Clinical Outcomes of Type 2 Diabetic Patients Before and After Attending Siriraj Continuity of Care Clinic

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Background: *Many diabetic patients did not receive proper medical care to achieve treatment goals based on clinical practice recommendations. Siriraj Continuity of Care clinic (CC clinic) has been established specifically for medical students and internal medicine residency training purpose since 2006. The training components in the teaching clinic might contribute to overall better outcomes for Type 2 diabetic patients comparing to regular service clinics.*

Objective: *To evaluate the efficacy of Siriraj CC clinic curriculum on improving clinical outcomes of diabetic patients.*

Material and Method: *The authors retrospectively reviewed medical records of type 2 diabetic patients who had been referred from regular service clinics of Siriraj Out-Patient Department (OPD) to CC clinic during 2007 to 2011. Clinical outcomes of these patients were compared: before vs. after entering CC clinic.*

Results: *One hundred and eighty medical records were reviewed. The mean of HbA1c were 7.5 and 7.3 percent before and after entering CC clinic ($p = 0.026$). Comparing clinical outcomes before vs. after entering CC clinic, we found that the percentage of patients who had optimal BMI and who had achieved LDL goals were 16.3 vs. 21.6 ($p = 0.021$), and 56.7 vs. 73.1 ($p = 0.001$), respectively. The proportion of patients who received annual diabetic complication assessments were also higher after entering CC clinic: the percentage of patients who received examinations of the eye, had urine micro albumin checked, had been screened for diabetic foot were increased from 58.3 to 93.3 ($p < 0.001$), 35.6 to 83.9 ($p < 0.001$), and 6.7 to 91.1 ($p < 0.001$), respectively. Moreover, there were more patients who received adult health care maintenance program including: cancer screening program (clinical breast examination, mammography, fecal occult blood test and pap smear) and immunization (influenza, diphtheria tetanus and pneumococcal vaccine) ($p < 0.001$) after entering CC clinic.*

Conclusion: *After entering CC clinic, diabetic patients had better clinical outcomes as well as received better screening and health care maintenance program comparing to regular service clinics. The focus training components in this clinic has played a major role on contributing the preferred clinical performance among medical students and internal medicine residents.*

Keywords: *Efficacy, Continuity of care clinic, Diabetes mellitus type 2, Outcome-based curriculum*

J Med Assoc Thai 2013; 96 (Suppl. 2): S82-S90
Full text. e-Journal: *http://jmat.mat.or.th*

Type 2 diabetes mellitus (T2DM) is common in Thailand and worldwide. The disease is chronic and leads to several organ damages, including both micro vascular and macrovascular complications, which may cause morbidity and mortality. Multifactorial intervention has been shown to be effective in reducing the development and progression of these complications. The American Diabetes Association (ADA) publishes updated clinical practice recommendations in 2011 as shown in Table 1[1].

There are increasing numbers of diagnosed diabetes patients among the population in Thailand who more than 15 years old, rising from 4.4% in 1997 to 6.9% in 2009, and more than 7,000 deaths due to diabetic complications each year[2,3]. Data from National health examination survey office (NHESO), indicates there were up to one third of diabetes patients who did not recognize their diseases, 3.3% of diagnosed diabetes patients did not receive treatment, and only 28.5% of treated diabetes patients who achieve glycemic control[3]. Of 722 diabetes patients from the study of Apiradee and colleges in Siriraj Hospital in 2006[4,5],

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Table 1. Target clinical practice guideline recommendations[11]

Recommendations	Targets
HbA1c	< 7%
Fasting blood sugar	90-129 mg/dl
Lipid profile	
- Total cholesterol	< 170 mg/dl
- LDL-C	< 100 mg/dl
- HDL-C	≥ 40 mg/dl (male), ≥ 50 mg/dl (female)
- Triglyceride	< 150 mg/dl
Blood pressure	
- Systolic BP	< 130 mmHg
- Diastolic BP	< 80 mmHg
Body mass index	18.5-22.9 kg/m^2

there were only 64.5% and 60% who received HbA1c and lipid profile measurement. Only 49% of the patients achieved the target HbA1c of less than 7% and nearly 29% of the patients had HbA1c of more than 8%.

Recent data shows that continuity of care is associated with overall satisfaction but is not associated with intermediate outcome in HbA1c, blood pressure and body weight reduction[6]. The other studies show that continuity of care is significantly associated with weight loss and fasting blood glucose reduction[7,8], decrease of hospitalization or emergency department visits and reduced health care costs[9]. The effect of continuity of care on diabetes outcomes in a resident continuity clinic showed a link between resident continuity and improvement in glycemic control in diabetes patients[10]. The explanation was continuity of care may be of benefit in patients with illnesses that requires a significant number of self-management behaviors and educations[7]. However, the relevance of continuity of care in diabetes patients and its effect on diabetic control remains uncertain.

Faculty of Medicine Siriraj Hospital is the largest academic medical center in Thailand. Siriraj Continuity of Care clinic (CC clinic) in Department of Medicine has been established since 2006, and is operated by general internal medicine, which does not encompass the endocrine subspecialty. The aim of CC clinic is to holistically manage the patients who have chronic illness, including disease prevention and health promotion. Moreover, CC clinic is an instrument for 6th year medical students' and 1st year internal medicine residents' training programs. They were supervised by staff from Division of Ambulatory Medicine. The parts of training program included patient education for life style modification, diet control, exercise to reduce cardiovascular risks, comprehensive diabetic management to achieve target clinical practice recommendation and health promotion, including cancer screening and immunization[11]. CC clinic provided a checklist sheet to remind the medical students and residents for completely caring the patients. Therefore, the present study aimed to evaluate the efficacy of academic continuity of care clinic in type 2 diabetic patients compared with Siriraj Out-Patient Department (OPD) service.

Material and Method

Subjects

Eight hundred and ten type 2 diabetic patients' medical records were reviewed. Only 180 patients were eligible. The authors excluded the patients who had been pregnant, admitted due to acute illness during the present study period, had adjusted hypoglycemic agents by other physicians during the study period and who had inadequate available data.

Processes

The medical record of each patient was reviewed. The following data were recorded.

1. General characteristics including age, date of entering CC clinic, weight, height, body mass index (BMI) co-morbid diseases, smoking status, alcoholic status and diabetic complications.

2. Laboratory results and other parameters (such as body weight, blood pressure) from each Out-patient visit and each CC clinic visit during the 12 months before and after entering CC clinic were recorded.

3. Data of the assessment of diabetes clinical practice guideline recommendations, including HbA1c level, fasting blood sugar (FBS), systolic blood pressure (SBP) and diastolic blood pressure (DBP), plasma LDL-Cholesterol (LDL-C), plasma triglyceride (TG) and body mass index were extracted. The authors used the laboratory results on the day of entering CC clinic represent the information for "before CC clinic", if no data was available from that day, the alternative data was the last results during the 12 months before that day; the information for "after CC clinic" was the last results during the 12 months after that day.

4. Data of diabetic complications including diabetic retinopathy (DR), diabetic nephropathy (DN), chronic kidney disease (CKD), diabetic neuropathy, peripheral arterial disease (PAD), cardiovascular disease

(CVD) and cerebrovascular disease (CVA) were recorded. The severities of DR and DN were segregated due to criteria defined by the American Diabetes Association.

5. Data of disease prevention, cancer screening and immunization were recorded.

Statistical analysis

Continuous data, which are presented as means ± SD, were compared with the use of Paired t-test or Wilcoxon Signed Ranks test. Categorical data, which are expressed as percentage, were compared with the use of McNemar test. All statistical analyses were performed with the use of SPSS software, version 14.0. For all analyses, a p-value of less than 0.05 was considered to be statistically significant.

Results

Subject characteristics

One hundred and eighty type 2 diabetic patients were recruited and baseline clinical and laboratory characteristics are summarized in Table 2. More than eighty percent had been hypertension and dyslipidemia. Over forty percent had been diagnosed diabetic complications. There was about 8.3% with diabetic neuropathy, 39.1% with diabetic nephropathy, 20.0% with diabetic retinopathy, 10.0% with cerebro vascular diseases, 4.4% with coronary artery disease and 10.0% with more than one diabetic complication.

Each laboratory results and relevant parameter for target clinical recommendations

From one hundred and eighty diabetic patients, there were only 168 patients who had available data on HbA1c level measurement both before and after CC clinic. The HbA1c level declined from 7.5% to 7.3% after CC clinic (p = 0.026). Similarly, triglyceride level declined from 158.7 mg/dl to 136.6 mg/dl after CC clinic (p = 0.001). Body mass index was reduced from 26.1 kg/m^2 to 25.9 kg/m^2 after CC clinic (p = 0.046). However, no difference of fasting blood sugar, blood pressure level and LDL-C level occurred between before and after CC clinic as shown in Table 3.

Attainment of diabetes clinical practice guideline recommendation

From one hundred and eighty diabetes patients, 42.3% of the patients achieved the target HbA1c of less than 7% before CC clinic. When entering CC clinic the number of patients who achieved the target HbA1c was increased to 47.6% (p = 0.262). Regardless of the HbA1c, the target BMI 18.5-22.9 kg/m^2 and LDL-C < 100 mg/dl were significantly increased from 16.3% to 21.6% and 56.7% to 73.1%, respectively (p = 0.021 and 0.001). The target FBS, blood pressure and triglyceride levels were not different between before and after CC clinic (Table 4).

Assessment of glycemic control and chronic diabetic complications

As shown in Table 5, of 180 patients, 168 patients (93.3%) received annually HbA1c measurement before CC clinic, whereas 179 patients (99.4%) received it after CC clinic. For diabetic complications assessment, only 12 patients (6.7%) received foot examination by monofilament, whereas 164 patients (91.1%) received foot examination after CC clinic (p < 0.001). Only 64 patients (35.6%) received urine microalbumin or protein examination before CC clinic,

Table 2. Baseline characteristics before entering CC clinic

Characteristics	Total number	Mean ± SD
Number	180	
Age (years)	180	63.8 ± 11.0
Gender; n (%)	180	
Male		65 (36)
Female		115 (64)
Height (cm)	160	158.3 ± 8.4
Weight (kg)	170	65.7 ± 12.8
BMI (kg/m^2)	153	26.1 ± 4.4
Smoking (%)	180	12 (6.7)
Alcohol (%)	180	13 (7.2)
SBP (mmHg)	180	132.5 ± 16.9
DBP (mmHg)	180	76.8 ± 11.8
HbA1c (%)	168	7.5 ± 1.5
FBS (mg/dl)	180	142.5 ± 43.3
Triglyceride (mg/dl)	171	158.7 ± 87.9
LDL-C (mg/dl)	174	96.6 ± 32.5
HDL-C (mg/dl)	167	49.5 ± 13.4
Creatinine (mg/dl)	172	0.94 ± 0.31
Comorbid diseases		
HT (%)	180	147 (81.7)
Dyslipidemia (%)	180	144 (80)
Diabetic complications	180	
None		106 (58.9)
Neuropathy		1/12 (8.3)
Nephropathy		25/64 (39.1)
Retinopathy		21/105 (20.0)
Stroke/Transient ischemic attack		18 (10.0)
Coronary artery diseasee		8 (4.4)
≥ 2 complications		18 (10.0)

Table 3. Comparison of each laboratory results and relevant parameter for target clinical recommendations between before and after entering CC clinic

Target	Before entering CC clinic Mean ± SD	After entering CC clinic Mean ± SD	p-value
HbA1c (%)	7.5 ± 1.5	7.3 ± 1.2	0.026
FBS (mg/dl)	142.5 ± 43.3	141.3 ± 46.5	0.788
SBP (mmHg)	132.5 ± 16.9	130.7 ± 15.8	0.226
DBP (mmHg)	76.8 ± 11.8	76.2 ± 10.7	0.578
BMI (kg/m^2)	26.1 ± 4.4	25.9 ± 4.1	0.046
LDL (mg/dl)	96.6 ± 32.5	91.8 ± 25.3	0.054
TG (mg/dl)	158.7 ± 87.9	136.6 ± 58.6	0.001

Table 4. Comparison of the patients that achieved each clinical recommendation between before and after entering CC clinic

	Before entering CC clinic (%)	After entering CCclinic (%)	p-value
HbA1c < 7.0%	71 (42.3)	80 (47.6)	0.262
FBS 90-129 mg/dl	73 (40.6)	73 (40.6)	1.0
Blood pressure < 130/80 mmHg	61 (33.9)	62 (34.4)	1.0
BMI 18.5-22.9 kg/m^2	25 (16.3)	33 (21.6)	0.021
LDL < 100 mg/dl	97 (56.7)	125 (73.1)	0.001
TG < 150 mg/dl	97 (58.1)	109 (65.3)	0.111

Table 5. Comparison of the patients that received diabetic control and complication assessment between before and after entering CC clinic

	Before entering CC clinic (%)	After entering CC clinic (%)	p-value
HbA1c annually	168 (93.3)	179 (99.4)	0.001
Diabetic complications			
Foot examination (monofilament)	12 (6.7)	164 (91.1)	< 0.001
-Normal	11 (91.7)	133 (81.1)	0.697
-Impair protective sensation	1 (8.3)	31 (18.9)	
Urine albumin examination	64 (35.6)	151 (83.9)	< 0.001
-Normal	39 (60.9)	89 (58.9)	0.902
-Microalbuminuria	21 (32.8)	50 (33.1)	
-Macroalbuminuria	4 (6.3)	12 (8.0)	
Serum creatinine	172 (95.6)	171 (95.0)	1.0
Eye examination	105 (58.3)	168 (93.3)	< 0.001
-Normal	83 (79.0)	125 (74.4)	0.912
-NPDR	19 (18.1)	26 (15.5)	
-PDR	2 (1.9)	3 (1.8)	
EKG	38 (21.1)	69 (38.3)	0.001
Chest x-rays	24 (13.3)	28 (15.6)	0.659

whereas 151 patients (83.9%) received urine microalbumin or protein examinations after CC clinic ($p < 0.001$). Eye examination by ophthalmologist was done for only 105 patients (58.3%) before CC clinic, whereas 168 patients (93.3%) received such an examination after CC clinic ($p < 0.001$). EKG was assessed in 38 patients (21.1%) before CC clinic, whereas 69 patients (38.3%) were tested after CC clinic ($p = 0.001$). Notably, serum creatinine was measured in about 170 patients (95%), similarly before and after CC clinic.

Prevalence of chronic diabetic complications

The prevalence rates of diabetic neuropathy, diabetic nephropathy and diabetic retinopathy, in type 2 diabetic patients in the present study were 18.9, 41.1, and 17.3%. Of 151 patients who had diabetic nephropathy, 50 patients (33.1%) had microalbuminuria and 12 patients (8.0%) had macroalbuminuria. Of 168 patients who had diabetic retinopathy, 26 patients (15.5%) had non-proliferative DR (NPDR), and 3 patients (1.8%) had proliferative DR (PDR) as shown in Table 5.

Whether experienced CC clinic effects on glycemic control

The authors compared the number of patients who achieved target HbA1c of less than 7.0% and the patients who did not achieve target HbA1c, as shown in Table 6. We found that 71 patients (42.3%) achieved target HbA1c before CC clinic, whereas 80 patients (47.7%) achieved target HbA1c after CC clinic ($p = 0.262$). There were 30 patients (17.9%) who were improved in HbA1c, but 117 patients (69.6%) were not. Moreover, 21 patients (12.5%) could not maintain HbA1c target after CC clinic. When the authors categorized the patients into 3 levels of HbA1c; < 7.0, 7.0-7.9 and ≥ 8.0%, the authors found that 48 patients (28.6%) had improvement of HbA1c level, 93 patients (55.4%) had no change of HbA1c, whereas 27 patients (16.0%) had worse HbA1c, as compared with before CC clinic (Table 7) ($p = 0.054$).

For hypoglycemic events (defined as fasting blood sugar less than 70 mg/dl) from recorded data, the authors found 5 patients experienced 7 hypoglycemic episodes before CC clinic, whereas 7 patients with 7 hypoglycemic episodes after CC clinic.

Cardiovascular prevention

From diabetes clinical practice guideline 2011, aspirin prescription is recommended for prevention of cardiovascular disease. The primary prevention is recommended in diabetes male who is more than 50 years old and the female who is more than 60 years old with at least one risk factor. In the present study, there were 105 patients (58.3%) before CC clinic received aspirin prophylaxis and 157 patients (87.2%) after CC clinic received aspirin prophylaxis ($p < 0.001$) (Table 8).

Table 6. Comparison of the patients between HbA1c < 7.0% group and HbA1c ≥ 7.0% group

Before entering CC clinic/After entering CC clinic	HbA1c < 7.0%	HbA1c ≥ 7.0%	Total
HbA1c < 7.0%	50 (29.8)	21 (12.5)	71 (42.3)
HbA1c ≥ 7.0%	30 (17.9)	67 (39.8)	97 (57.7)
Total	80 (47.7)	88 (52.3)	168 (100)
Percentage of patients who received HbA1c goal - Before entering CC clinic = 71 patients (42.3%) - After entering CC clinic = 80 patients (47.6%)			

The number increase 9 patients (5.4%) (95% confidence interval = 2.8% to 9.9%)
30 patients (17.9%) had better HbA1c
117 patients (69.6%) had no change of HbA1c
21 patients (12.5%) had worse HbA1c. p-value = 0.262

Table 7. Comparison of the patients between HbA1c < 7.0% group and HbA1c 7.0-7.9% group and HbA1c ≥ 8.0% group

Before entering CC clinic/After entering CC clinic	HbA1c < 7.0%	HbA1c 7.0-7.9%	HbA1c ≥ 8.0%	Total
HbA1c < 7.0%	50 (29.8)	18 (10.7)	3 (1.8)	71 (42.3)
HbA1c 7.0-7.9%	25 (14.9)	24 (14.3)	6 (3.6)	55 (32.7)
HbA1c ≥ 8.0%	5 (2.9)	18 (10.7)	19 (11.3)	42 (25.0)
Total	80 (47.6)	60 (35.7)	28 (16.7)	168 (100)

48 patients (28.6%) had better HbA1c (95% confidence interval = 22.3% to 35.8%)
93 patients (55.4%) had no change of HbA1c
27 patients (16.0%) had worse HbA1c
p-value = 0.054

There were 96 patients who had indication for primary prevention and 37 patients who had indication for secondary prevention. The authors found that aspirin was prescribed for primary prevention in only 51 patients (53.1%) before CC clinic, whereas 86 patients (89.6%) after CC clinic ($p < 0.001$). For secondary prevention, there was no different between before and after CC clinic.

Common cancer screening and immunization

The patient received cancer screening after CC clinic more than before CC clinic ($p < 0.001$) as shown in Table 9. The authors also did subgroup analysis for the patients who had indication for cancer screening. Breast cancer screening is indicated for female who is $\geq$ 45 years old by clinical breast examination or mammography. There were 54 patients (49.1%) of 110 indicated female patients who received breast cancer screening after CC clinic, compare with 6 patients (5.5%) before CC clinic ($p < 0.001$). For colorectal cancer screening, which is recommended for $\geq$ 50 years old, 78 patients (48.4%) of 161 patients were sent for fecal occult blood test or colonoscopy after CC clinic, compare with 11 patients (6.8%) before CC clinic ($p < 0.001$).

There were significantly more patients who were advised for immunization after CC clinic, compare with before CC clinic: diphtheria-Tetanus vaccine 36.7% vs. 1.1%, influenza vaccine 61.7% vs. 3.9%, and pneumococcal vaccine 17.8% vs. 1.7%, respectively ($p < 0.001$).

Discussion

The present study demonstrated that "Academic continuity of care clinic" or "CC clinic", the parts of training program included patient education for life style modification, diet control, exercise, comprehensive diabetic management to achieve target goals and health promotion, including cancer screening and immunization, was associated with better outcome in type 2 diabetic patients. HbA1c level, body mass index and triglyceride level were significantly lowered after entering CC clinic. Moreover, there were increasing number of patients who achieved the targets of HbA1c,

Table 8. Comparison of the patients who received aspirin prophylaxis for cardiovascular prevention between before and after entering CC clinic

	Before entering CC clinic (%)	After entering CC clinic (%)	p-value
Total 180 patients	105 (58.3)	157 (87.2)	< 0.001
Indication for primary prevention (n = 96)	51 (53.1)	86 (89.6)	< 0.001
Indication for secondary prevention (n = 37)	33 (89.2)	35 (94.6)	0.5

Table 9. Comparison of the patients who received cancer screening and immunization between before and after entering CC clinic

	Before entering CC clinic (%)	After entering CC clinic (%)	p-value
Screening for cancer			
Clinical breast examination*	5 (4.5)	49 (44.5)	< 0.001
Mammography*	3 (2.7)	24 (21.8)	< 0.001
Clinical breast examination or mammography*	6 (5.5)	54 (49.1)	< 0.001
Pap smear**	14 (7.8)	61 (33.9)	< 0.001
Fecal occult blood test***	11 (6.8)	76 (47.2)	< 0.001
Colonoscopy***	2 (1.2)	5 (3.1)	0.453
Fecal occult blood test or colonoscopy***	11 (6.8)	78 (48.4)	< 0.001
Immunization			
diphtheria-Tetanus	2 (1.1)	66 (36.7)	< 0.001
Influenza	7 (3.9)	111 (61.7)	< 0.001
Pneumococcal	3 (1.7)	32 (17.8)	< 0.001

* Female patients $\geq$ 45 years old (110 patients)
** Female patients $\geq$ 21 years old(115 patients)
*** Patients $\geq$ 50 years old (161 patients)

body mass index, LDL-C and triglyceride levels. This finding indicates that continuity of care may be of benefit for glycemic control and has strong benefits for reducing some cardiovascular risk factors, especially obesity and dyslipidemia. The authors supposed that continuity of care might an intervention which supports the patient-doctor relationships, increases subsequent patients' education about their disease's management and leads them to reduce their cardiovascular risk factors and improve glycemic control. Our data is consistent with the previous study from University of Kentucky College of Medicine[10]. which showed a significant relationship between a decrease in HbA1c and resident physician continuity.

From our data, there were only 42.3% of patients who achieved the target HbA1c of less than 7.0%, and 25% of patients who had HbA1c of more than 8.0%. This is similar to the present study of Apiradee and College in 2006[4,5], which found that 49% of patients who achieved target HbA1c of less than 7.0%, and nearly 29% of patients who had HbA1c of more than 8.0%. This is reflective of ineffective diabetic control strategy in Thailand. Nevertheless, our results showed improvement in glycemic control after intervention with CC clinic, which found that the patients who achieved target HbA1c of less than 7.0% increased up to 47.6% and the patients who had HbA1c of more than 8.0% declined to 16.7%, but was just as nearly significant ($p = 0.054$). This confirms the benefit of CC clinic on glycemic control.

The prevalence rates of chronic diabetic complications were shown in the present study: 18.9% of diabetic neuropathy, 41.1% of diabetic nephropathy (33.1% with microalbuminuria and 8.0% with macroalbuminuria) and 17.3% of diabetic retinopathy (15.5% with NPDR and 1.8% with PDR). The prevalence rates were not different between before and after CC clinic, which reflect that diabetes is not a rapid progressive disease during this short study period. Our study also shows the benefit of CC clinic on assessment of diabetic complication, which is shown by the increased number of patients who received screening for diabetic neuropathy, diabetic nephropathy and diabetic retinopathy after CC clinic intervention. The authors surmise that it's because of large number of patients and subsequently reducing time for each patients, which might cause the physician to neglect assessment of diabetic complications. Concerning aspirin prophylaxis, our data also showed the benefits of CC clinic. The number of patients who received aspirin for cardiovascular prevention was increased from 58.3% to 87.2%. Similarly, our result shows the benefit of CC clinic on cancer screening, health promotion and immunization.

The data show that the small number of patients who received assessment of diabetic complication, cardiovascular prevention, cancer screening and immunization before CC clinic, reflects the ignorance of physicians about holistic diabetic management. This result emphasizes to the physicians the importance of holistic care.

Conclusion

The present study demonstrated benefits of CC clinic in type 2 diabetic patients on glycemic control, cardiovascular risk factors, attainment of assessment diabetic complications, cancer screening and immunization comparing to regular service clinics. Continuity of care might be an effective strategy to improve achievement of clinical recommendations. These results encouraged the physicians to be concerned about holistic diabetic cares. Moreover, the focus training components in this clinic has played a major role on contributing the preferred clinical performance among medical students and internal medicine residents.

Acknowledgement

The present study is supported by Siriraj Research Development Fund. The authors wish to thank Suthipol Udompunturak for statistical data analysis.

Potential conflicts of interest

None.

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ประสิทธิผลของคลินิกดูแลสุขภาพต่อเนื่องโรงพยาบาลศิริราชในผู้ป่วยเบาหวานชนิดที่ 2

ธิติพร กิจภิญโญชัย, ศุภภาณุ์ฤกษ์ ไพศาลสุทธิ, ชัยวัฒน์ วชิรศักดิ์ศิริ, วีรชัย ศรีวณิชชากร, เชิดชัย นพมณีจำรัสเลิศ, เจริญ ฉั่วริยะกุล, เด่นหล้า ปาลเดชพงศ์, พจมาน พิศาลประภา

ภูมิหลัง: *ผลการรักษาผู้ป่วยเบาหวานชนิดที่ 2 ส่วนใหญ่ยังไม่ได้ตามเป้าหมายตามแนวทางการรักษาที่ยอมรับกันทั่วโลก คลินิกดูแลสุขภาพต่อเนื่อง โรงพยาบาลศิริราช ซึ่งถูกจัดตั้งขึ้นมาเมื่อปี พ.ศ. 2549 เพื่อการเรียนการสอนของนักศึกษาแพทย์ชั้นปีที่ 6 และแพทย์ประจำบ้านอายุรศาสตร์ชั้นปีที่ 1 ภายใต้การดูแลของอาจารย์อายุรศาสตร์ น่าจะช่วยให้การรักษาโรคเบาหวานได้ตามเป้าหมายดีกว่าคลินิกผู้ป่วยนอกอายุรศาสตร์ที่ให้บริการโดยทั่วไป*

วัตถุประสงค์: *เพื่อศึกษาประสิทธิผลของคลินิกดูแลสุขภาพต่อเนื่องต่อการดูแลรักษาผู้ป่วยเบาหวานชนิดที่ 2*

วัสดุและวิธีการ: *เป็นการศึกษาแบบย้อนหลังโดยทบทวนเวชระเบียนของผู้ป่วยเบาหวานชนิดที่ 2 ที่ย้ายจากคลินิกผู้ป่วยนอกอายุรศาสตร์ทั่วไปเข้าคลินิกดูแลสุขภาพต่อเนื่องโรงพยาบาลศิริราชในช่วงระยะเวลาตั้งแต่ปี พ.ศ. 2550 ถึง ปี พ.ศ. 2554 โดยเก็บรวบรวมและเปรียบเทียบข้อมูลของผู้ป่วยในช่วงระหว่าง 1 ปีก่อนและหลังเข้าคลินิกดูแลสุขภาพต่อเนื่อง*

ผลการศึกษา: *จากผู้ป่วยเบาหวาน 180 คน ค่าเฉลี่ยของระดับฮีโมโกลบินเอวันซีเท่ากับ 7.5 และ 7.3 เปอร์เซ็นต์ ในผู้ป่วยก่อนและหลังเข้าคลินิกดูแลสุขภาพต่อเนื่องตามลำดับ ($p = 0.026$) มีผู้ป่วยที่มีดัชนีมวลกายอยู่ในเกณฑ์ที่เหมาะสมคิดเป็นร้อยละ 16.3 และ 21.6 มีผู้ป่วยที่มีระดับไขมัน LDL ได้ตามเป้าหมายคิดเป็นร้อยละ 56.7 และ 73.1 ก่อนและหลังเข้าคลินิกตามลำดับ ($p = 0.021$ และ 0.001) หลังจากเข้าคลินิกดูแลสุขภาพต่อเนื่องมีจำนวนผู้ป่วยเบาหวานที่ได้รับการตรวจประเมินภาวะแทรกซ้อนของโรคเบาหวานมากขึ้น โดยมีผู้ป่วยที่ได้รับการตรวจตาเพิ่มขึ้นจากร้อยละ 58.3 เป็น 93.3 ได้รับการตรวจปัสสาวะเพื่อประเมินโปรตีนในปัสสาวะเพิ่มขึ้นจากร้อยละ 35.6 เป็น 83.9 และได้รับการตรวจประเมินความรู้สึกที่เท้าด้วยโมโนฟิลาเมนต์เพิ่มขึ้นจากร้อยละ 6.7 เป็น 91.1 ($p < 0.001$, < 0.001 และ< 0.001) นอกจากนี้ผู้ป่วยที่คลินิกดูแลสุขภาพต่อเนื่องได้รับการตรวจคัดกรองโรคมะเร็งตามมาตรฐาน (ตรวจเต้านมโดยแพทย์หรือตรวจแมมโมแกรม ตรวจอุจจาระเพื่อคัดกรองโรคมะเร็งลำไส้ใหญ่ และตรวจภายในแปบเสมียร์) และได้รับให้การฉีดวัคซีนป้องกันโรค (โรคไข้หวัดใหญ่ โรคคอตีบบาดทะยัก และโรคติดเชื้อแบคทีเรีย streptococcus pneumoniae) มากกว่าก่อนเข้าคลินิกเช่นกัน ($p < 0.001$ ทั้งหมด)*

สรุป: *คลินิกดูแลสุขภาพต่อเนื่องมีประสิทธิผลที่ดีในการดูแลรักษาผู้ป่วยเบาหวานให้ได้ตามเป้าหมาย มีการประเมินภาวะแทรกซ้อนของโรคเบาหวาน รวมถึงการตรวจคัดกรองโรคมะเร็ง การฉีดวัคซีนป้องกันโรคและดีกว่าคลินิกผู้ป่วยนอกอายุรศาสตร์ที่ให้บริการโดยทั่วไป เนื่องจากมีการมุ่งเน้นเพื่อการเรียนการสอนของนักศึกษาแพทย์และแพทย์ประจำบ้านอายุรศาสตร์เป็นสำคัญ*