Antiretroviral therapy - associated metabolic abnormalities among HIV-infected Chinese patients

Ho CF, Wong KH, Chan KCW, Lee SS, Lee CK, Mak WL, Kwong SC, Leung KY
Integrated Treatment Centre, Centre for Health Protection, Department of Health, Hong Kong SAR, China

Background
Highly active antiretroviral therapy (HAART) is associated with metabolic abnormalities, the pattern of which has been characterised in Caucasians. We set out to describe these abnormalities in a Chinese cohort who were given protease inhibitor (PI)-based HAART.

Methods
The biochemistry findings of 115 antiretroviral-naïve Chinese patients who were started on PI-based HAART were followed for 16 months. Blood tests were performed every 3-4 months and patients were instructed to fast for at least 8 hours before blood taking. Metabolic abnormalities were arbitrarily defined as fasting blood sugar >7.8 mmol/L, triglyceride >4.5 mmol/L, and total cholesterol >6.2 mmol/L.

Results
Eight female and 107 male subjects of mean age 41 years (SD 9) were recruited. Among all, 63 (55%) took the same regimen unchanged during 16 months of follow-up; 44 (70%) were on indinavir, 12 (19%) on ritonavir-boosted indinavir, 6 (10%) on nelfinavir and one on ritonavir-boosted lopinavir (Kaletra®).

Subjects with metabolic abnormalities at baseline were excluded in the individual metabolic analysis. After 16 months of PI-based HAART, a total of 4 (out of 106) patients developed hyperglycaemia; 13 (out of 108) developed hypertriglyceridemia; 24 (out of 104) developed hypercholesterolemia. The cumulative incidence of hyperglycaemia, hypertriglyceridemia and hypercholesterolemia was 0.16, 0.57, and 1.25 per 100 person-years, respectively. Figure 1 showed the differences in the onset time of the metabolic events while Figure 2 showed the magnitude (means in mmol/L) in the elevation of blood sugar, triglyceride and total cholesterol in the groups with events versus those without.

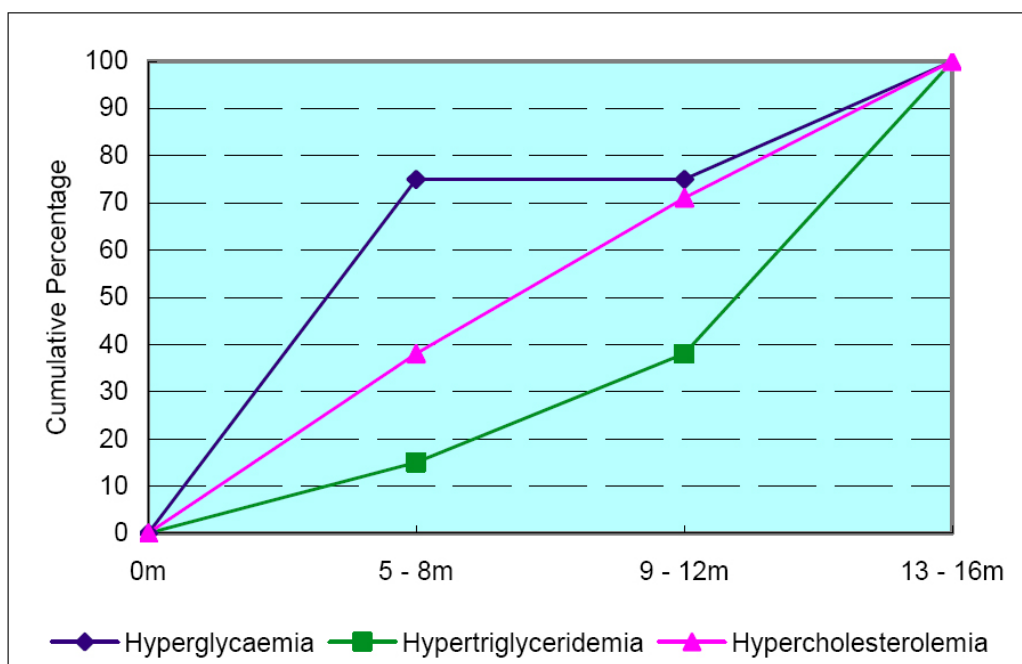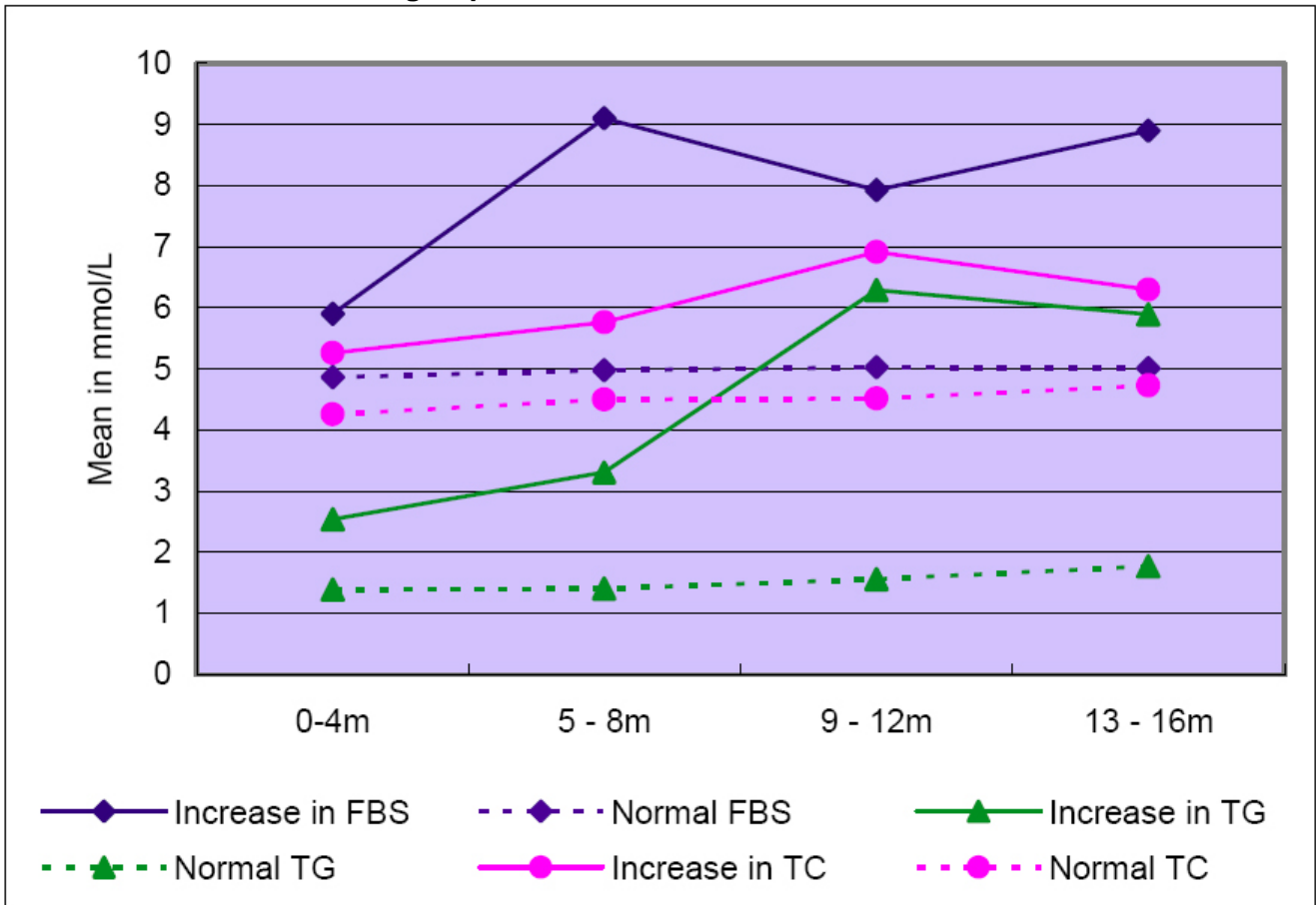**Figure 1 The cumulative prevalence of metabolic abnormalities with PI-based HAART**

Figure 2 The magnitude of biochemistry findings (means in mmol/L) between the groups with metabolic events versus the groups without the events

Conclusions
Metabolic abnormalities are relatively common in Chinese HIV-infected patients on PI-based HAART. Whereas hypercholesterolemia is the commonest, hyperglycaemia presents the earliest. When present, hypertriglyceridemia is usually severe.