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Anomalous Tumour Marker Concentrations in Renal Transplant Patients

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Summary: Serial serum determinations of the tumour associated antigens carcinoembryonic antigen, tissue polypeptide antigen, CA 19-9, CA 15-3 and CA 125 were performed on 70 patients who were undergoing, or had undergone renal transplantation.

The period of observation ranged from 4 days pre-operative to 708 days post-operative, although daily monitoring was usually carried out during the first 14–35 days post-operatively.

With the exception of tissue polypeptide antigen, which was analysed with an immunoluminometric assay, all analytes were measured with the Enzymun-Test® System ES-300 using immunoenzymometric assays with colorimetric determination. The interassay coefficients of variation were less than 5% for the immunoenzymometric assays and 8.7% for tissue polypeptide antigen, all values being derived from 20 consecutive assays.

Only 8/70 patients with no complications showed normal concentrations for all five analytes. 6/79 patients showed parallel changes of at least three markers. 7/70 patients had transient elevations of at least one marker, whereas 25/70 patients had a continual elevation of CA 125, 9/70 CA 19-9 and 1/70 CA 15-3, although no patient showed evidence of disease. Two patients, each with 2 rejection episodes, showed daily fluctuations up to 100% for all markers, with the exception of carcinoembryonic antigen. There was no correlation between elevated tumour markers and cytomegalovirus infection.

Introduction

Despite the vast amount of research on developing in-vitro tests suitable for the early detection of cancer, the lack of diagnostic sensitivity and specificity has prevented such methods being used for screening purposes.

This paper follows up earlier reports on dialysis patients from this laboratory (1, 2), as well as from other more recent reports (3) in which elevated tumour marker concentrations were found in the serum of many dialysis patients, without any evidence of malignancy.

As many so-called tumour markers are expressed on the surface of malignant cells (4–6), it was hoped that these tumour associated antigens would be re-

leased into the circulation, thus allowing an early and specific detection of malignancies. It was seen however, that the same tumour associated antigens were expressed and released in non-malignant states, thus preventing their use for screening purposes (3).

It had been noticed that elevated levels of tumour associated antigen CA 125 (CA 125) occurred not only in renal haemodialysis (2), but also in advanced liver cirrhosis due to alcohol abuse (1), and the question arose as to whether uraemia and alcoholism may lead to solubilisation of the membrane-bound tumour associated antigens. This could explain the high CA 125 concentrations sometimes found in these patients. If this were the case, then elevated concentrations should return to normal, at least in the dialysis pa-