

2nd Balkandiab Meeting

Chronic diabetic complications

THESSALONIKI, 26 NOVEMBER 2000

General Hospital «PAPAGEORGIOU»

INTRODUCTION

Dr Christos Manes

President of Northern Greece, Diabetes association

Dear Colleagues,

On behalf of Northern Greece Diabetes Association I would like to welcome you in the 2nd Balkandiab Meeting. This network was established 2 (two) years ago to stimulate local implementation to achieve Saint Vincent Declaration's targets.

Northern Greece Diabetes Association is convinced that the implementation of our decisions will contribute in a better quality of diabetes care in our region and therefore supports this meeting.

Taken this account the executive board of our network decided to organize our 2nd meeting in Thessaloniki in this friendly and hospitable amphitheater.

I should let you know that WHO strongly supports these activities and it is my duty to thank once again Dr. I. Kalo for his contribution.

In the first half of the meeting some data regarding the field of chronic diabetic complications

(or the status of Diabetes Care) will be presented. In the second half we will discuss with the advisory board the plan of our activities in the future. So it's time to start.

I would like to ask Dr. I. Kalo and Pr. M. Alevizos to take their seats as chairpersons in the first session.

SOME EPIDEMIOLOGICAL AND CLINICAL DATA ON DIABETES MELLITUS AND ITS CHRONIC COMPLICATIONS IN TIRANA DISTRICT

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Branka,

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Abstract

In this article are discussed some main epidemiological and clinical data on diabetes mellitus and its chronic complications of diabetic patients of 3 outpatient diabetic clinics of Tirana district

(6562 patients). The highest annual incidence of this disease is in the period of time from 1995 to 2000.

On the other hand, the highest frequency of diabetes, in total, is in patients over 50 years old, (69%), which suffer from diabetes type 2.

In majority of diabetics (54%), the diagnosis of diabetes was made 3–6 months after onset of diabetes.

The majority of diabetic patient (51%) with diabetes type 2 are treated with sulfonylurea and biguanide drugs or in combination between them.

The frequency of blinding, leg's amputations and end-stage kidney failure is higher in the period of time from 1995 until 2000.

Microvascular complications (diabetic retinopathy and nephropathy), neuropathy and diabetic foot are more frequent in diabetes type 1 (33.2%, 23%), 39% and 20% respectively than in diabetes type 2 (13.9%, 10.1%), 20.8% and 13% respectively, while macro vascular complications (coronary heart disease and stroke) are more frequent in diabetes type 2 (15.4% and 13.1% respectively), than in diabetes type 1 (8.1% and 2.2% respectively).

The diagnosis, treatment and prevention of diabetes mellitus and its chronic complications are connected with many medical, economic and social problems that must resolve gradually.

METABOLIC CONTROL AND CHRONIC COMPLICATIONS IN DIABETIC PATIENTS IN BULGARIA

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Diabetes mellitus in Bulgaria is constantly increasing. In 1963 the percentage of diabetic patients was 0,19% of the total population, in 1985 – 1,01% and in 1999 it reached 2,07%. Type 1 diabetes mellitus have 13,74% of all diabetic patients and type 2–86,26%. Obesity is a major metabolic problem in type 2 diabetics: 45,17% are overweight (BMI 25–30) and 28,27% are obese 5 BMI 30.

The treatment is free of charge and 65,7% are on oral drugs, 24,3% on insulin and 10,0% on diet only. All available insulins are human insulins. Pens are readily available and 67% of insulin-treated patients use different kind of insulin pens.

Data from 1,028 type 1 and 1,003 type 2 diabetic patients showed out that excellent glycaemic control was achieved in 32,57% of type 1 and

27,47% of type 2 diabetes. HbA_{1c} was below 8% in 28,27% of type 1 and in 30,36% of type 2 diabetes. Cholesterol levels above 5,0 mmol/l have 53% of type 1 and 76% of type 2 diabetics. Triglycerides above 2,0 mmol/l have 20% of type 1 and 40% of type 2 patients.

Diabetic nephropathy was established in 9,42% of type 1 diabetes and in 8,14% of type 2 diabetes. Diabetic neuropathy is the most common complication – 30% in type 1 and 63% in type 2 diabetes. Arterial hypertension is very often associated with diabetes mellitus. Type 1 diabetics have hypertension in 19,8% and type 2 – in 63,2%. Perhaps this is the reason of very common ischemic heart disease among type 2 diabetic patients – 35,38% of type 2 patients suffer of this complication.

Three years' programm of diabetic patients education in Bulgaria resulted in more than 20,000 patients educated through 5–days long educational courses. The evaluation of metabolic control 6 months later showed out significant lowering of fasting glycaemia and HbA_{1c} in the educated group in comparison with the control group. Lipid levels also decreased significantly in the educated group. There was noted a dramatic decrease in the absolute number of patients admitted into the surveyed 25 hospitals where education was practised because of ketoacidosis or because of severe hypoglycaemia. We conclude that systematic and well-structured education of patients may improve the metabolic control and hopefully the chronic complications.

PREVALENCE OF DIABETIC NEUROPATHY AND FOOT ULCERATION- POPULATION BASED STUDY. IDENTIFICATION OF RISK FACTORS

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Population based studies reflecting the true prevalence of a disease need to include a large sample size and to obtain a high response rate in order to truly represent the disease in the community. The aim of this population study was to evaluate the prevalence of peripheral diabetic neuropathy (DN) and the potential risk factors. Eight hundred and twenty one diabetic patients, 304 male, 781 type 2, (80% of the known diabetic population in a

county, aged 18-70 yrs) were studied. Mean age of the patients and known diabetes duration were 59.5 ± 7.46 and 7.6 ± 6.9 yrs respectively. Neuropathy was defined clinically by a standardised examination as the presence of abnormalities of at least two of the following criteria: Symptoms, sensory and motor signs (using score techniques). Vibration perception thresholds (VPT) were estimated in all the patient. The prevalence of neuropathy was 33.5% (95% confidence limits 30.3 - 36.7%) and of foot ulcerations 4.75% (95% confidence limits 3.3 - 6.2%). Patients with foot ulcers had more severe neuropathy (NDS 11.6 ± 5.26) and higher VPT (40 ± 13.3) than those without (NDS 6.92 ± 2.83 . VPT 30 ± 13.8) (t-test, $\alpha=0.001$). Age, height, fasting glucose and diabetes duration were found to be significant risk factors in univariate analyses for DN (t-test, χ^2 -test). Further investigation by multiple logistic regression analysis of the above variables showed that all of them remain significant risk factors for DN. Statistical tests were performed at the significant level $\alpha=0.05$. Conclusion: These findings indicate that a large proportion of diabetic people (neuropathic) are at risk of foot ulceration or have current ulceration. So there is a substantial need for proper footcare to further reduce the amputations rate according to St Vincent's declaration.

PREVALENCE OF CARDIOVASCULAR COMPLICATIONS IN DIABETIC PATIENTS

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Background: To examine the relationship of diabetes mellitus with the prevalence of macrovascular complications in a population sample of North Greece.

Design: We examined 52% of registered diabetics living in Kilkis prefecture during the period between 9/1993-9/1997. Criteria: Coronary Disease (CD): angina or myocardial infarction (MI) or abnormal ECG (Minnesota code). Cerebral Stroke (CS): history, Peripheral Vascular Disease (PVD): history or symptoms or Ankle/Brachial Index 0,9. Statistical analysis: Pearson χ^2 , Mann-Whitney U

test, Wald-Wolfowitz Runs test. Spearman Rank Order Correlations.

Results: 858 diabetic patients were examined (345 males and 513 females). 295 (34%) had CD, 40 (5%) CS, 75 (9%) PVD and 501 (58%) Hypertension. 289 (34%) had one, 59 (7%) two and 1 (0,1%) three complications present. Prevalence of CD and CS was the same in males and females, however the prevalence of PVD and MI was greater in men ($p<0,03$ and $p<0,000003$ respectively) and in women the prevalence of hypertension ($p<0,000001$). The existence of macrovascular complications correlated positively with Systolic Blood Pressure (SBP), duration of diabetes, age, total Cholesterol / HDL index and negatively with BMI, Diastolic Blood Pressure (DBP) and HDL cholesterol.

Conclusions: These observations support the evidence that diabetes exerts a deleterious effect on general risk factors of atherosclerosis and increases the susceptibility to cardiovascular disease (CVD). Because the adverse "independent" effect of diabetes on the risk factors of CVD, these data emphasize the need for the vigorous treatment of standard risk factors in order to reduce the progress of macrovascular disease.

DIABETES: RISK FACTORS AND COMPLICATIONS IN TURKEY

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According to the Turkish Diabetes Epidemiology (TURDEP) study which was recently completed with randomly assigned 24788 subjects (age +19 yrs, F/M 13708/11080) from 540 centers (urban 63 and rural 37%), overall crude prevalence of diabetes was 7.2% (new 32 and known 68%), and impaired glucose tolerance (IGT) was 6.7%. Age-adjusted prevalence was 7.9% for diabetes and 7% for IGT. Both were more frequent among female than male (diabetes and IGT, F: 8 and 8.4%; M: 6.2 and 4.6%, $p<.0001$) and in urban than rural (urban 8.1 and 7%; rural 5.8 and 6.2%, $p<0.001$). Total glucose intolerance (diabetes + IGT) increased with aging, approaching to 37% at 8th decade.

Frequency of diabetes was highest in the most industrialized north and lowest in the least civilized east region of the country (8.2 and 6.2%,

$p < 0.0001$). Hypertension (HT) and obesity were found in 28.3 and 22.3% of the attendees, both were more remarkable among female than male (F: 31 and 29.9%, M: 25 and 12.9%, $p < .0001$ for both). Similar regional differences were observed for IGT, HT and obesity ($p < 0.001$ for all). Risk of diabetes and IGT increased clearly across tertiles of BMI, and W/H. HT and positive family history for diabetes were strong predictors of abnormal glucose homeostasis (HT and NT: diabetes 32.9 and 4.1%; IGT 25.7 and 5.4%, $p < 0.00001$, and with and without family history: diabetes 8.7 and 4.2%; IGT 9.2 and 7.4%, $p < 0.0001$). Both risks were inversely associated with income and education.

Based on Outpatient population of Diabetes and Metabolism Unit, Institute for Exp. Medical Research, Istanbul University, 18.4% of patients are being followed with type 1 diabetes (mean age 32.9 yr, mean duration 4.9 yr, BMI 24.3 kg.sqm⁻², HbA1c 8.3%), 73.6% with type 2 diabetes (mean age 56.1 yr, mean duration 7.4 yr, BMI 29.9 kg.sqm⁻¹, HbA1c 9.4%), and the remaining 8% with gestational diabetes (GDM).

Distribution of complications in the Outpatient population revealed that of type 1 diabetes patients; prevalence for HT is 47%, Hyperlipidemia 46.5%, Retinopathy 12.2% (proliferative 4.9%), and Amputation 3.4% (all below knee level). Among type 2 diabetes patients: prevalence for HT is 13.3%, Hyperlipidemia 54%, Retinopathy 18.3% (proliferative 3.4%), and Amputation 0%. In the overall group, frequency of blindness is 1%, Myocardial infarction 3.7%, and Stroke 1.3%. Nearly all patients attended diabetes education course for nutrition, foot care, hypoglycemia, and long-term complications. Of type 1 patients in the outpatient clinic, 63% have self-monitoring facilities, 44.8% of whom enabled for self-adjustment of insulin therapy.

Extrapolation of the results of TURDEP to data of recent census held in October 2000 pointed out that there are about 2.6 million of people with diabetes living in Turkey. Every third of whom is unaware of diabetes. Moreover, people with IGT are nearly 2.5 million, and made up a considerable candidate population for diabetes. On the other hand, the two main risk factors, HT and obesity are very common in Turkey. Of 11.5 million with HT, nearly half have undiagnosed HT. Obese population is approximately 8.4 million.

In conclusion, with increasing social and eco-

nomics burdens, diabetes is seemed to persist as one of the major public health concerns of the 21st century in Turkey.

THE PREVALENCE OF DIABETES CHRONIC COMPLICATIONS IN ROMANIA

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The diabetic patient is susceptible to a series of complications that cause morbidity and premature mortality. While some patients may never develop these problems and others note their onset early, on average, symptoms develop 15 to 20 years following the appearance of overt hyperglycemia. A given patient may experience several complications simultaneously, or a single problem may dominate the picture.

Diabetic nephropathy is a leading cause of death and disability in diabetes. It develops in about one third of type I DM patients and in a smaller percentage of type II DM patients. The incidence of diabetic nephropathy has a particular pattern. This pattern shows that the renal disease is clinically manifested after 5 years of diabetes progression. Then we notice a sudden increase in the number of newly diagnosed cases. After 10 years there are 25 newly diagnosed cases/year/ 1000 diabetes. The annual number of newly diagnosed cases decreased then progressively. The percentage of patients with

Table 1. *The prevalence of diabetic nephropathy*

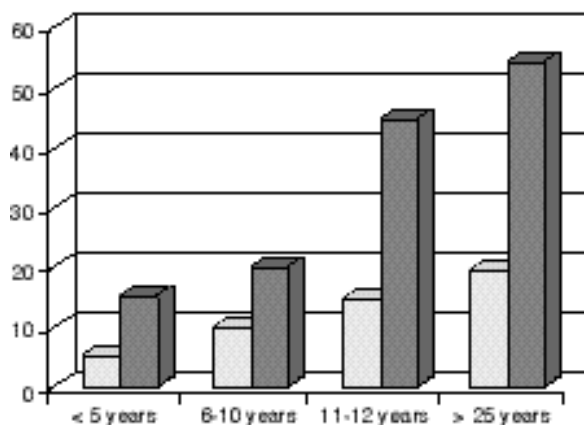
Percentage of patients with diabetic nephropathy	Duration of diabetes (years)
20%	15
25%	20
30%	25
35%	40

Table 2. *The prevalence of proliferative retinopathy*

Prevalence of proliferative retinopathy	Duration of diabetes (years)
10%	15
20%	20
40%	30
55%	40

Table 3. *The prevalence of diabetic neuropathy*

Diabetes duration (years)	Prevalence of diabetic neuropathy in type I DM	Prevalence of diabetic neuropathy in type II DM
<5	5%	15%
10	10%	20%
>20	15%	45%
>25	20%	60%

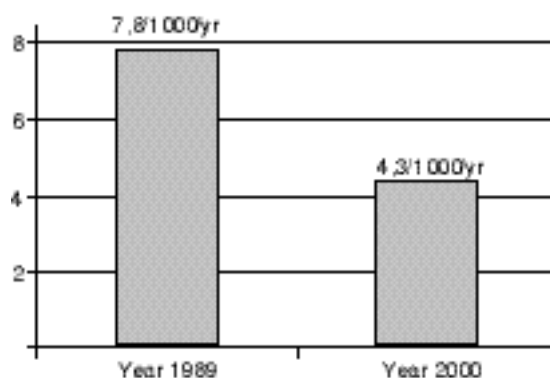
**Fig. 1.** *The prevalence of diabetic neuropathy (white – type II DM, black – type I DM) in relation with diabetes duration.*

this disease reached 20% after 15 years, 25% after 20 years, 30% after 25 years and 35% after 40 years.

Diabetic retinopathy. Retinopathic lesions are divided into two large categories *simple* (background) and proliferative. Proliferative retinopathy (which has a high risk for blindness), has an incidence and an evolution particular in comparison with «background» retinopathy. Background retinopathy has an annual incidence which increases from 2% year (after 3 years from the onset of diabetes) to 5% year (after 5 years) and 10% year (after 10 years). After 15 years of diabetes evolution, 90% of the patients have background retinopathy.

Diabetic neuropathy. Diabetic neuropathy is a major cause of morbidity. Several different types of neuropathy may be present in the same patient. It is present in 5% in type I DM patients and in 15% in type II diabetic patients under 5 years from the diagnosis of DM; after 10 years, in 10% in type I DM and 20% in type II DM, after 20 years in 15% in type I and in 45% in type II and after 25 years, 20% in type I and 60% in type II.

Diabetic foot ulcers. A special problem in the diabetic patient is the development of ulcers of the feet and lower extremities. The ulcers may be initiated by ill-fitting shoes, cuts and punctures from foreign

**Fig. 2.** *Incidence of lower limb amputations in diabetic patients.*

bodies such as needles, tacks and glass. Deep ulcers and particularly ulcers associated with any detectable cellulitis require immediate hospitalisation, since systemic toxicity and permanent disability may develop. Early surgical debridement is an essential part of management, but amputation is sometimes necessary. The incidence of lower limb amputations in diabetic patients in Romania has decreased from 7.8%/1000/year (in 1989) to 4.3/1000/year in present.

DIABETES CARE IN THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

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The number of people with Diabetes in the Former Yugoslav Republic of Macedonia is approx. 60000 - The prevalence of Diabetes is 3%. The incidence of type 1 is 6,7/10000, type 2:250/100000. The diabetic population is controlled and educated in 38 diabetic centers in the country. The first level of diab.car is performed by g.p. in the regional centers, the second of specialists in diabetes and endocrinology and the third of professors at the Clinic of endocrinology. We have an educational program for type 1 and type 2, which is designed according to the educational program of Düsseldorf (prof. Berger). The educational program is composed of

five days of education and a final control test. We have also an educational program for educators with a duration of 3 days and books for educators. The journal for diabetic patients is issued every three months. Patients inject insulin by Novo Nordisk pen devices (more than 95%). We use glibenclamide, Repaglinide and Acarbose as oral antidiabetics. The number of ketoacidosis is aprox. 20 per year. Retinopathy: 40% (for both types), nephropathy type 1:30%, type 2:9,8%. Diabetic gangrene type 1:3,7%, type 2:5,7% (data from the Clinic). We are introducing a national diabetes register. Including data from all diabetic centers in our country.

SPECIALIZED CARE IN DIABETIC FOOT CENTER

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Diabetic foot is a major complication of diabetes. It leads to diabetic foot deformities, ulcerations, cellulitis, osteomyelitis. Early treatment of diabetic foot provides prevention of foot amputations. In order to increase quality of diabetic foot care a Diabetic foot center was created in Varna's clinic of endocrinology.

The aim of the study was to implement the St. Vincent Declaration targets for diabetic foot management in practice – by prophylactics and treatment of diabetic foot lesions in diabetic patients from Varna's region.

Patients and methods

Patients

Object of investigation were 198 patients (25 – type 1 diabetics, 173 – type 2 diabetics) treated in Varna's clinic of endocrinology and diabetic foot center (table 1).

Methods

The following methods and therapeutical approaches were applied: screening for diabetic

foot risk factors, foot care education, diagnosis of foot lesions based on clinical assessment and detailed local status, team approach in ulcer treatment, prophylactics of developing new lesions in treated patients.

The applied therapeutical schedule was based on consecutive assessment of diabetic foot risk factors, classifying the diabetic foot and the grade of foot ulcerations, management of foot ulcerations. The assessment of diabetic foot risk factors included assessment of foot deformity, diabetic polyneuropathy and macroangiopathy. The feet were examined for foot deformities – pes cavus, halux rigidus, Charcot foot, hammer toes, status post amputation, etc. To assess the presence of diabetic polyneuropathy vibration perception threshold, pressure sensation with 5.07/10 g monofilament and knee and Achilic jerks were investigated. To assess the state of diabetic macroangiopathy foot pulses were investigated by palpation and Doppler ultrasound, ankle-brachial pressure index was measured. The diabetic foot was classified as neuropathic, ischaemic or neuroischaemic.

Bacterial cultures were investigated, X-Ray study, bone scan and angiography were carried out. After classifying of foot ulcerations according to Wagner's system patients were subjected to treatment. Out-patient treatment was carried out in cases of lesions 1st and 2nd grade and in – patient treatment – in case of lesions 3rd, 4th and 5th grade.

Management of diabetic foot lesions was based on the following principles: good control of diabetes, control of the infection, regular chiropody, mechanical control.

Results

The majority of patients (92.3%) were successfully treated by non-surgical methods – 68.8% of foot ulcers were effectively healed; 23.5% of foot ulcers are in a process of healing. Surgically were treated – 7.7% of the patients – 6.7% of patients were subjected to minor amputation; 1% of patients were subjected to major amputation.

Table 1. Patients treated in the Diabetic foot center of Varna's clinic of endocrinology

Distribution of patients	Grade of ulceration / Wagner system				
	I	II	III	IV	V
Diabetes mellitus type 1 patients-25	13	7	3	2	–
Diabetes mellitus type 2 patients-173	108	15	29	17	4

Discussion

Diabetic foot is a serious complication of diabetes. It is the cause for foot deformities, inflammations, foot amputations. Early treatment of diabetic foot is the best prevention of foot amputations. In order to implement in practice the principles of effective foot care a Diabetic foot center was created in Varna's clinic of endocrinology. The work of this center contributes for better quality of diabetic foot care and helps the early and effective treatment of diabetic foot in Varna's region.

We estimate the applied screening and therapeutic schedule as effective. It allows early identification of high risk patients and treatment of diabetic foot lesions in an earlier stage. The major principles of the applied therapeutic approach are screening for diabetic foot risk factors and prophylactics, education of patients, multidisciplinary team approach. The permanent implementation of these principles would be the basis for future reduction of diabetic foot complications.

In conclusion

1. The applied screening and therapeutic schedule is effective and it allows:
 - early identification of high risk patients;
 - treatment of diabetic foot lesions in an earlier stage.
2. The initial basis for future reduction of diabetic foot complications and improvement of life quality consists of:
 - screening for foot risk factors and prophylactics;
 - education of patients;
 - multidisciplinary team approach in treatment of diabetic foot lesions.

LONG-TERM EFFECT OF CONVERTING ENZYME INHIBITION ON DIABETIC AUTONOMIC NEUROPATHY AS ESTIMATED BY CARDIOVASCULAR REFLEX TESTS

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Abstract

Background: The potential of angiotensin

converting enzyme inhibition to ameliorate definite diabetic autonomic neuropathy (DAN), as defined by standard cardiovascular reflex tests (CRT) of autonomic function, has not yet been studied in detail.

Methods: Forty three consecutive patients (19 men and 24 women of mean age 52 years), with definite DAN were studied over a period of 18 months, with repeated measurements of CRT at three month intervals. Definite DAN was established if the values of two or more of CRT were abnormal. The Monitor ONE NDX device was used for the assessment of CRT. Patients were randomized to quinapril (n=21) or placebo (n=22).

Results: In the placebo group all measured indices, except the Valsalva index, deteriorated significantly ($p < 0.05$) in all 22 patients on placebo during the 18 month follow-up. Deterioration became significant at month 15 in most variables. Seven out of 22 patients developed DAN related symptoms. Quinapril, by 18th month, improved significantly the expiration-inspiration ratio (1.2 ± 0.08 vs 1 ± 0.06), Standard Deviation (34 ± 2.4 vs 25 ± 2.2) and Mean Circular Resultant (24 ± 2.2 vs 14 ± 1.6) of R-R intervals as well as the 30:15 index (1.2 ± 0.08 vs 1 ± 0.07) and postural hypotension (13 ± 2.1 vs 21 ± 2.4 mmHg). These changes were significant in comparison to baseline ($p < 0.05$) and placebo ($p < 0.01$). Quinapril had no significant effect on the Valsalva index (1.4 ± 0.07 vs 1.3 ± 0.06).

Conclusion: Quinapril improved autonomic nervous system function in patients with definite DAN, in comparison to baseline and placebo. Since autonomic function is an important contributor in the pathogenesis of acute coronary events, malignant arrhythmias and sudden cardiac death, improvement of indices related to autonomic function in DAN patients by an angiotensin converting enzyme inhibitor, may prove beneficial in clinical practice.

Key words: Diabetic autonomic neuropathy, Cardiovascular Reflex Tests, Quinapril.

SIDENAFIL CITRATE FOR TREATMENT OF ERECTILE DYSFUNCTION IN MEN WITH DIABETES MELLITUS

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Multicentric non-comparative study to evalua-

te the impact of Viagra (Sildenafil citrate) on treatment satisfaction in diabetic men with erectile dysfunction (ED) was performed with flexible dose of 50mg (duration two months, twice weekly). There were 20 patients (average age 45 ± 3.2 , duration of diabetes 12.6 ± 6.2 yrs, 14 type 1 and 6 type 2), Authors used: Prostaglandine test (PgT), measurement of Peno-brachial index (PBI) and verifications of chronical explications, measurement of residual wine. None of them had associated risk factors for treatment with Viagra: use of organic nitrate, age >65 year, hepatic impairment (cirrhosis), severe renal impairment (creatinine clearance <30ml/imm), Concomitant use of potent cytochrome P450 344 inhibitors (erythromycine), hypersensitivity to *any* component of the tablet. Prior to prescribing Viagra physician should carefully consider whether their patients with underlying cardiovascular disease could be affected by such vasodilatory effects, especially in combination with caution: patients who have suffered a myocardial infraction, stroke or the life-threatening arrhythmia within the last 6 months, with resting hypotension (BP <90/50mmHg) or hypertension (BP >170/110mmHg), within cardiac failure or coronary artery disease causing unstable angina with retinitis pigmentosa. Study included index of Erectile Function (IEEF) Questionnaire and Questionnaire after treatment All of these patients with ED had no experience with similar medications for ED before. According to PgT 21% had E1 (gradus of erection), 47% E2 and 32% E3 (with *standard* dosage of Prostine VR), 8 patients of 14 (measurement of PBI) had PBI less than 1 and 6 had 1 or

more, There were no significant differences between two groups in IIF and questionnaire after Viagra treatment (in two main questions; Ability to maintain an erection and Ability to achieve an erection). Patients with gradus I and II of PgT had better results in achieving and maintaining of erections using Viagra, then those with gradus in and IV (Our experience is that this test is more reliable in diagnosing ED especially in diabetic patients). 68% of diabetic patients receiving Viagra reported improved erections. Viagra was registered in Yugoslavia for treatment of erectile dysfunction in 1998. Before the registration and beginning of the clinical use of Viagra a suitable *set* of medical data referring to the use of this drug was prepared and distributed to each of 17000 physicians in Yugoslavia. According to the data of National Centre for Monitoring Side-Effect of Drugs, not a single death was recorded till the end of November 2000 connected with taking of Viagra since indications, contraindications and warnings was strictly observed both when prescribing this drug and when taking it. There were no statistical significant change of blood pressure and heart rate.

PROGRESSION OF DIABETIC RETINOPATHY IN LASER TREATED PATIENTS

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1580 Laser treated patients □ 1998 & 1999

Type I 86 patients

Type II 1.494 patient

Progression of Diabetic Retinopathy in Laser treated patients (the total series)

		same or better condition	visual loss <2 lines	severe visual loss
Macular edema and less severe retinopathy:	mild nonproliferative 198 patients	172 pat.86,9%	18 pat. 9.1%	8 pat. 4%
	moderate nonproliferative 204 patients	142 pat.69,6%	45 pat. 22%	17 pat.8,4%
Macular edema and more severe retinopathy:	severe nonproliferative 402 patients	209 pat. 52%	129 pat. 32,1%	64 pat. 15,9%
	early proliferative 164 patients	64 pat. 39%	62 pat. 37,8%	38 pat. 23,2%
Macular edema and high-risk proliferative:		70 pat 34.4%	83 pat. 40,6%	51 pat. 25%

Defuse macular edema in the total series

Grid pattern Laser

- 484 patients
 - same or better cond. 233 pat. 48.1%
 - visual loss <2 lines 169 pat, 34,9%
 - severe visual loss 82 pat. 17%

Among patients without Rubeoses Iridis (n=18):

1. 7 had neovascularization regression.
2. 6 had partial neovascularization regression, which was maintained during follow-up time.
3. 5 developed neovascular glaucoma.

Proliferative Diabetic Retinopathy:	same or better condition	visual loss <2 lines	severe visual loss
high-risk proliferative 294 patients	124 pat.42,1%	108 pat.36,8%	62 pat. 21,1%

DECENTRALIZATION OF THE ST VINCENT PROGRAMME MANAGEMENT AT COUNTRY LEVEL - IN THE FRAME OF THE NEW QUALITY OF HEALTH SYSTEM DEVELOPMENT APPROACH

Dr Isuf Kalo, Regional Adviser

Quality of Health Systems, WHO Euro

After 10 years of successful experience, several factors and changes are dictating the development of a new strategy for the management of the St Vincent Declaration Action Programme in the new millennium. These include social and political changes in Europe as a whole, and in the countries individually, and new challenges in diabetes care. WHO and IDF, the two SVD parent organizations, and EASD, have also evolved and have developed new concepts, vi-

sions and strategies. People with diabetes, their families, diabetes associations, health professionals, and industry are working together much more closely now than a decade ago and country capacity and capability for improving diabetes care is much more advanced.

As a result of lessons learned, achievements to date and challenges to be faced a new SVD strategy for the next millennium is being proposed. This is looking mainly to decentralise the management of the St Vincent programme to country level, giving each Member State the opportunity to design and manage their own St Vincent programme according to their specific priorities and circumstances and to look for improvement in the quality of diabetes care in a broader scope within the frame of health care delivery and health system reforms.