Conclusion: In conclusion, vitamin D deficiency is common in patients with type 2 diabetes mellitus. Although vitamin D deficiency has been shown to be related with micro vascular complications of diabetes in many studies, this relationship could not be ascertained in our study.

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PROFILE OF AMYLASE AND LIPASE IN INDONESIAN TYPE 2 DIABETIC PATIENTS

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Background: The vast majority case of diabetes mellitus is Type 2 DM. The main pathophysiological feature of type 2 DM are impaired insulin secretion and increased insulin resistance. There are multiple defects in the insulin secretion and signaling in type 2 DM, which may affect the enzyme synthesis and release in the exocrine pancreas. Type 2 DM is the putative risk factor for pancreatitis. The recent studies have demonstrated an elevated serum pancreatic enzyme (amylase and or lipase) in Indonesian Type 2 DM subject.
The aim of the study was to evaluate the correlation between fasting blood glucose, insulin resistance and lipase/amylase ratio in type 2 DM, and also the correlation of elevated serum pancreatic enzyme with progression of Type 2 DM.
Method: The subjects were categorized into three groups which include: healthy controls (n = 21), prediabetes (n = 12), and diabetes (n = 34). That clinical identification was assessed according to American Diabetes Association (ADA) criteria in 2013. Plasma glucose and lipid profile testing (total cholesterol, HDL cholesterol, LDL cholesterol and triglycerides) were measured using an auto analyzer. Serum lipase was measured colorimetric method using Assay Kit. Insulin concentration was measured using Elisa kit. The results were analyzed statistically using SPSS version 16.0 statistical software. The results were expressed as mean ± SD if the variables were continuous, and as percentage, if categorical. Multivariate analysis of variance was used for differences in continuous variables. Multiple regressions were applied for correlation studies. All statistical tests were two-side and a $P < 0.05$ was considered to be significant. Path Analysis Hypothetic Model was analyzed using Structure Equation Modeling – Generalized Structure Component Analysis (SEM-GSCA).
Result: The results showed that there were elevated levels of blood glucose, insulin resistance, and serum pancreatic enzymes (amylase and or lipase) activities in type 2 DM. The increased serum pancreatic enzymes activities were positively correlated with increased levels of blood glucose, insulin resistance, and decreased proinsulin level. The ratio of serum lipase/amylase showed a positive correlation with duration of diabetes, FPG levels, insulin resistance, decreased insulin sensitivity, and increased lipase activity. The elevated level of lipase correlated with long-standing of diabetes, decreasing level of insulin, increasing FBG, HbA1c, insulin resistance and dyslipidaemia profile. The contribution coefficient in path analysis showed it was positive significantly contribution between increasing glucose level and lipase activity, but elevated lipase contributed not significant to glucose elevation.
Conclusion: The ratio of serum lipase/amylase will be able to determine the acute phase of alcoholic and non-alcoholic pancreatitis. The high serum lipase correlates with progression of type 2 diabetes.
Impact: The serum lipase/amylase ratio had been proposed to distinguish the etiology of pancreatitis and it could differentiate acute episodes of pancreatitis.

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THE NUMBER OF METABOLIC SYNDROME'S COMPONENTS ASSOCIATED WITH FIBRINOGENEMIA IN PATIENTS WITH TYPE 2 DIABETES

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Background: Metabolic syndrome (MetS) is a cluster of cardiovascular disease risk factors that the prevalence increased in developing country. Several studies have demonstrated that this syndrome atrongly predicts cardiovascular disease. Recently, close association of MetS with haemostatic abnormalities including plasma fibrinogen has been reported. Plasma fibrinogen is a marker of inflammation and it is considered to be one of the predictors of coronary artery disease. The aim of this study was to determine the prevalence of MetS in and to analyze the association between the number of MetS components with fibrinogenemia in patients with type 2 diabetes.
Method: We analyzed 100 patients with type 2 diabetes consisting of 60 male and 40 female patients using cross sectional observational design. Blood pressure, body weight, height and waist circumference (WC) were measured. We also obtained fasting plasma glucose (FPG), HbA1c, total cholesterol (TC), low density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C), triglyceride (TG) and fibrinogen level from blood venous samples. MetS was defined according National Cholesterol Education Program Adult Treatment Panel (NCEP ATP) III definition when 3 of 5 components were present, the diagnosis MetS could be established. The components were abdominal obesity (men >90 cm, women >80 cm), blood pressure ⩾130/⩾85 mmHg, FPG ⩾100 mg/dL, TG ⩾150 mg/dL and HDL-C (men <40 mg/dL; women <50 mg/dL). Based on fibrinogen levels, patient was defined hyperfibrinogenemia if the fibrinogen level >400 mg/dL. Data was statistically analyzed using logistic regression test.
Result: There were 75 patients had at least 3 components of MetS that the prevalence of MetS in this study based on NCEP ATP III definition was 75%. The mean of WC in these 100 patients was 99.21±10.28 cm, FPG was 181.31±79.60 mg/dL, HbA1c was 8.67±2.32%, TC was 199.02±50.62 mg/dL, LDL-C was 123.83±41.16 mg/dL, HDL-C was 44.93±10.69 mg/dL and TG was 196.53±18.30 mg/dL. The overall mean of fibrinogen level was 381.08±123.07 mg/dl, while 69% patients were normofibrinogenemia and 31% were hyperfibrinogenemia. There was only one patient (1%) patient had one MetS component with fibrinogen level 241 mg/dL, 24 patients (24%) had two MetS components with the average fibrinogen level was 345.62±105.22 mg/dL, 44 patients (44%) had three MetS components with the average fibrinogen level was 359.32±92.47 mg/dL, 26 patients (26%) had four MetS components with the average fibrinogen

level was 423.00±123.92 mg/dL and 5 patients (5%) had five MetS components with the average fibrinogen level was 380.45±224.54 mg/dL. There was significant association between the number of MetS components and fibrinogen level (p 0.023; $p < 0.05$).

Conclusion: Prevalence of MetS in this study was 75% based on NCEP ATP III definition and there was significant association between the number of MetS components and fibrinogenemia in patients with type 2 diabetes

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THE ASSOCIATION BETWEEN DIABETIC RETINOPATHY AND DEPRESSIVE SYMPTOMS: A PILOT STUDY

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Background: The overall prevalence of any retinopathy is reported recently about 18.2 % to 30.7% among diabetic patients dwelling in the community in Hong Kong[1,2], where the prevalence of depressive symptoms (PHQ-9 score ⩾5) was 13.7%[3] for general populations. Depressive symptoms affect approximately one-quarter of diabetic patients and are associated with suboptimal metabolic control, poor adherence to medication[4]. We hypothesized the presence of depressive symptoms could lead to chronic complications such as Diabetic Retinopathy (DR).

Objectives: To assess the rate of depressive symptoms and depression scores between mild and moderate/advanced DR patients; to determine the associated factors of depressive symptoms among DR patients.

Method: Fifty-five type 2 diabetes patients with mild or more advanced stage of retinopathy were randomly selected from a DR screening registry at the Integrative Community Health Centre at Lai King in Hong Kong from 2005 to 2013. Nine positions of gaze from each eye were photo-documented with pupil dilation. The current severity of DR was graded according to The Early Treatment Diabetic Retinopathy Study classification guideline, using only the worse eye. In addition to demographic data, the Patient Health Questionnaire-9 (scores range from 0 to 27, with higher scores indicating more severe depression symptoms), the WHO-5 depression scale, diabetes related emotional distress scale, and satisfaction with family support (Family APGAR scale) were measured.

Result: A total of 50 DR patient patients (28 men and 22 women, mean age of 65.6 [range 47.6 to 82.6]) were included in the present analysis. An overall mean PHQ-9 depression score (SD) was 2.82 (2.72), with a higher score for women than men (3.55 vs. 2.25, $p > 0.05$). Overall 5 (22.7%) women and 2 men (7.1%) reported depressive symptoms (PHQ-9 ⩾7). Table 1 shows both mild and moderate or advanced DR reported higher depression score than those without DR, and diabetes without retinopathy were less likely report any mild or above depressive symptoms. Since a small sample size, we were not able to show a statistical significance. However, The PHQ-9 depression scores were significantly correlated with age, the WHO depression scores, and diabetes related emotional distress scores but inversely associated with satisfaction with family support, education level, and personal monthly income (all $p < 0.05$). There was no significant correlation between depression and smoking, drinking, body mass index, blood pressure.

Table 1. Depression score[a] and level of depressive symptom severity by diabetic retinopathy (DR) status in 2014

	No DR	Mild DR	Moderate or worse DR	Total
Number[b]	7	36	5	48
Depression score	0.86	3.25	2.8	2.82
Level of depressive symptom severity				
Minimal (0–4)	7 (100%)	25(69.4%)	4 (80.0%)	36 (75.0%)
Mild (5–9)	0	9 (25%)	1 (20%)	10(20.8%)
Moderate (10–14)	0	2(5.6%)	0	2 (4.2%)

[a] Measured by PHQ-9; scores range from 0 to 27, higher scores indicate more severe depression symptoms.
[b] Two cases were excluded for unable grading retinopathy stage.

Conclusion: Patients with DR were vulnerable to depressive symptoms compared to counterparts without DR. A prospective study is warranted to exam the temporal relationship between DR at different stage and depressive symptoms.

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COMPARISON OF HYPERURICEMIA PREVALENCE IN NORMAL GLUCOSE TOLERANCE SUBJECTS AND TYPE 2 DIABETES PATIENTS IN A CHINESE POPULATION

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Background: Hyperuricemia is attached increasing importance as it has been found by some studies to be not only associated with gout but play a critical role in the occurrence and development of many metabolic diseases, including type 2 diabetes, hypertension and coronary heart disease. The prevalence of hyperuricemia was reported to be high in patients with type 2 diabetes and varied across different