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Breakthrough in Early Diagnosis and Treatment Methods of Liver Cancer

The Chinese University of Hong Kong has achieved breakthrough in early diagnosis and treatment method for liver cancer. Members of the Liver Cancer Study Group of the Faculty of Medicine, have succeeded in establishing a new diagnostic blood test for early primary liver cancer.

Primary liver cancer is the number two killer among all cancers in Hong Kong. Figures from the Hong Kong Cancer Registry show that more than 1,500 new cases are found each year and last year 1,200 patients died of liver cancer. Liver cancer is very difficult to cure because there is no accurate method for early diagnosis and the disease is very resistant to cancer drugs. Usually, when a patient is diagnosed as having liver cancer, he is already very sick.

A blood test measuring serum alpha-fetoprotein (AFP) is a standard test for primary liver cancer. The higher the level of AFP, the more likely the patient has cancer. This test is often administrated to HBV carriers and people with chronic liver disease who are more vulnerable to liver cancer. However, the accuracy decreases when AFP is at a low, though abnormal level (between 10 to 500ng/ml). Radiological methods cannot detect tumours less than 1 cm in size. When no focal lesion is found radiologically for a patient with low AFP level, it is difficult for the doctor to be certain whether a small primary liver may have developed. To make diagnosis more difficult, germ cell tumour, chronic liver disease and pregnancy may also give an abnormal level of AFP.

Researchers in the Chinese University have discovered a new method to determine the nature of AFP in different kinds of disease. They have successfully used a method called isoelectric focusing in delineating different types of AFP. This involves subjecting serum AFPs to a strong electric field. It was found that AFPs from different clinical conditions give different bands in the gels under the electric field. By examining the bands, doctors can accurately diagnose the clinical condition and most importantly, diagnose or exclude the presence of a small liver cancer. This new method helps to diagnose liver cancer at the early stage and in turn, increase the chances of curing the disease.

The Chinese University of Hong Kong also has made breakthrough in the treatment of liver cancer. Doctors of the Chinese University first introduced the use of a new method called the selective internal radiation therapy to treat inoperable liver cancer in 1990. The technique is perfected now with the establishment of a mathematical partition model to predict dose of radiation to liver cancer and other non-tumorous areas. Researchers in the Chinese University have found that the use of ^{43} technetium labelled macroaggregated albumin and gamma scan can accurately simulate the actual treatment of selective internal radiation so that the former test can be used to select appropriate patients for the treatment. This has made the treatment safer and more effective in treating liver cancer. This treatment method is effective to liver cancer patients in severe condition. In some cases, the tumours after treatment contract to a small size that operation is made possible.

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