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PROSPECTIVE STUDY OF ANTI-TUBERCULOSIS DRUG-RELATED LIVER DYSFUNCTION IN HEPATITIS B. CC CHENG[1], WM WONG[1], PC WU[2], MF YUEN[1], WW YEW[3], PC WONG[3], CM TAM[4], CC LEUNG[4], CL LAI[1]. DEPT. OF MEDICINE.[1] AND PATHOLOGY.[2], QMH; DEPT. OF RESP. MEDICINE, TGH[3]; TB AND CHEST SERVICE, DEPT. OF HEALTH[4], HONG KONG

Objectives and Method : Liver toxicity is a common side effect of anti-TB drugs. We studied the differences in liver dysfunction observed during anti-TB treatment between carriers of HBV and HCV, and non-carriers (NC). From 1st of July, 1996 till 30th June, 1997, all patients with newly diagnosed TB from Hong Kong Island were recruited. They were screened for HBV and HCV. Liver function tests were monitored while they were on treatment and for 9 months afterwards. Liver biopsy was done whenever the ALT was persistently abnormal. A histologic scoring system was devised with special emphasis on the probability of drug effects and of exacerbation of chronic hepatitis.

Results : 352 patients were recruited (M/F=226/126, mean age 46.6 years). 45 were HBV+ (12.8%) and 5 were HCV+ (1.4%). Elevation of ALT occurred in 26 of 277 NC (9.4%), 16 HBV patients (36.3%) and 1 HCV patient (20%). One had acute hepatitis B, diagnosed by IgM anti-HBc and histology. Excluding this patient, liver dysfunction was more common in the HBV group (34.9%) than the NC group (9.4%) ($p = <0.001$). Mean age was significantly higher in NC who developed liver dysfunction (mean age = 54.8 in the NC group vs 45.9 in the HBV group) ($p = 0.013$). Comparing the 15 HBV patients and the 26 NC, there was no statistical differences in the LFT (median peak ALT = 482 U/L for HBV+ vs 305 U/L for NC) but the histologic scores was significantly higher in the HBV group (mean 9.8 for HBV patients vs 6.7 for non-carriers)($p=0.023$). Ten were anti-HBe+ and 5 were HBeAg+ on admission to trial (p=NS). 6 (42.8%) HBV carriers were symptomatic during the period of hepatitis versus 13 (50%) non-carriers.

Conclusions : (1) Compared with non-carriers, HBV carriers on anti-TB treatment : (a) had a higher proportion of hepatic dysfunction (34.9% versus 9.3%, $p<0.0001$), (b) HBV patients developed liver dysfunction at a younger age ($p=0.013$), (c) Hepatic dysfunction occurred with equal frequency in anti-HBe and HBeAg positive patients, (d) TB drug-induced liver dysfunction was more severe in HBV group ($p=0.023$). (2) Liver function tests should be closely monitored in non-carriers since 9.4% patients developed liver dysfunction and 50% of these did not have any symptoms.

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A SIMPLIFIED BUT EQUALLY ACCURATE C-13 UREA BREATH TEST FOR HELICOBACTER PYLORI.

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Introduction: C13 urea breath test (UBT) is frequently used as a non-invasive method to diagnose Helicobacter Pylori (H. pylori) infection. The patient needs to fast before the procedure and test meal is given just before the procedure to delay gastric emptying and to increase sensitivity of the test. As the availability of UBT is increased, simpler UBT is required. **Aim**: (1) To study whether fasting and test meal are necessary for UBT (2) To study whether the single breath sample should be taken at 30 minutes (T30) or 45 minutes (T45). **Method**: 60 patients and volunteers were recruited. UBT was performed with two different protocols at two separate days for each subject. Protocol (a): subject fasted for at least 8 hours and 2.4gm citric acid dissolved in orange juice was given as the test meal. Protocol (b): subject is allowed to take meal before UBT and no test meal was given. There was no restriction to the type of meal allowed. Breath samples were collected at both 0 minute and 30 minutes. In 20 of these subjects breath sample was also collected at 45 minutes. H. pylori status was confirmed with antral histology and urease test. **Results**: There was no difference in the baseline $\delta\ 13CO_2$ between the two protocols. When excess $\delta\ 13CO_2\ (\Delta) > 5$ or > 4 per ml was taken as positive H. pylori infection, discrepancies of results were found in 4 subjects (4/60, 6.7%) and 2 subjects (2/60, 3.3%) respectively. The results were not affected whether T30 or T45 was used to calculate the δ value. Accuracy of two protocols was compared using histology and urease test as gold standard:

	$\Delta>5$ as H. pylori positive		$\Delta>4$ as H. pylori positive	
Protocol	**(a)**	**(b)**	**(a)**	**(b)**
Sensitivity	96.9%(32/33)	93.9%(31/33)	100%(33/33)	97.0%(32/33)
Specificity	100%(27/27)	96.3%(26/27)	100%(27/27)	96.3%(26/27)
False neg rate	3.0%(1/33)	6.1%(2/33)	0%(0/33)	3.0%(1/33)
False pos rate	0%(0/27)	3.7%(1/27)	0%(0/27)	3.7%(1/27)
Overall accuracy	98.3%(59/60)	95.0%(57/60)	100%(60/60)	96.7%(58/60)

Conclusion: C-13 urea breath test without fasting and test meal is as accurate as one with fasting and test meal. The former protocol is more comfortable for the patient and is ideal for out-patient diagnosis of Helicobacter pylori. Diagnosis of H. pylori using an excess value of greater than 4 per ml at 30 min improves accuracy of both protocols.