Mortality prediction model of Korean diabetic patients

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Background: Subjects with diabetes are at increased risk of mortality than normal population. Only a few researches had been performed to predict mortality in patients with diabetes and its clinical applicability has been unsatisfactory. The purpose of this study was to propose a mortality prediction model in Korean subjects with diabetes. **Methods:** Subjects with diabetes who visited Seoul St. Mary hospital from 2009 to 2013 were enrolled in the study (n=7,137). Subjects who missed data in major variables were excluded from the study (n=1,423). Seventy percent of the remaining population (n=4,000) were randomly selected to develop mortality prediction model using multivariate logistic regression analysis in men and women, separately. Validity of the model was measured through AUC of ROC (Receiver Operating Characteristic) curve in remaining 30% of study population (n=1,714). A satisfactory survey was conducted in 38 volunteered patients to measure clinical efficacy of the model. **Results:** Among total of 5,714 subjects, 249 deaths occurred during the follow-up. Age ≥65 years, BMI <18.5 kg/m^2, presence of hypertension, GFR <90 ml/min/1.73㎡ and standard deviation of serially measured HbA1c (HbA1c-SD) ≥0.1% were associated with higher risk for death in men. Age ≥60 years, presence of hypertension and HbA1c-SD) ≥0.3% were significantly associated with higher risk for death in women. The AUCs of ROC for mortality prediction were 0.75 and 0.74 in men and women, respectively. The satisfaction survey revealed that the model helped patients to understand their disease status (89.13%) and motivated them to change their lifestyle (86.85%) **Conclusions:** Our research group has successfully established a mortality prediction model of diabetes patients. The model would assist physicians to make better clinical decision and motivate patients to modify their lifestyle. More precise estimation of health care outcome in diabetes patients would result in reduction of social healthcare expense.

Protective effect of exenatide against the development of diabetes in prediabetes subj ects

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Various researches have been conducted to delay or prevent the development of diabetes in prediabetes subjects. In this study, we aimed to investigate the effect of GLP-1 agonist on prediabetes to evolve to overt diabetes. In this retrospective cohort study, we selected the prediabetes subjects who received the exenatide therapy more than 3 months between 2011 and 2013. Twofold numbers of prediabetes subjects who visited the outpatient clinic around the same time and received only the life style modification education were selected as a control group. The age, sex, BMI, HbA1c and FPG were matched with exenatide group. In this period, a total of 20 prediabetes subjects (3 men and 17 women) received exenatide therapy. Baseline mean age, BMI, HbA1c, and FPG were 54.8±9.2 years, 27.7±3.5 kg/m^2, 5.8±0.4 % and 109.6±12.5 mg/dL, respectively. During the mean follow-up period of 39.3±1.0 months, only 2 new cases (10%) of diabetes were identified in exenatide group compared with 13 new cases (32.5%) in control group. An analysis using the Cox proportional hazards model showed that the risk of developing diabetes increased with higher HbA1c (≥6.1%) compared with lower HbA1c (<6.1%); the relative risks (RR) of diabetes were 6.9 times greater. Due to the lack of the case number, we could not show the statistical significance. But the Exenatide showed the possibility of risk reduction (RR: 0.33, 0.95% confidence interval (CI): 0.068 to 1.597, $p=0.168$).