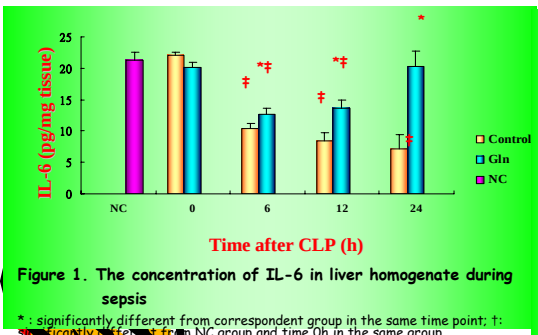

Figure 1. The concentration of IL-6 in liver homogenate during sepsis

* : significantly different from correspondent group in the same time point; ‡: significantly different from NC group and time 0h in the same group

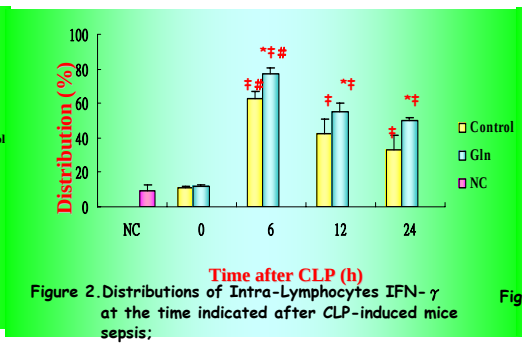

Figure 2.Distributions of Intra-Lymphocytes IFN-γ at the time indicated after CLP-induced mice sepsis;

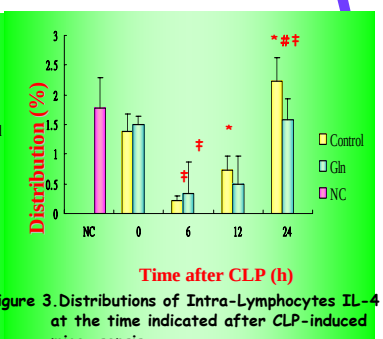

Figure 3.Distributions of Intra-Lymphocytes IL-4 at the time indicated after CLP-induced mice sepsis

結論:給予Gln補充可降低老鼠敗血症時肝外器官如:肺、腎及小腸組織中促發炎細胞激素IL-6的濃度，但肝中IL-6的濃度則可維持或可有助於促進急性期反應。對於淋巴球中Th1細胞激素IFN-γ的濃度則有促進而Th2細胞激素IL-4則有抑制的作用，此結果將會促使敗血症時體內偏向Th1的免疫反應。