EDITORIAL

Greek financial crisis: consequences in the healthcare of diabetes and its complications

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Since April 2010, Greece has agreed to an economic memorandum as a consequence of high state debt. This has led to an inexorable financial burden for Greek citizens, which, in turn, has had an adverse impact on health care provision. To begin with, private medical services have become unaffordable for many citizens. Thus, more patients have resorted to the public health care system: utilisation of public inpatient and primary care services rose by 6.2% and 21.9%, respectively, between 2010 and 2011. At the same time, access to treatments is stricter and more controlled, and the state has tried to cut expenses for pharmaceutical products, as reflected in the 23.7% decrease of total health expenditures[1]. From the patients' own perspective, self-rated health in Greece has now been reported as deteriorating due to the recent financial crisis[2]. From the health care providers' viewpoint, repeated reductions in salaries, reduced nurse-to-patient ratios and rising emergency admissions in the public sector[3] have resulted in poorer working conditions. In this context, we will discuss the effects of the Greek economic crisis on issues of health care in diabetes and vascular complications. The magnitude of these effects is not precisely known but it is expected to deteriorate in the near future due to the ongoing financial stagnation.

As it might be anticipated, the crisis has been linked with a substantial increase in suicidal ideation and suicide attempts[4], as well as major depression[5]. In the field of diabetes and vascular disease, detrimental effects of the crisis may be seen in poor nutrition, chronic stress, reduced adherence to medication, reduced utilisation of laboratory and imaging studies, along with poor monitoring of vascular complications.

1) Poor nutrition: Loss of income usually leads to poor nutrition[6], and this is reflected now in the rising number of charity meals and the images of human despair at free food sharing throughout Greece. It is especially citizens losing their job and, to a lesser degree, those experiencing dramatic reductions in their income that increase consumption of cheap low-quality food with little nutritional value[7]. They cannot afford fish, fresh vegetables and fruit, and rather resort to cheaper but less useful food groups.

This dietary change has important consequences. Consumption of cheap energy-rich food is known to promote diabetes, obesity and hypertension. In industrialised populations, obesity tends to be commoner in citizens with low socio-economic status[8]. It has recently been reconfirmed that excess adipose tissue in obese subjects is implicated in endothelial dysfunction, inflammation, atherosclerosis, and diabetes mellitus[9]. A recent large epidemiological survey in Greece has documented an association of low socioeconomic status with diabetes, independently of age, obesity and other risk factors[10].

Paradoxically, however, the economic crisis has exerted a beneficial effect as well. It appears that Greek citizens are rediscovering the importance of cooking food at home, avoiding fast food. Hellastat has published a recent analysis that shows a drop of consumption of pizza by 30%, followed by the Greek "souvlaki" by 28%, fast food by 26%, and the sandwiches-snacks selling chains by 24%[11]. More information on these beneficial changes is eagerly awaited. Both state authorities and medical community should promote a campaign to increase awareness that cooking at home may be not only healthier but also cost-saving.

2) Chronic stress: Unemployment and financial strain are chronic stressors that are known to be linked with poor well-being and poor psychological and physical health[12]. The ultimate effect of emotional distress is increased cardiovascular morbidity and mortality[13]. In this context, the precipitous rise in the rate of heart attacks since the be-

ginning of financial crisis[14] is particularly alarming.

3) Adherence to medication: Many chronic treatments, especially expensive ones, may be accompanied by low patient adherence. In the face of economic crisis, patients are concerned about additional costs[7]. In diabetes, medication cost has been acknowledged as an important aspect to consider in choice of treatment by the American Diabetes Association and the European Association for the Study of Diabetes[15], in an attempt to individualise treatment[16]. For the average patient, it may be difficult to cope both with the cost of anti-diabetic medication and the relatively increasing cost associated with healthy nutrition[8]. The burden is aggravated by the additional need to cover the costs of concomitant anti-hypertensive and hypolipidaemic treatment for many patients. Admittedly, patients' contribution has now been reduced from 25% of the total price for oral hypoglycaemic agents to 10%, and there has also been a decisive decrease in the price of the more expensive agents. Nonetheless, patients' contribution for hypolipidaemic treatment, which is most frequently co-administered, has increased from 10% to 25% of their price. More importantly, the reduction in patients' income due to cuts in salary, unprecedented unemployment rates and increasing taxation far outbalances the aforementioned reductions in price, rendering medication relatively less affordable than before. Thus, to our own experience, many patients disagree with more expensive anti-diabetic treatments (especially the new Dipeptidyl-peptidase 4 inhibitors or injectable Glucagon-like peptide 1 agonists) or decrease the frequency of drug prescriptions. Similarly, needles for insulin pens are provided for free, but at quantities not sufficient for patients with type 2 diabetes who are on multiple injections, increasing the difficulties of compliance with treatment. This is quite a pity, because under-treatment of diabetes will probably incur a higher burden on the national health budget in the future, as a result of vascular complications[17-19].

4) Cutbacks on the *costs of biochemical tests and imaging studies*: Such cutbacks may prevent appropriate regular monitoring of glycated haemoglobin, serum lipids, thyroid function tests etc. Similarly, patients may fail to perform self-measurement of capillary blood glucose, in an effort to save money on teststrips and lancets. Self-monitoring contributes to attaining glycaemic targets and avoiding hypoglycaemias and glucose fluctuations not only in insulin-treated patients but also in those on oral hypoglycaemic agents[20]. Teststrips are now provided for free, but at quantities not always sufficient to ensure adequate monitoring (e.g. for type 2 diabetic patients on intensive insulin therapy). Lancets are also not always provided at sufficient quantities. Taken together, the new conditions, in the overall scheme of financial restraints, appear rather unfavourable for adequate adherence to treatment and home monitoring. This is partly reflected in the fact that patients now present more frequently to the emergency department with poorly controlled diabetes having discontinued medication and self-monitoring. Imaging studies (ultrasonography, angiography etc) may be cancelled as well. One may question why this should be the case, granted that laboratory tests and imaging studies can be provided for free in public hospitals. It appears that patients' general disillusionment, time spent in looking for new jobs if unemployed, not to mention the increasing bureaucracy of the new electronic system for laboratory and other tests, limit patient access to these provisions.

5) *Poor follow-up for diabetic complications*: Being preoccupied with saving money or finding a new job, patients understandably may neglect regular follow-up for diabetic complications. Given the asymptomatic nature of early pathology (such as incipient neuropathy, retinopathy or microalbuminuria), this negligence is hardly surprising. At the same time, some patients may have to work longer and/or may not afford to buy new or appropriate footwear, which might place them in danger of foot ulceration or even Charcot osteoarthropathy[19].

In view of the new situation as described above, it is high time to look for feasible solutions. First of all, politicians must be made more convincingly aware that the crisis may have serious, possibly long-lasting, consequences for healthcare. This should also be realised by statesmen in other countries to avoid similar problems. To minimise the adverse effects of financial crisis on the healthcare system, it is vital to emphasise that appropriate measures need to be taken ensuring patients' uncompromised access to medication, visits to health care providers and laboratory examinations as needed. Such measures would require the active participation of local municipal and medical councils, in order to be implemented effectively. Second, physicians need to show more understanding for patients' financial problems and discuss with them the options of affordable medication without necessarily compromising treatment efficacy. It should be remembered that metformin not only exerts numerous favourable therapeutic actions, but it has the additional advantage of being inexpensive[15]. Insulin treatment, when properly used, may also be efficacious without excessively increasing total cost, partly due to the relatively low costs of patient visits to health care professionals in Greece[21]. Generally, therapeutic preferences now need to be discussed more thoroughly on an individualised basis. Such discussion should not ignore that improved diabetes care has in the recent past been documented to be achievable, but at increased cost[22]. In addition, physical exercise is the cheapest, oldest and most powerful medication to achieve weight loss and physical fitness. Thirdly, engagement of health care providers may be of substantial help. For example, taking off patients' socks and shoes to palpate foot pulses, elicit ankle jerks and look for sensory deficits, deformities and other risk factors does not take up too much time, does not increase cost and is of major contribution to reduce foot lesions[17]. In this endeavour, simplification of nerve conduction study in Greece may contribute to increase screening of more patients at reduced cost[23].

In conclusion, the Greek financial crisis may have

adverse effects in the healthcare of diabetes and its vascular complications. Cheap, unhealthy, nutritional changes, chronic stress, poor treatment compliance, and poor clinical and laboratory monitoring appear to be the first consequences. The medical community needs to work harder to increase awareness of the dire situation and find affordable solutions.

Conflicts of interest

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