

行政院國家科學委員會專題研究計畫成果報告

銀杏對老年癡呆症病患之血液流變之參數治療與評估

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一、中文摘要 本研究最主要是利用血液流變之模型探討銀杏藥物對老年癡呆症病患腦部微循環改善之機轉，量測之血液流變參數包括了高剪切率、低剪切率、血液流場下之血液黏度。此外也配合了NMR瞭解老年癡呆症病患其腦部血液之血流灌注情形，實驗結果發現銀杏藥物的確降低老年癡呆症病患血液黏度並且改善腦部血液血流量灌注。

不足影響腦部機制本研究使著由銀杏藥物改善大腦血液灌注量並試著瞭解銀杏對血液流變參數之影響

三、結果與討論

Table 1
Haematological data of for Alzhecimers disease mellitus (n=16) before and after treatment

parameter	Before treatment mean \pm SD	After treatment mean \pm SD	Difference mean \pm SD	Paired t-test P value
MCV (fl)	90.83 \pm 0.90	90.79 \pm 0.94	-0.04 \pm 0.34	NS
MCHC (g/d)	33.13 \pm 1.14	33.08 \pm 1.28	-0.05 \pm 0.35	NS
Hct (%)	42.10 \pm 1.24	42.13 \pm 1.15	0.02 \pm 1.17	NS
globulin (mg/)	3.43 \pm 0.08	3.42 \pm 0.08	-0.01 \pm 0.05	NS
Albumin (g/)	4.41 \pm 0.11	4.42 \pm 0.09	0.01 \pm 0.05	NS
Fibrinogen (mg/)	328.24 \pm 40.63	283.61 \pm 24.47	-44.63 \pm 23.08	**

** P<0.005

關鍵詞： 銀杏,老年癡呆症,血液黏度

Abstract

The main purpose of this research is to utilize hemorheology model to discuss the impact of Ginkgo to the poor micro blood-microcirculation of Alzhecimers disease. The hemorheology parameters including blood viscosity under the blood flow field of high and low shear rate. Besides, we also utilize NMR (SPECT) to understand the blood perfuse of brain on the Alzhecimers disease. In this experiment, we find Ginkgo decrease the blood viscosity of Alzhecimers diseases and increase the blood perfuse of brain

Keywords: Ginkgo , Alzhecimers diseases, blood viscosity.

二、緣由與目的

由於老年癡呆症病患大腦血液灌注量明顯

Table 2
Haemorheological data and oxygen transport efficiency of blood, MDA of erythrocyte membranes, and retinal capillary blood flow velocities for the pre- and post-treated on Alzheimers disease mellitus (n=16)

Parameter	Before treatment mean ± SD	After treatment mean ± SD	Difference mean ± SD	Paired t-test P value
η plasma (cp)	1.31 ± 0.02	1.23 ± 0.03	-0.08 ± 0.03	**
η blood (cp) ^a ($\gamma=400\text{ S}^{-1}$)	4.32 ± 0.04	3.88 ± 0.11	-0.44 ± 0.10	**
η blood (cp) ^a ($\gamma=150\text{ S}^{-1}$)	4.74 ± 0.05	4.22 ± 0.07	-0.52 ± 0.09	**
η blood (cp) ^a ($\gamma=5\text{ S}^{-1}$)	11.23 ± 0.37	8.35 ± 0.57	-2.88 ± 0.57	**
η blood (cp) ^b ($\gamma=5\text{ S}^{-1}$)	11.54 ± 0.46	8.46 ± 0.89	-3.08 ± 0.79	**
η'' blood (cp) ^b	3.65 ± 0.07	3.13 ± 0.33	-0.52 ± 0.35	**
Blood flow (mm/sce)	3.23 ± 0.12	3.67 ± 0.24	0.44 ± 0.24	**
T _K	0.90 ± 0.03	0.87 ± 0.03	-0.03 ± 0.03	**
T _E	9.74 ± 0.32	10.86 ± 0.42	1.11 ± 0.36	**

** P<0.005

a: the steadily flow model of blood

b: the oscillatory flow model of blood (0.1Hz)

η : the whole blood dynamic viscosity

η'' : the whole blood elasticity viscosity

γ : shear rate

1.實驗結果發現銀杏藥物改善血液黏度造成這種結果應該是與紅血球之變形度改善有關

2.造成大腦血液流速加快可能與血液黏度下降以及紅血球之聚集度下降有關

3.銀杏藥物改善除了血液黏度也改善了血球硬度及攜氧能力都有助改善老年痴呆正病患血液流變異常化

四.參考資料

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