injury. In the literature as well, grade 1-2 hypertensive retinopathy is generally found to be more common than other target organ injuries such as microalbuminuria or left ventricular hypertrophy.[3] For this reason, recognition of the clinical value of grade 1-2 retinopathy may be more influential than other target organ injuries in the assessment of hypertensive patients. The present study has found a statistically significant relationship between microalbuminuria and retinopathy. As a result, it may be thought that togetherness of microalbuminuria and retinopathy develops due to systemic microvascular injury and, in relation to this; grade 1-2 retinopathy also indicates systemic microvascular injury. Another result of the present study is the relationship between grade 1-2 retinopathy findings and inflammation markers that are used frequently in clinical practice. A possible relationship between inflammation markers and retinopathy was suggested for the first time in the Atherosclerosis Risk in Communities Study study.[4] Additionally, in the multivariate analysis that was conducted, grade 1-2 retinopathy development was seen to be influenced by white blood cell, CRP and fibrinogen, which are important parameters of inflammation. Inflammation is one of the triggering mechanisms in various cardiovascular and cerebrovascular events.[5] Inflammation markers such as white blood cell, fibrinogen, CRP may be useful in identifying cardiovascular risk. Inflammation, which has a role in the development of retinopathy in hypertensive patients, may at the same time cause destruction in coronary, cerebral, renal and other similar microvascular structures and, as a result of this, grade 1-2 hypertensive retinopathy may also be exacerbating due to inflammation increase in these systems.[5] Therefore, grade 1-2 retinopathy may be closely related to cardiovascular risk increase. Additionally, the significant togetherness of microalbuminuria, and retinopathy also supports this view. Hypertension generally brings with itself increased cardiovascular mortality and morbidity. However, this increase is not typical in all hypertensive patients. Therefore, identifying high-risk patient groups may help decrease cardiovascular morbidity and mortality.[2] Displaying target organ injuries does not decrease the risk today. This makes it important to understand the clinical significance of grade 1-2 hypertensive retinopathy, which is easily and frequently identified in clinical practice.[2]

The conclusions of the present study support the clinical significance of hypertensive grade 1-2 retinopathy. However, the limited number of subjects and the use of ophthalmoscope for retinal assessment somewhat reduces the significance of the findings. Nevertheless, they are similar to those obtained in other studies that used the fundus photography method to make a more detailed retinal assessment.

In conclusion, retinal examination may show the existence of systemic microvascular injury. Grade 1-2 hypertensive retinopathy is frequently seen in hypertensive subject groups with regulated blood pressure. Microalbuminuria, a serious target organ injury, is related to grade 1-2 retinopathy, whose development is induced by increased inflammation. Therefore, grade 1-2 retinopathy may be important in both assessing the effectiveness of treatment and identifying cardiovascular risk increase in hypertensive patients with regulated blood pressure.

Received 10th June 2006. Accepted 13th September 2006.

From the Department of Cardiology (Ebinc H), University of Kirikkale and the Department of Internal Medicine (Ebinc F, Ozkurt), University of Gazi, School of Medicine, Ankara, Turkey. Address correspondence and reprint requests to: Dr. Haksun Ebinc, Bahcelievler 6.sokak16/10, Cankaya 06500, Ankara, Turkey. Tel. +90 (31) 22129951. Fax. +90 (31) 82252819. E-mail: hebinc@hotmail.com

References

1. Wong TY, Mclntosh R. Hypertensive retinopathy signs as risk indicators of cardiovascular morbidity and mortality. ***Br Med Bull*** 2005; 73-74: 57-70.
2. Porta M, Grosso A, Veglio F. Hypertensive retinopathy: there's more than meets the eye. ***J Hypertens*** 2005; 23: 683-696.
3. Cuspidi C, Meani S, Salerno M, Fusi V, Severgnini B, Valerio C, et al. Retinal microvascular changes and target organ damage in untreated essential hypertensives. ***J Hypertens***2004; 22: 2095-2102.
4. Hubbard LD, Brothers JR, King WN, Clegg XL, Klein R, Cooper LS, et al. Methods for evaluation of retinal microvascular abnormalities associated with hypertension/sclerosis in the Atherosclerosis Risk in Communities Study. ***Ophthalmology*** 1999; 106: 2269-2280.
5. Libby P, Ridker PM. Inflammation and atherosclerosis: Role of C - reactive protein in risk assessment. ***Am J Med*** 2004; 116: 9S-16S.

Diabetic scenario in Arabs

Abdulrahman Al-Ajlan, PhD.

Diabetes is a metabolic disorder characterized by resistance to the action of insulin, insufficient insulin secretion, or both. It is estimated that diabetes affects approximately 5% of the population in the industrialized nations, majority (~90%) constitute type-2 diabetes. It is expected that diabetes will be one of the most challenging public health problems of the 21st century. It is now affecting more than 150 million

people worldwide and is predicted to rise to 300 million by 2025.[1] Overall prevalence of type-1 diabetes in Saudi Arabia was found to be 0.3%, type-2 was 4.53% and impaired glucose tolerance (IGT) 0.72% and for over the age of 60 years type-2 was increased to 26.87%.[2] Recently in a seminar in the kingdom on "Diabetic Patient Empowerment" it was revealed that 25 to 30% of Saudi population is suffering from diabetes, and 52% of the population is obese. Interestingly, 34% army soldiers were also found to be obese.[3] The prevalence of diabetes in Arab countries varies from 3% in Sudan to 35% in Bahrain. In Oman it is 21%,[4] while in Kuwait 17.78%, Lebanon 13.1%, Egypt 9.3%, Tunisia 4.05% and Libya 0.19%. Over 10 years of age, it was found to be 4.3% in urban and 5.7% in rural areas. In Arab Americans of 20-70 years of age, abnormal IGT increased by 41% and diabetes by 18% after 60 years to become 70% and 40% respectively, which was consistent with the rates reported for urban Arab populations. Obesity is defined as body mass index (BMI) >30 kg/m^2. Diabetes mellitus, hypertension and obesity are among the multifactorial disorders that occur at a higher prevalence in older age group. In Saudi population, obesity is 13.05% in adult male and 20.26% in adult females. In Kuwait 63% of diabetics reported a positive family history. The crude central obesity (abnormal weight hips ratio) in Oman was found to be 49.3% (31.5% males; 64.6% females). In Egypt, obesity was 27%, while in Kuwait obesity was found to be a significant risk factor. In Lebanon, the main risk factor for type-2 diabetes was obesity (55% in males, 67% in females). It was seen in 34% of the Arab Americans as compared to 26% reported for general US population.[5] Hypertension and positive family history of diabetes in Saudi diabetic subjects were 27.6% and 41.7%. Maternal history was positive in 32% while paternal history in only 13% of men with diabetes. Transition to urban environments and greater economic affluence has been associated with changes in physical activity and dietary patterns that have promoted the development of non-communicable diseases. Population that formerly lived in harsh environmental conditions in the Middle East, had developed an efficient metabolism for better survival. This former metabolic advantage was lost once a modern life style, characterized by inactivity and high-energy diet, was adapted. Profound changes in the lifestyle of the people in the Arabian Peninsula during the last 30 years have been associated with the emergence of diabetes. Diagnostic criteria for diabetes mellitus is based on fasting plasma glucose above 108-116 mg /dl and 2 h postprandial above 185 mg/dl and a hemoglobin A1c greater than 5.9-6%. To minimize the discrepancy between fasting plasma glucose Oral Glucose Tolerance Test (OGTT), cut-off values of 126 mg/dl and 200 mg/dl respectively have been adopted by the World Health Organization in 1998.[6] In addition, impaired fasting glucose is defined by plasma glucose ≥110 mg/dl but less than 126 mg/dl. This corresponds to the category of IGT, which is defined as a 2 h glucose value 140 mg/dl but less than 200 mg/dl during OGTT.[6] Poor compliance (54.4%) and infection (28%) were the most common precipitating factors for type-1 diabetes among Saudi children. A low mortality rate of 2.9% suggested better medical care. Prevalence of diabetic retinopathy in Saudi population was 11.3%. The Saudi type 2 diabetics with nephropathy were presented nephrotic range of proteinuria in 5.6%, clinical proteinuria in 30.4% and microalbinuria in 16.8% of cases. Hypertension and retinopathy were present in 36.8% and 37% of patients respectively. In Egypt, retinopathy was 42%; albumiburia 21%, neuropathy 22%; nephropathy 7%, and foot ulcers 1%. The most common complications of diabetes in Libya were neuropathy (45.7%). For an insulin-resistant population, however, cardiovascular mortality is higher in the Bahraini population. Diabetes is a complex disorder associated with several potentially preventable disabilities, such as blindness, amputation, neuropathy, nephropathy, and cardiovascular disease. Overweight and obesity are coexisting risk factors amongst hypertensive and diabetic adult patients. Most individuals with type 2 diabetes exhibit intra-abdominal or visceral obesity and surprisingly modest weight reduction markedly reduces the development of type 2 diabetes.[7] Childhood obesity is a relatively recent phenomenon, and the emergence of type-2 diabetes in childhood is a serious development. Not all obese people eat more than the average person, but all obviously eat more than they need. In addition, the following steps may help ameliorate the current alarming condition of diabetes in Arabs in general and Saudis in particular: 1) Promote and improve the public education and awareness regarding diabetes mellitus in Saudi Arabia. The venue, date and time of such programs must be widely publicized before their commencement so that all those genuinely interested may reap its benefits. Publication of small booklets in Arabic, in lay man's terms. 2) Discussion and lectures on television and public lectures. 3) Informative articles in news papers. 4) Inclusion of information in school curricula. 5) Education of patients: dietary measures to maintain glycemic control, foot care and importance of prompt contact with health care providers with special attention to villages, rural areas and older people in terms of method of approach. 6) Health care workers' role in educating the family of the patient regarding: role of diet, exercise, weight control and compliance with the drug therapy. 7) Treatment of hypertension in those with signs of early nephropathy, even those with

mid hypertension. 8) Early detection and treatment of proliferative retinopathy.

These aforementioned approaches will also help reduce the cost of treatment, which is currently Saudi Riyals 3 billion per month in the Kingdom of Saudi Arabia.[3] Eastern Mediterranean and Middle East in the outpatient care for people with diabetes is 2.6 times that for the people without diabetes. In Europe it is 28% extra cost of diabetes. In America, it has increased many folds. In South-East Asia it may be 25% of the average family income. In Western Pacific it is 4.3 times more in non diabetics.[7]

Received 12th July 2006. Accepted 24th October 2006.

From the College of Health Sciences, Riyadh, Kingdom of Saudi Arabia. Address correspondence and reprint requests to: Dr. Abdul-Rahman Al-Ajlan, Dean, College of Health Sciences, PO Box 22637, Riyadh 11416, Kingdom of Saudi Arabia. Tel. +966 (1) 4484964. Fax. +966 (1) 4481033. E-mail: aalajl@hotmail.com

References

1. Love J. Prevalence of diabetes, by country. 06 Feb 2003. Available from URL: http://www.Ip-health.james.love@cptech.org
2. Mohsen AF, El-Hazmi, Warsy AS, Al-Wailem AR, Al-Swailem AM, and Sulaimani R. Diabetes mellitus as a health problem in Saudi Arabia. ***East Mediterr Health J*** 1998; 4: 58-67.
3. Hasan J. Experts discuss diabetes cases in the Kingdom. Arab News. 2006 April 19.
4. Al-Lawati JA, Mohammed AJ, Al-Hinai HQ, Jousilahti P. Prevalence of the metabolic syndrome among Omani adults. ***Diabetes Care*** 2003; 26:1781-1785.
5. Jaber LA, Brown MB, Hammad A, Nowak SN, Zhu Q, Ghafoor, et al. Epidemiology of Diabetes among Arab Americans. ***Diabetes Care*** 2003; 26: 308-313.
6. Reassner C, Defronzo RA. Classification and Diagnosis of diabetes mellitus. April 23, 2003. Available from URL: http://Endotext.com/diabetes/diabetes1/diabetes1.htm
7. Empirically derived cost estimates. International Diabetes Federation. Diabetes Atlas 2005. Avaialable from URL: http://info@idf.org

---

Effect of *Helicobacter pylor*i eradication on short-term control of glycemia in patients with type 2 diabetes mellitus

Jamileh Moghimi, *MD,* ***Jafar Toussy,*** *MD,*
Mehdi Babaei, *MD,* ***Shahrokh Mousavi,*** *MD,*
Mohamadreza Tamadon, *MD,* ***Masomeh Karamai,*** *BSc.*

Diabetes mellitus (DM) is one of the most prevalent endocrine diseases,[1] and its precise control is important for prevention of serious vascular complications. The importance of glycemia control has been emphasized by studies, showing that diabetic patients with higher levels of glycosylated hemoglobin (HbA1c) have significantly more long-term complications of the disease, such as retinopathy, nephropathy, and neuropathy.[2] Infections can lead to hyperglycemia in patients with DM and increase their drug requirement; the mechanisms are unknown, but are thought to include the secretion of counter-regulatory hormones due to stress, as well as the production of cytokines. Cytokines by themselves can stimulate the secretion of insulin counter-regulatory hormones, and they can directly affect carbohydrate metabolism.[3-5] Infection with Helicobacter pylori (H. pylori) induces gastric inflammation in most subjects and has been associated with an increased production of cytokines such as tumor necrosis factor, interferon-γ, and interleukins.[5] In some studies, patients with concomitant H. pylori infection requires higher doses of insulin and yet had higher levels of HbA1c than their uninfected counterparts.[5] Our study designed to assess effect of H. pylori treatment on HbA1c level (Glycemic Control Index) in diabetic patients. Patients from January to June 2005 with type 2 DM in diabetes clinic of Fatemieh Hospital, had positive urea breath test (UBT), allocated randomly into 2 equal groups. The first group treated for H. pylori infection and UBT test repeated in them after 6 weeks of cessation of therapy. If the result were negative, the patient enrolled into study as case. The second group patients enrolled into study as control. HbA1c and fasting blood sugar (FBS) measured in all patients at the beginning of study and 3-month later. For each patient, the differences of HbA1c and FBS at the beginning and at the end of study calculated and the mean of these variables compared in 2 groups. The UBT did with Model 2000, Fluorescence Inc, Ontario, Canada instrument. HbA1c measured with Enzyme-linked immunosorbent assay (ELISA) method (Diaplus Company) and FBS with Glucose oxidase method (Man Company). For treatment of H. pylori infection, Omeprazole 20 mg (by mouth [po], twice a day [bid]), Azithromycin 250 mg (po, bid), Bismuth subcitrate 240 mg (po, bid), and Metronidazole 500 mg (bid) for 10 days was used. For randomization (allocation) of data, we used Epi Info program (Version 6.04d - January 2000, CDC U.S.A, WHO Switzerland). Before allocation, patients that need to change their diet or drug regimens and had certain sport recommendations excluded from study. For comparing demographic and clinical data in the 2 groups, we used independent T-test for quantitative and Chi-square test for qualitative data. A