

Perfusion CT may be used as a noninvasive tool in detection of hepatic toxicity

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A research team from China investigated the microcirculation changes in liver of patients with tumor during chemotherapy by perfusion computed tomography (CT). Their study suggested that chemotherapy affects hepatic microcirculation in patients with tumor. Changes in hepatic microcirculation can be quantitatively assessed by perfusion CT.

Liver damage is common in patients with [tumor](#) following chemotherapy. Although early [liver damage](#) causes no symptoms and is reversible in most patients, it occasionally progresses to more severe liver impairment, which may be irreversible, it is thus necessary to demonstrate the presence and severity of drug-related parenchymal changes. At present, the liver function test [alanine aminotransferase (ALT)] is the main index in diagnosis of drug-induced hepatic damage.

However, the ALT value is found a less sensitive index and perhaps cannot thoroughly reflect hepatic toxicity. This emphasizes the need for effective imaging to demonstrate the presence and severity of drug-related parenchymal changes. [Perfusion](#) computed tomography (CT) is a noninvasive method showing hemodynamic changes in living tissue and has been used in the evaluation of liver diseases. However, the microcirculation changes of the liver with perfusion CT during chemotherapy have not been described.

A research team from China investigated the hemodynamic changes in liver during chemotherapy, and estimated the correlation between the perfusion CT parameters and ALT level. Their study will be published

on July 7, 2010 in the [World Journal of Gastroenterology](#).

Three perfusion CT parameters of hepatic perfusion index (HPI), mean transit time (MTT) and permeability-surface area product (PS) were compared among controls, patients and subgroups. The correlations among perfusion parameters, treatment cycle and ALT value were calculated. The study revealed significantly increased HPI and MTT in patients undergoing 2 cycles of [chemotherapy](#) and increased HPI in patients with hepatic steatosis, as well as treatment cycle well correlated with HPI and MTT.

The findings of this study underscore the possibility of using perfusion CT parameters as indicators of hepatic microcirculation alteration in drug-induced liver damage. Perfusion CT may be used as a noninvasive tool in diagnosing hepatic [toxicity](#).

More information: Zhang Q, Yuan ZG, Wang DQ, Yan ZH, Tang J, Liu ZQ. Perfusion CT findings in liver of patients with tumor during chemotherapy. World J Gastroenterol 2010; 16(25): 3202-3205.

www.wjgnet.com/1007-9327/full/v16/i25/3202.htm

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