

The in Vivo Distribution of ^{99m}Tc-Phytate IL-2 Complex on Selective Splenic Arterial Injection*

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＝국문초록＝

비장동맥에 선택적으로 투여한 Interleukin-2와 ^{99m}Tc-Phytate 혼합물의 생체내 분포

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Interleukin-2 (IL-2)는 많은 immunoenhancing lymphokine 의 한 종류로서 lymphokine activated killer (LAK) cell의 생성을 자극시켜 흑종의 종양세포를 죽인다고 알려져 있다. 최근 간 종양에서 비장동맥 또는 간동맥으로 투여한 IL-2가 비장의 임파계를 자극하여 LAK cell을 생성하여 어느정도 효과가 있음이 밝혀지면서, 여러가지의 투여 방법이 시도되고 있다. 그러나 각종의 투여 방법에서 실제로 투여한 IL-2의 인체내 분포에 관한 연구는 없다. 저자들은 비정맥과 간문맥에 이상이 없는 중례의 비동맥에 IL-2와 ^{99m}Tc-phytate 혼합물을 투여하고, IL-2의 생체에서의 비장과 간에 어떻게 분포하는지 알아 보기 위하여 ^{99m}Tc의 radioactivity를 계측하여 보았다. 6예의 간세포암과 3예의 위암으로부터의 전이성간암에서 동맥조영술적방법을 이용하여 초선택적 비장동맥에 투여한 IL-2와 ^{99m}Tc-phytate 혼합물이 비장 27%, 간 73%의 분포를 보여 비장을 거쳐온 ^{99m}Tc의 방사능이 간에 많이 침착함을 확인하였고 간과 비장이외의 부위 즉 골수, 복수 또는 폐장이나 늑막에는 전혀 방사능 분포가 없음을 알 수 있었다.

따라서 비정맥이나 간문맥에 이상이 없는 중례에서 IL-2의 비장동맥 투여는 목적하는 바 IL-2의 생체내 분포를 이룩할 수 있을 것으로 사료된다.

INTRODUCTION

Interleukin-2 (IL-2) is an immunoenhancing lymphokine and stimulates lymphokine activated killer (LAK) cells to effect their cytotoxicity against tumor cells. IL-2 is applied to treatment of unresct-

ble hepatoma and advanced stomach cancer, especially metastatic liver tumor. The route of administration is variable. Systemic venous injection and intra-splenic arterial injection were attempted firstly, and nowadays intra-splenic arterial infusion therapy is introduced by some authors¹⁾.

We studied the distribution of IL-2 on super-selective intra-splenic arterial injection by ^{99m}Tc-phytate IL-2 complex.

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INDEX TERMS: Interleukin-2, distribution
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There is a report of in vivo distribution of cells grown in T cell growth factor (TCGF) after intravenous injection⁹⁾. But no reports of the distribution of LAK cells with IL-2 after intra-splenic arterial administration have appeared. This study was therefore undertaken to determine the distribution of LAK cells with IL-2 by intra-splenic arterial administration in human. There showed much more splenic uptake of ^{99m}Tc-pyrate IL-2 complex and much radioactivity in liver of patent splenic vein and portal vein. There was no definite bone marrow activity or pulmonary activity even though all most all of the cases had impaired liver function. The LAK could be generated by IL-2 in spleen and get into the liver through splenic vein and portal vein. By this way, those can have a LAK effect on hepatic neoplasm.

Even though a simple study of the distribution of ^{99m}Tc-phytate, this is thought of be an imaging of the reticuloendothelial systems of liver and spleen and can demonstrate the LAK cell distribution in liver in vivo.

As a conclusion, the direct administration of IL-2 into splenic artery by arterial injection or continuous infusion could fit the purpose of the in vivo distribution of Interleukin-2 to the liver.

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