Attainment of American Diabetes Association Clinical Practice Recommendations in 722 Thai Type 2 Diabetes Patients

Apiradee Sriwijitkamol MD*,
Yuwarat Moungngern RN*, Sathit Vannaseang MD*

** Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand*

Background: *Each year the American Diabetes Association (ADA) publishes the update clinical practice recommendation. However, the achievement of these practice recommendations remained suboptimal in several studies. The purpose of this study is to determine the degree diabetes patients achieved optimal clinical practice recommendations and to determine factors associated with reduced attainment of these recommendations in T2DM patient.*

Material and Method: *We conducted retrospective review medical records of Thai type 2 diabetes patients who were followed-up at out-patient department of internal medicine department, Siriraj hospital, Thailand, during January to December 2006.*

Results: *Of 722 diabetes patients who were recruited, 64.5% and 60% had received HbA1c and plasma lipid profiles measurements, respectively, whereas blood pressure measurement was done in all patients. Forty-nine percent achieved the target HbA1c of less than 7%, 64% achieved LDL-C and HDL-C targets and 58% achieved the triglycerides target, whereas only 31% of the patients achieved the BP target recommendation. Fifty-two percent of patients achieved at least 3 items according to ADA practice recommendation and 47.8% achieved only 0-2 items of clinical recommendation. Category of health care provider and elderly patients were independent factors for attainment of clinical practice recommendations. Moreover, patients who were diagnosed with diabetes for longer than 10 years and who used insulin treatment were independent factors for achieving good glycemic control.*

Conclusion: *These data demonstrated a substantial proportion of diabetes patients did not achieve ADA clinical practice recommendations. This apparent gap was depended on categories of health care provider and patients' age. The novel and more effective strategies targeted these groups are needed to improve achievement of these recommendations.*

Keywords: *ADA practice recommendation, Glycemic control, Diabetes clinical practice*

J Med Assoc Thai 2011; 94 (Suppl. 1): S159-S167
Full text. e-Journal: *http://www.mat.or.th/journal*

Type 2 diabetes mellitus (T2DM) is common in Thailand and worldwide. Patients with T2DM have high prevalence of diabetic complications, including microvascular and macrovascular complication. Intensified multifactorial intervention has been shown to be effective in reducing the development and progression of these complications[5,6]. Each year, the American Diabetes Association (ADA) publishes updated clinical practice recommendations. Table 1 summarizes selected ADA clinical practice recommendations that were published in 2006[2]. However, some of these practice targets are poorly achieved in T2DM patients. Data from the National Health and Nutrition Examination Survey in 1999-2002 demonstrated that 49.8% of diabetes patients had HbA1c level of less than 7% and only 40% and 36% of them achieved blood pressure (BP) and LDL cholesterol (LDL-C) recommendations, respectively[11]. Thailand Diabetes Registry (TDR)[10] survey in 2005 had shown that only 30.7% of T2DM patients had HbA1c level of less than 7%, moreover, only 13.9% and 36.7% achieved BP and LDL-C recommendations, respectively[10].

Siriraj Hospital is one of the university hospital and a tertiary care center in Thailand. Almost 8,000 T2DM patients have been attend the out-patient department (OPD) of the internal medicine department

Correspondence to:
Sriwijitkamol A, Division of Endocrinology and Metabolism, Department of Medicine, Faculty of Medicine, Siriraj Hospital, Prannok, Bangkoknoi, Bangkok 10700, Thailand.
Phone: 0-2419-7799
E-mail: siaswj@mahidol.ac.th

Table 1. American Diabetes Association (ADA) clinical practice recommendations 2006[2]

Practice recommendations	Goal
HbA1c (%)	< 7
Blood pressure (mmHg)	
Systolic blood pressure	< 130
Diastolic blood pressure	< 80
LDL-cholesterol (mg/dl)	<100
HDL-cholesterol (mg/dl)	
Male	> 45
Female	> 55
Triglycerides (mg/dl)	< 150

each year. There are several clusters of physicians taking care of T2DM patients in Siriraj Hospital. These consist of general practitioners (GP), internal medicine residents (Res), internists, including those being in fellowship training and other specialists (Int), and endocrinologists (Endo). Due to those several groups of health care providers, the standard of care for T2DM patient may have some variations. Thus, it is of interest to determine the degree diabetes patients achieved ADA clinical practice recommendations and to determine factors associated with reduced attainment of these recommendations in T2DM patient.

Material and Method

Subjects

From 8,000 T2DM patients who had attended internal medicine OPD Siriraj Hospital during January-December 2006, we randomly chose 722 patients to be in this study. Diabetes patients other than T2DM and those who attended the OPD for less than 1 year were excluded. The study was approved by the Institutional Review Board of Faculty of Medicine Siriraj Hospital Mahidol University.

Processes

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

1. General characteristics including education and access the various levels of social welfare system. The social welfare system in Thailand can be divided to 4 groups consisting of national health security, social security, medicare and self payment.

2. Laboratory results from the last time the patient presented at the OPD were used.

3. Data of the assessment of ADA clinical practice recommendations, including HbA1c level, systolic (SBP) and diastolic blood pressure (DBP), plasma LDL-C, plasma HDL-cholesterol (HDL-C), and plasma triglycerides level during the pass year were extracted.

4. Data of diabetic complications including diabetic retinopathy (DR), diabetic nephropathy (DN), chronic kidney disease (CKD), diabetic foot, cardiovascular disease (CVD) and cerebrovascular disease (CVA) were recorded. The severities of DR, DN and CKD were segregated according to the criteria defined by the American Diabetes Association[2].

5. Health care providers were segregated to 4 groups including general practitioners (GP), internal medicine residents (Res), internists, including those who were in fellowship training, and other specialists (Int) and endocrinologists (Endo).

Definitions

1. The social welfare system in Thailand can be divided to 4 groups consisting of 1.1) National health security: the health coverage is paid by government for all Thais who have no other health coverage, 1.2) Medicare: the health coverage is paid by government for government officers and their families, 1.3) Social security: the health coverage paid by employers and government for the employees and 1.4) Self payment: the group of patients who paid for themselves or by insurance company.

2. Attainment of ADA recommendations: Patients who attained at least 3 items according to ADA clinical practice recommendation (Table 1) were defined as "achieved", while patients who met only 0-2 items of clinical recommendation were defined as "not achieved".

3. Glycemic control: Patients who had HbA1c of < 7% were defined as "good glycemic control", while patients who had HbA1c of > 7% were defined as "poor glycemic control".

Statistical Analysis

Continuous data, which are presented as means ($\pm$ SD) or median (min, max) as appropriate, were compared with the use of Student's t-test or Mann-Whitney U test, respectively. Categorical data, which are expressed as percentage, were compared with the use of Chi-square test. Simple logistic regression was used to estimate the odds ratios for the groups defined according to attainment of ADA recommendations and glycemic control status. Multivariable logistic regression analyses were performed to adjust for

potential confounding factors. All statistical analyses were performed with the use of SPSS software, version 17.0. For all analyses, a p-value of less than 0.05 was considered to be statistically significant.

Results

Subject characteristics

Seven hundred twenty two T2DM patients were recruited, only 574 (79.5%) of them could identify the specialty of the health care provider. Of 574 patients, 54 patients (9.4%) were treated by GP, 75 patients (13.1%) by Res, 360 patients (62.7%) by Int and 85 patients (14.8%) by Endo. Table 2 summarizes the subject's clinical and laboratory characteristics. Thirteen percent of diabetes patients used insulin, and 87.8% used oral hypoglycemic medications. Notably, 89.1% of patients used either insulin or oral medication and 6.0% used the combination of insulin and oral medications.

Attainment of ADA clinical practice recommendations

From seven hundred twenty two patients, 466 patients (64.5%) had received HbA1c measurements during the study period. Only 49% of the patients achieved the target HbA1c of less than 7% and only 26.4% of them achieved the target HbA1c of less than 6.5%. Nearly 29% of the patients had HbA1c of more than 8%. Similarly, only 60% of the patients had received measurements of plasma lipid profiles during the past year. The finding was more favorable for the lipid level; 64% of patients achieved LDL-C and HDL-C targets, and 58% of them achieved the triglycerides target. In contrast to HbA1c and lipid measurements, BP was measured in 80.9% of the patients. However, only 31% of patients achieved the target BP.

Of 722 patients, 437 patients had available data which made it possible to determine attainment of ADA recommendation. Only 3% of them achieved all clinical practice recommendations and 5.3% of them did not achieve any recommendations. As shown in Fig. 1, 52.2% of them achieved at least 3 items according to the ADA clinical practice recommendation (achieved group) and 47.8% of them achieved only 0-2 items of the clinical recommendation (not achieved group).

Table 3 compared each clinical recommendation between the achieved and not achieved groups. Patients in achieved group had HbA1c, LDL-C and triglycerides levels lower than those in the not achieved group, whereas SBP, DBP and HDL-C level were higher in patients in the achieved group than patients in the not achieved group.

Table 2. Clinical and laboratory characteristics

Characteristics	Total n	
Number	722	
Age (yr)	717	64.5 ± 11.9
Gender; n (%)	722	
Male		303 (42)
Female		419 (58)
Height (cm)	259	160.7 ± 8.4
Weight (kg)	580	65.8 ± 12.5
BMI (kg/m2)	230	26.0 ± 4.4
Education; n (%)	238	
None		16 (6.6)
Elementary school		67 (28.2)
Secondary school		67 (28.2)
University		88 (37.0)
Smoking status (%)	428	
Current		23 (5.4)
Ex-smoker		44 (10.3)
Non-smoking (%)		361 (84.3)
Provider; n (%)	574	
GP		54 (9.4)
Resident		75 (13.1)
Internist		360 (62.7)
Endocrinologist		85 (14.8)
Social welfare system; n (%)	603	
National Health Security		33 (5.5)
Social Security		198 (32.8)
Medicare		45 (7.5)
Self payment		327 (54.2)
Duration of diagnosed DM (yr)	585	7.0 (0,38)
Duration of treatment (yr)	687	4.0 (0,38)
Hypoglycemic agent (%)	654	
Diet control only		32 (4.9)
OHA only		535 (81.8)
Insulin only		48 (7.3)
OHA and insulin		39 (6.0)
SBP (mmHg)	584	132 ± 20
DBP (mmHg)	584	75 ± 12
HbA1c (%)	466	7.4 ± 1.7
Triglyceride (mg/dl)	463	148 (32,1,086)
LDL-C (mg/dl)	443	92 ± 33
HDL-C (mg/dl)	437	50 ± 13
Creatinine (mg/dl)	601	1.3 ± 1.3

Continuous data with normal distirbution are presented as means (± SD), others are presented as median (min, max) M, male; F, female; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; LDL-C, LDL-cholesterol; HDL-C, HDL-cholesterol; OHA, oral hypoglycemic agent

Factors associated with an attainment of ADA practice recommendation

To determine factors associated with

Table 3. Comparison of each clinical recommendation between achieved and not achieved groups

	Not achieved (n = 209)	Achieved (n = 228)	p-value
SBP (mmHg)	130 ± 20	133 ± 19	0.05
DBP (mmHg)	74 ± 11	76 ± 11*	0.01
HbA1c (%)	8.2 ± 2.0	6.9 ± 1.9*	< 0.001
LDL-C (mg/dl)	101 ± 35	83 ± 27*	0.002
HDL-C (mg/dl)	46 ± 13	54 ± 12*	< 0.001
Triglycerides (mg/dl)	186 (33, 1,086)	113 (32, 341)*	< 0.001

Continuous data with normal distirbution are presented as means (± SD), others are presented as median (min, max)
*p-value < 0.05 (significance)

attainment of the ADA recommendation, we performed analysis which compared patients between achieved and not achieved group. As shown in Table 4, there were more missing data in patients who were taken care of by GP and Res groups; this could imply that GP and Res had checked each clinical parameter less frequently than Int and Endo. Patients in the achieved group were older and were treated by Endo more than those in the not achieved group. Patients being taken care by Res were in the not achieved group more than others. The self payment group achieved ADA recommendation more than those who were paid by government or employers. There were no differences in other demographic data, education and duration and treatment for diabetes. Multivariate analysis demonstrated that age was an independent factor for attainment of ADA recommendation, whereas treatment by resident was an independent factor of poor attainment of ADA recommendation (Table 5). Patients in achieved group had less prevalence of cardiovascular disease and diabetic foot problems than those in the not achieved group, as shown in Fig. 2.

Factors associated with glycemic control

To determine factors associated with glycemic control, we divided patients into 2 groups; HbA1c > 7% (poor glycemic control) and < 7% (good glycemic contol). As demonstrated in previous sections, 466 of 722 patients (64.5%) had HbA1c measurement during the study period. Fig. 3 showed that patients who were taking care by GP and Res had HbA1c measurement less often than those taken care of by Int and Endo. As shown in Table 6, older age and shorter duration of diagnosed diabetes were associated with good glycemic control. Treatments by Res, payment by medicare and using insulin were factors associated with poor glycemic control. As shown in Table 5, multivariate analysis demonstrated that older age was an independent factor for achievement of good glycemic

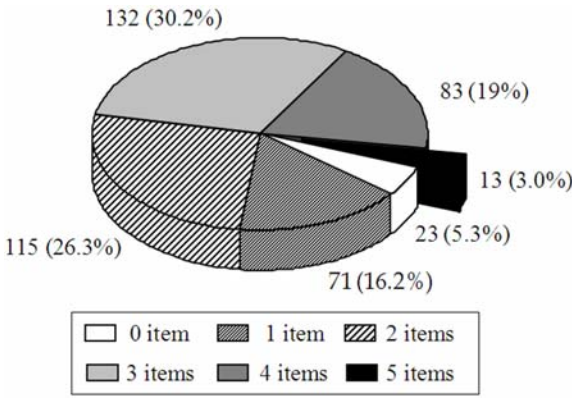

Fig. 1 Number (%) of patient achieving each ADA clinical practice recommendations

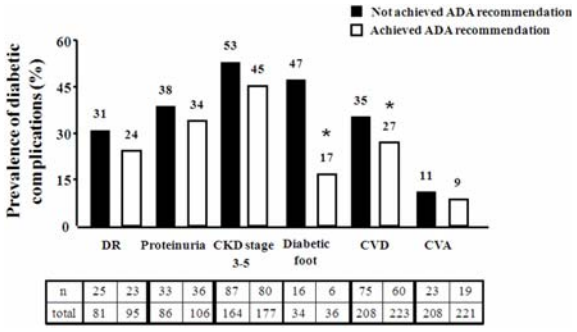

Fig. 2 Comparisons of diabetic complications between the achieved and not achieved ADA recommendation group. DR, diabetic retinopathy; CKD, chronic kidney disease; CVD, cardiovascular disease; CVA, cerebrovascular accident

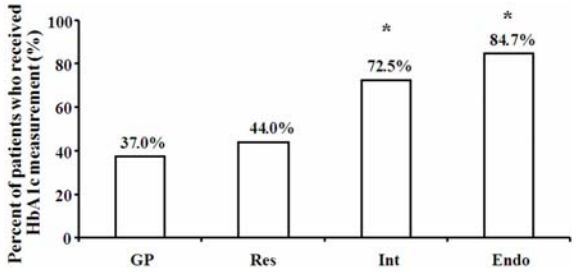

Fig. 3 Percent of patients having HbA1c measurement as separated by clusters of health care provider

control, whereas treatment by resident, diagnosed diabetes for longer than 10 years and using insulin were independent factors for poor glycemic control.

Discussion

This study demonstrated that attainment of ADA clinical practice recommendations is far from optimal. Only fifty-two percent of patients achieved at least 3 items according to ADA clinical practice recommendation whereas 48% achieved only 0-2 items of clinical recommendation. Health care providers and elderly patients were independent factors for attainment of clinical practice recommendations. Moreover, patients who were diagnosed with diabetes longer than 10 years and used insulin treatment were independent factors for achieving good glycemic control.

Despite the annual update of clinical practice recommendations published by ADA, only 60% of diabetes patients had HbA1c and lipid assessments yearly. Our data are consistent with a previous study in Europe[9], which showed that physician adherence to treatment guidelines is relatively poor. Annual, HbA1c and lipids are measured only in 50% of the patients, while BP is frequently measured. Reasons for

Table 4. Comparison of variables between achieved and not achieved groups

	Not achieved	Achieved	p-value
Age (years): Mean ± SD	63.9 ± 12.6	65.8 ± 10.9	0.10
BMI (kg/m^2): Mean ± SD	25.1 ± 3.8	26.2 ± 4.6	0.30
Gender (%)			0.06
Male	35.9	44.7	
Female	64.1	55.3	
Smoking status (%)			0.84
Current smoker	5.6	7.1	
Ex-smoker	11.3	9.7	
Non-smoking	83.1	83.2	
Provider (%)			< 0.001
GP	3.7	7.2	
Resident	13.7	6.7	
Internist	71.4	64.1	
Endocrinologist	11.2	22.1	
Social welfare system (%)			< 0.001
National Health Security	8.5	7.2	
Social Security	22.4	22.6	
Medicare	10.3	5.1	
Self payment	58.8	65.1	
Education (%)			0.06
No education	6.0	7.3	
Elementary school	29.8	24.3	
Secondary school	28.6	32.4	
University	35.6	36.0	
Duration of diagnosed DM (yr): Median (min, max)	7.0 (0, 38)	7.0 (1, 32)	0.71
Duration of treatment (yr) Median (min, max)	5.0 (0, 38)	4.0 (0, 30)	0.72
Treatment of diabetes (%)			0.66
Diet control only	3.2	4.8	
OHA only	81.6	83.2	
Insulin only	7.4	6.7	
OHA and insulin	7.8	5.3	

% Valid percentages were computed using only patients with available data.
BMI, body mass index; OHA, oral hypoglycemic agent

Table 5. Factor(s) related to attainment of ADA recommendation and glycemic control

	Attainment of ADA recommendation			Glycemic control		
Variable	OR (95% CI)	Adjusted OR (95% CI)	p-value	OR (95% CI)	Adjusted OR (95% CI)	p-value
Age	1.01 (0.99-1.03)	1.04 (1.01-1.06)	0.003	1.02 (1.01-1.04)	1.03 (1.01-1.05)	0.009
BMI	1.05 (0.97-1.12)			1.02 (0.95-1.09)		
Gender (F/M)	1.45 (0.98-2.12)	1.48 (0.87-2.54)	0.15	1.07 (0.74-1.54)		
Smoking status						
Non-smoking	-			-		
Current smoker	1.25 (0.44-3.59)			0.46 (0.15-1.41)		
Ex-smoker	0.86 (0.37-1.99)			1.03 (0.46-2.30)		
Provider						
Endocrinologist	-	-	-	-	-	-
GP	0.98 (0.32-2.94)	1.30 (0.37-4.57)	0.68	1.03 (0.38-2.80)	1.14 (0.33-3.90)	0.84
Resident	0.25 (0.10-0.60)	0.16 (0.05-0.47)	0.001	0.42 (0.18-0.99)	0.26 (0.08-0.86)	0.03
Internist	0.46 (0.25-0.83)	0.48 (0.23-0.99)	0.48	1.07 (0.64-1.81)	0.91 (0.46-1.79)	0.78
Social welfare system[a]						
support	-	-	-	-	-	-
Self paymenr	1.31 (0.85-2.01)	1.29 (0.76-2.21)	0.35	1.46 (0.96-2.24)	1.28 (0.75-2.19)	0.37
Education[b]						
Less than 2° school	-			-		
At least 2° school	1.21 (0.66-2.20)			0.83 (0.46-1.49)		
Duration of diagnosed DM						
≤ 10 years	-	-	-	-	-	-
> 10 years	0.73 (0.44-1.21)	0.86 (0.43-1.72)	0.66	0.52 (0.32-0.86)	0.54 (0.28-1.05)	0.07
Hypoglycemic agent[c]						
No insulin usages	-			-	-	-
Insulin usages	0.76 (0.43-1.35)			0.30 (0.17-0.53)	0.34 (0.16-0.75)	0.007

BMI, body mass index; F, female; M, male; GP, general practitioner; DM, diabetes mellitus; [a] support, patients have social welfare support by national health security, social security, or medicare; [b] less than 2° school, patients have no education or only elementary school; [c] no insulin usages, patient treated by diet or oral hypoglycemic agents

Table 6. Comparison of varibles between poor and good glycemic control

	Poor glycemic control (HbA1c ≥ 7%)	Good glycemic control (HbA1c < 7%)	p-value
Age (years): Mean ± SD	63.8 ± 12.9	66.6 ± 11.0	0.01
BMI (kg/m^2): Mean ± SD	25.3 ± 4.4	26.3 ± 3.9	0.67
Gender (%)			0.92
Male	39.5	41.1	
Female	60.5	58.9	
Smoking status			0.62
Current smoker	8.1	3.3	
Ex-smoker	11.3	10.7	
Non-smoking	80.6	86.0	
Provider (%)			< 0.001
GP	5.0	5.3	
Resident	12.3	5.3	
Internist	64.2	70.5	
Endocrinologist	18.4	18.9	
Social welfare system (%)			< 0.001
National Health Security	6.5	6.6	
Social Security	24.5	20.8	
Medicare	8.7	3.6	
Self payment	60.3	69.0	
Education (%)			0.06
No education	5.3	9.2	
Elementary school	26.3	26.6	
Secondary school	30.5	28.4	
University	37.9	35.8	
Duration of diagnosed DM (yr): Median (min, max)	9.0 (1, 32)	7.0 (1, 38)	0.02
Duration of treatment (yr): Median (min,max)	5.0 (0, 30)	4.0 (1, 38)	0.45
Treatment of diabetes (%)			< 0.001
Diet control only	0.9	4.3	
OHA only	75.9	92.8	
Insulin only	11.3	0.5	
OHA and insulin	11.8	2.4	

% Valid percentages were computed using only patients with available data.
BMI, body mass index; OHA, oral hypoglycemic agent

non-adherence to clinical practice recommendations[9] are providers' beliefs, providers' frustration and lack of knowledge, and the fact that the guidelines may not be easy to access and implement. Recent systemic review[4] demonstrated that the adherence to evidence based medicine tools is likely to improve process of care among general practitioners. Several interventions, including training and educational programs, audit methodology, computer-assisted decision support and a combination of these interventions, have been shown to be effective at improving adherence to evidence based medicine tools[4]. In our study, being taken care of by a resident was an independent factor for lower attainment of clinical practice recommendations while under the care of general practitioner is not a factor. Since there were only a small number of patients who were under the care of general practitioner, this might explain why "general practitioner" was not a factor associated with lower attainment of clinical practice recommendations. General practitioners are the group of healthcare providers who take care of many diabetes patients in Thailand, thus more interventions directed to improve adherence to evidence based medicine tools aimed at general practitioners are needed to

improve successful achievement of clinical practice recommendation.

Forty-nine percent of the patients achieved the target HbA1c of less than 7% and only 26.4% of them achieved the target HbA1c of less than 6.5%. Similar to others[3,8,11], older patients and those with newly diagnosed diabetes were much more likely to achieve the HbA1c target than younger patients and those with longer disease duration. Type 2 DM is a progressive disease in which β cells deteriorate progressively with longer diabetes duration. The United Kingdom Prospective Diabetes Study (UKPDS) revealed that HbA1c levels decreased in the first study year and then subsequently increased with each following year[1,3], due to β cells deterioration. Our results are consistent with the UKPDS in which the longer duration of diagnosed diabetes was associated with poorer glycemic control. Interestingly, using insulin was associated with poor achievement of HbA1c target. This finding is consistent with previous study[7] which reported the poor glycemic control is common among insulin-treated patients because the majority of them are those who had secondary failure of OHAs or those who had chronic diabetes complications. In fact, glycemic control is more difficult in the insulin using patients than in those who use only oral hypoglycemic agents alone because non-adherence to medications, especially insulin injection and suboptimal self-monitoring of blood glucose remain the most important problems for Thai diabetes patients. Health care providers should pay closer attention to and give more education to type 2 diabetes patients, both those who are young and those with longer duration of the disease. Moreover, if there is no contraindication, treatment with oral hypoglycemic agents is preferred over insulin.

In conclusion, our data demonstrated a substantial proportion of diabetes patients did not achieve ADA clinical practice recommendations. This apparent gap was depended on categories of health care provider and patients' age. The novel and more effective strategies targeted these groups are needed to improve achievement of these recommendations.

Acknowledgements

This work was supported by grants from Routine to Research Unit Faculty of Medicine Siriraj Hospital Mahidol University Bangkok Thailand (AS).

Potential conflicts of interest

None.

References

1. UK Prospective Diabetes Study (UKPDS) Group. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). Lancet 1998; 352: 837-53.
2. American Diabetes Association. Standards of medical care in diabetes-2006. Diabetes Care 2006; 29 (Suppl 1): S4-42.
3. Benoit SR, Fleming R, Philis-Tsimikas A, Ji M. Predictors of glycemic control among patients with Type 2 diabetes: a longitudinal study. BMC Public Health 2005; 5: 36.
4. de Belvis AG, Pelone F, Biasco A, Ricciardi W, Volpe M. Can primary care professionals' adherence to Evidence Based Medicine tools improve quality of care in type 2 diabetes mellitus? A systematic review. Diabetes Res Clin Pract 2009; 85: 119-31.
5. Gaede P, Lund-Andersen H, Parving HH, Pedersen O. Effect of a multifactorial intervention on mortality in type 2 diabetes. N Engl J Med 2008; 358: 580-91.
6. Gaede P, Vedel P, Larsen N, Jensen GV, Parving HH, Pedersen O. Multifactorial intervention and cardiovascular disease in patients with type 2 diabetes. N Engl J Med 2003; 348: 383-93.
7. Harris MI, Eastman RC, Cowie CC, Flegal KM, Eberhardt MS. Racial and ethnic differences in glycemic control of adults with type 2 diabetes.Diabetes Care 1999; 22: 403-8.
8. Khattab M, Khader YS, Al Khawaldeh A, Ajlouni K. Factors associated with poor glycemic control among patients with type 2 diabetes. J Diabetes Complications 2010; 24: 84-9.
9. Puder JJ, Keller U. Quality of diabetes care: problem of patient or doctor adherence? Swiss Med Wkly 2003; 133: 530-4.
10. Rawdaree P, Ngarmukos C, Deerochanawong C, Suwanwalaikorn S, Chetthakul T, Krittiyawong S, et al. Thailand diabetes registry (TDR) project: clinical status and long term vascular complications in diabetic patients. J Med Assoc Thai 2006; 89 (Suppl 1): S1-9.
11. Resnick HE, Foster GL, Bardsley J, Ratner RE. Achievement of American Diabetes Association clinical practice recommendations among U.S. adults with diabetes, 1999-2002: the National Health and Nutrition Examination Survey. Diabetes Care 2006; 29: 531-7.

ประสิทธิภาพการดูแลผู้ป่วยเบาหวานชนิดที่ 2 ในประเทศไทยตามแนวทางการรักษาเบาหวานของสมาพันธ์เบาหวานแห่งสหรัฐอเมริกา

อภิรดี ศรีวิจิตรกมล, ยุวรัตน์ ม่วงเงิน, สาธิต วรรณแสง

ภูมิหลัง: *เบาหวานเป็นโรคที่พบได้บ่อยทั่วโลกรวมทั้งในประเทศไทย สมาพันธ์เบาหวานแห่งประเทศสหรัฐอเมริกาจะมีการจัดพิมพ์แนวทางการดูแลรักษาผู้ป่วยเบาหวานเป็นประจำทุกปี เพื่อให้ผู้ป่วยเบาหวานได้รับการดูแลเพื่อป้องกันภาวะแทรกซ้อนเรื้อรังจากโรคเบาหวาน*

วัตถุประสงค์: *เพื่อศึกษาประสิทธิภาพการดูแลรักษาผู้ป่วยเบาหวานชนิดที่ 2 ตามแนวทางการรักษาผู้ป่วยเบาหวานของสมาพันธ์เบาหวานแห่งสหรัฐอเมริกา และเพื่อศึกษาถึงปัจจัยที่มีผลต่อประสิทธิภาพการดูแลรักษาผู้ป่วยเบาหวานชนิดที่ 2*

วัสดุและวิธีการ: *เป็นการศึกษาแบบ retrospective โดยทบทวนเวชระเบียนของผู้ป่วยเบาหวานชนิดที่ 2 ที่ติดตามการรักษาที่คลินิกอายุรศาสตร์ทั่วไป ตึกผู้ป่วยนอกชั้น 2 โรงพยาบาลศิริราชเป็นเวลามากกว่า 1 ปี ในช่วงวันที่ 1 มกราคม ถึง 31 ธันวาคม พ.ศ. 2549*

ผลการศึกษา: *ผู้ป่วยเบาหวาน 722 คน ที่ทำการศึกษาพบว่ามีเพียงร้อยละ 64.5 และ 60 ของผู้ป่วยที่ได้รับการตรวจระดับฮีโมโกลบินเอวันซี และระดับไขมันในเลือดในช่วง 1 ปีที่ทำการศึกษา ในขณะที่ผู้ป่วยทุกคนได้รับการวัดความดันเลือด โดยในผู้ป่วยที่ได้รับการตรวจพบว่าร้อยละ 49 ของผู้ป่วยที่ระดับฮีโมโกลบินเอวันซีน้อยกว่า 7%, ร้อยละ 64, 64 และ 50 ของผู้ป่วยที่มีระดับไขมันโคเลสเตอรอล LDL, ไขมันโคเลสเตอรอล HDL และไขมันไตรกลีเซอไรด์ในเลือดได้ตามเป้าหมายตามลำดับ ในขณะที่มีผู้ป่วยเพียงร้อยละ 31 เท่านั้นที่ระดับความดันเลือดได้ตามเป้าหมาย โดยผู้ป่วยร้อยละ 52 ที่ได้รับการประเมินและรักษาได้อย่างน้อย 3 ใน 5 ข้อตามแนวทางการรักษาของสมาพันธ์เบาหวานแห่งสหรัฐอเมริกา โดยพบว่าผู้ป่วยที่อายุมาก หรือผู้ป่วยที่ได้รับการดูแลรักษาโดยแพทย์ผู้เชี่ยวชาญ จะมีการประเมินและการรักษาผู้ป่วยได้ตามเป้าหมายมากกว่า ในขณะที่ผู้ป่วยที่ได้รับการดูแลโดยแพทย์ทั่วไปหรือแพทย์ประจำบ้านจะมีการประเมิน และการรักษาผู้ป่วยได้ตามเป้าหมายน้อยกว่า นอกจากนี้ยังพบว่าการที่ผู้ป่วยได้รับการวินิจฉัยมานานกว่า 10 ปี หรือผู้ป่วยได้รับการรักษาด้วยอินซูลินจะทำให้การควบคุมระดับน้ำตาลในเลือด ให้ได้ตามเป้าหมายได้ลดลง*

สรุป: *ประสิทธิภาพการรักษาผู้ป่วยเบาหวานยังได้ผลไม่เป็นที่น่าพอใจ ดังนั้นควรมีการจัดให้ความรู้ รวมทั้งหาแนวทางหรือวิธีการที่เหมาะสมให้แก่แพทย์ เพื่อเพิ่มประสิทธิภาพของการดูแลผู้ป่วยเบาหวานชนิดที่ 2 ในประเทศไทย*