physical functioning (PF), general health (GH), vitality (VT) and mental health (MH) subscales. Multiple linear regressions were used to assess the association between usage patterns, HRQoL scores and other sociodemographic, health behavior and health service utilization characteristics. RESULTS: Of 7158 women retained at Survey 4, 885 were identified as having diabetes with overall prevalence of cardiovascular medication use of 89.9%. After adjusting for other covariates, being on three classes of cardiovascular medications was significantly associated with increased scores on PF (coefficient 16.134, 95% CI 6.940-25.327), GH (10.058, 95% CI 2.649-17.468) and MH (12.996, 95% CI 6.152-18.852) subscales. Being on any two classes was associated with increased scores on PF and GH (coefficient 14.744, 95% CI 5.988-23.501 and 8.334, 95% CI 1.200-15.467, respectively), whereas using single cardiovascular drug was only significantly associated with increased scores on PF (coefficient 12.346, 95% CI 3.943-20.750). Intensive use of cardiovascular medications to support diabetes management was shown to be subjectively beneficial. Concern about perceived deterrence on HRQoL attributable to pill burden might be captured if a diabetes-specific instrument was employed.

**IMPACT ASSESSMENT OF CBIA-DM STRATEGY ON DIABETIC PATIENTS’ QUALITY OF LIFE**

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OBJECTIVES: CBIA is a small group discussion which emphasizes on the active role of participants in looking for information. CBIA has been proven effective to improve knowledge, increase patient’s adherence to treatment program, pharmacy assistant’s skills in hypertension drug information service, and skills in early detection of Breast Cancer. Therefore, CBIA was developed adapting the original CBIA, enriched with key messages in healthy life-style for diabetic patients as CBIA-DM. This study was aimed to assess the impact of CBIA-DM on diabetic patients’ quality of life. METHODS: Time-series, pre and post quasi-experimental design. Three groups were involved in the study: CBIA-DM, DM-clinic and normal-care group. Data were collected in pre-intervention, immediately, one, three and 6 months post intervention using WHO-QOL-Bref questionnaires Bahasa version. Categorizing scores in good (<mean ± SD) level. Effectiveness of CBIA-DM was assessed by the increasing of participant number in good level which steady remains until 6 months post-intervention, time-required and cost/person for conducting CBIA-DM, and acceptance of CBIA-DM by the participants. RESULTS: In general quality of life, participant number of CBIA-DM (n = 30) increased from 13.3% to 16.7%. In health status: general, physical, psychological, social-relationships, and environment, increased from 23.3% to 40%, 13.3% to 23.3%, 16.7% to 23.3%, 16.7% to 30%, and 16.7% to 26.7% respectively. Time-required for conducting CBIA-DM was one-third (3 vs. 9 hours) with cost/person (0.28 US $D 65 vs 22.75) compared to DM-clinic. Participants expressed that CBIA-DM was enjoyable. CONCLUSIONS: CBIA-DM is cost effective strategy and has positive-impact on diabetic patients’ quality of life.

**DIABETES/ENDOCRINE DISORDERS – Health Care Use & Policy Studies**

**EVALUATION OF ANTIDIABETIC UTILIZATION AND PRESCRIBING PATTERNS IN TAIWAN DURING 2004 TO 2008**

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OBJECTIVES: To assess utilization and prescribing patterns of antidiabetics in Taiwan. METHODS: This cross-sectional study used the Taiwanese Diabetic Pay-for-performance Register to extract a diabetic outpatient claim dataset from the National Health Insurance reimbursement data. Adult diabetic patients with at least one antidiabetic prescription during 2004 to 2008 were indentified and prescription details were collected. Antidiabetic drugs were stratified by into injection (insulin) and five chemical groups of oral drugs. Pattern of antidiabetic combination was categorized by both type and number of combined drugs. Frequency of different prescribing pattern was calculated and presented as annual prescribing rate and analyzed by Cochran-Armitage trend test to test a significant ascending or descending trends. All data was processed in SAS 9.1. 3. RESULTS: Over 95% prescribing patterns was composed of monotherapy, combination of any two, and combination of any three antidiabetics with approximate 30%, 47%, and 18% annual prescription rate, respectively. The most frequent types of drugs within above three patterns included single sulfonylurea (SU1), combined one biguanide and one sulfonylurea (BG1+SU1), and combined one biguanide, one sulfonylurea and one thiazolidinedione (BG1 + SU1 + TZD1). Prescribing rates of SU1 (from 18.1% to 9.83%) and BG1 + SU1 (from 37.6% to 34.46%) decreased over the study period (P <0.001), but BG1 + SU1 + TZD1 revealed an increasing trend (from 8.45% to 10.99%, P < 0.001). Any prescribing pattern containing insulin presented an increamental annual prescribing rate, but the prescribing rates for those only consist of oral drugs declined over time. CONCLUSIONS: Antidiabetic prescribing patterns in Taiwan have changed and shifted from simple monotherapy to multiple combinations of newer drugs. Meanwhile, prescribing rates of single-use or combination use insulin have also risen. It is necessary to further investigate the impacts of change prescription patterns on diabetic complications.

**THE EFFECTS OF METFORMIN BRAND SHIFTS BY HOSPITAL ON DIABETIC TREATMENT OUTCOMES**

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OBJECTIVES: Diabetes has become one of the major chronic diseases of the 21st century, and has ranked fifth on the main causes of death in Taiwan for years. The high cost of antidiabetic medications expenditure has brought the concern on the generic and brand drugs substitution. The purpose of the study was to investigate the effects of hospital drug brand changes on physicians’ prescription behavior and patients’ outcomes. METHODS: The study was conducted at a medical center in Taipei city. We recruited those who had taken the same medicine regularly from January 2004 to June 2004. In the next 4 years, the study hospital had made Switches of manufactures of metformin four times. Physicians’ prescription data and patients’ glycated hemoglobin values were collected. We retrospectively analyzed the prescription patterns for oral antidiabetic medications of patients with persistence medication service in five different metformin brand stages. RESULTS: The results show 1) the average amount of anti-diabetes drugs in each prescription was significantly increased; 2) the prescribing rates were significant increased for acarbose and insulin, and decreased for metformin, glibenclamide and rosiglitazone; 3) the daily dose of metformin, which was on average between 1.563 mg and 1.611 mg, wasn’t increased significantly regardless of the change in manufacturers and 4) The HbA1c values of study patients were significantly increased, but no significant difference was observed in different metformin brand stages. CONCLUSIONS: The use of generic drugs can effectively reduce the cost of medication. The results provide information for hospital administrators in drug purchasing and price negotiating with the manufacturers.

**VASOREGULATORY DISEASES AND DURABILITY OF GOOD GLYCEMIC CONTROL IN PATIENTS WITH TYPE 2 DIABETES MELLITUS**

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OBJECTIVES: To study the transition time of patients with Type 2 diabetes mellitus (T2DM) progressing from “good” to “poor” glycemic control and its association with the number and type of diabetes-related vascular diseases such as coronary heart disease, stroke, eye complications, peripheral vascular disease, and nephropathy. METHODS: In this retrospective study, data from a diabetes disease registry were used. A cohort of T2DM patients who had attended either a hospital specialist clinic or a primary care diabetes service, and deemed to have “good” control (at least two consecutive HbA1c ≤ 7%) from October 2005 to March 2006 were included in the study. Patients were subsequently followed up for a period of 4 years. Time to “poor” glycemic control (HbA1c > 8%) for each diabetes-related vascular disease was calculated using Kaplan-Meier analysis. Hazards Ratio (HR) was adjusted for age, gender, ethnicity, BMI, duration of diabetes, baseline HbA1c, LDL-cholesterol and insulin use using Multivariate Cox analysis. RESULTS: There were 7739 T2DM patients, with median age of 68 years and baseline HbA1c of 6.4%. Over a quarter (28.9%) of patients reached “poor” control at the end of 4 years, with a median time of 575 days (95% CI: 550-600). Multivariate Cox regression analysis suggested that likelihood of “poor” control was increased with each additional diabetes-related vascular disease (AdjHR 1.14, 95% CI: 1.07–1.23) and higher for eye complications (AdjHR 1.47, 95%CI: 1.17-1.86) and nephropathy (AdjHR 1.43, 95% CI:1.06-1.93). CONCLUSIONS: Despite starting with “good” glycemic control, 3 out of 10 T2DM patients progressed to “poor” glycemic control at the end of 4 years of study. Patients with more diabetes-related vascular diseases were at higher risk of progressing to “poor” control, particularly those with microvascular complications.

**DIABETES-RELATED COMPLICATIONS AND GLYCEMIC CONTROL IN TYPE 2 DIABETIC MELLITUS PATIENTS AT SPECIALIST OUTPATIENT CLINICS IN SINGAPORE**

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OBJECTIVES: Type 2 diabetes mellitus (T2DM) patients often have co-existing hypertension and dyslipidemia and some develop retinopathy, peripheral vascular disease (PVD), stroke, nephropathy and coronary heart disease (CAD). This study investigates the prevalence of these conditions which are associated with T2DM and the association with optimal glycemic control (HbA1c up to 7%). METHODS: This is a cross-sectional study. We included all T2DM patients who were treated at the specialist outpatient clinics (SOCs) in three public-sector hospitals in Singapore during January 2009 and were on follow-up at the same clinic for at least 12 months. All data were extracted from the National Healthcare Group (NHG) Diabetes Registry (CDMS), including the medical diagnosis at each visit. The presence of hypertension, dyslipidemia and glycemic control for each diabetes-related condition and performed logistic regression for “optimal” glycemic control adjusting for age, gender and ethnicity. RESULTS: Of the 3420 T2DM patients, 2919 (85%) with HbA1c results were analyzed: 53% female and 64% Chinese, high prevalence of dyslipidemia (92.7%) and hypertension (74.5%). About 1249 (42.8%) patients had “optimal” glycemic control. CAD (28.7%) was the most common condition, followed by PVD (23.5%), retinopathy (21.8%), nephropathy (14.4%) and stroke (10.7%). The Malay group had the highest proportion of hypertension.