



Diabetes: the health crisis of the 21st century

Highlights of the FEND 11th Annual Conference, 12–13 September, 2006, Copenhagen, Denmark

'Diabetes is the health crisis of the 21st century.' So said Anne-Marie Felton (FEND chair), opening this year's conference, attended by a record 750 delegates from 30 countries. 'We recognise it; people with diabetes recognise it. The difficulty we have is in convincing the international health policy makers of recognising its challenge in the context of chronic disease.' There has, however, now been some progress; for example, this year Austria, as president of the EU, had taken diabetes as its main health consideration.

The FEND conference, as usual, immediately preceded the annual European Association for the Study of Diabetes (EASD) annual meeting and covered the whole spectrum of diabetes and the increasing importance of diabetes nurses in its research and management. However, in view of the enormity of the crisis, it is not surprising that political issues played one of the key roles in the conference's deliberations.

Stemming the tide

Crucial role of nurses

The Chairman of EASD conference organising Committee this year, Jørn Nerup (Denmark) stressed the crucial role of diabetes nurses in stemming the tide of diabetes in Europe. He reminded FEND delegates that worldwide approximately 230 million people have diabetes and this is projected to rise to 333 million by 2025 (Figure 1). In Europe alone, 25 million people

have diabetes and another 50 million have pre-diabetes. Already six people die because of diabetes every minute and the burden on patients and society of late diabetic complications is overwhelming.

The costs of diabetes are tremendous (130 billion euros in Europe) and it is already the single most costly diagnosis; consuming 10–15% of healthcare budgets and rising rapidly. However, continued Professor Nerup, much can be done to stem the tide.

The Archimedes model shows that primary, secondary and tertiary prevention leads to reductions in the incidence of diabetes; the incidence late diabetic complications can be reduced and major disability and premature deaths can be avoided. Professor Nerup pointed out that treating diabetes and pre-diabetic states is really cost effective: 'Studies show that doing nothing is more expensive than implementing existing treatment guidelines for diabetes and its complications'. He said that the battle against diabetes could be won, but we need to rethink and reorganise the way we work. For example, the battle would not be won in the clinics, but rather away from clinics through community-based and customised solutions involving nurses. He urged FEND nurses to take the lead in developing and implementing practical diabetes prevention and treatment programmes in the communities in which they work.

The IDF campaign

Martin Silink (Australia), who is President-Elect of the International

Diabetes Federation, gave an emotional and inspirational update on the progress of the IDF's worldwide campaign to petition United Nations to recognise the global burden of diabetes, and to recognise the special needs of diabetes in children, the elderly, pregnant women, migrant populations and indigenous peoples and to recognise the need for prevention. The aim is for a UN Resolution on diabetes to be declared on World Diabetes Day 2007.

The Peoples Republic of Bangladesh is the lead sponsor and is seeking between 20 and 30 countries as co-sponsors. However, Professor Silink admitted that there is some resistance to more UN days and diabetes is seen as a single disease issue. But he is optimistic. As with Professor Nerup, he emphasised the scale of the world burden of diabetes. It causes a similar number of deaths each year as AIDS but does not receive the same publicity. Yet the projections indicate that by 2025, 6.3% of the global adult population will have diabetes; with the greatest burden falling on the developing countries.

Diabetes is responsible for over a million amputations each year, at least 5% of worldwide blindness and is the largest cause of kidney failure. And the rise of diabetes is now subverting the gains of economic progress in many parts of the world.

Professor Silink received a standing ovation for his presentation



and is the first person to have received this honour.

The voice of the EU

A sign of the importance that the EU now attaches to FEND was highlighted Philippe Roux (European Commission DG SANCO) who represented the EU and discussed the social and political challenge of diabetes in the EU.

Mr Roux admitted that the EU had a responsibility to support member states efforts to ensure healthier environments for its citizens but could only do so much itself. However, the commission has carried out a number of initiatives to facilitate the necessary partnerships to achieve change, and to legislate within its powers where necessary. This includes the creation of the 'European Platform for Action on Diet, Physical Activity and Health', and the initiation of legislation such as the new Nutrition and Health Claims legislation, and the financing of projects through its Public Health or Research programmes. To bring these initiatives together, the Commission services have started to define the elements of a comprehensive and coherent Community strategy to be presented to the Council early next year.

The Finnish experience

An example of just what can be done to prevent the type 2 pandemic was presented by Sari Harma-Rodriguez (Finland) who talked about the Finnish experience. In addition to her own observations, she summarised the presentation by Jaakko Tuomilehto (Finland) who was unavoidably delayed. The groundbreaking Finnish Diabetes Prevention Study (DPS) has shown that the risk of type 2 diabetes in high-risk subjects can be halved by changes in

1985 – 30 000 000
2003 – 194 000 000
2007 – 230 000 000
2025 – 333 000 000

Nearly two thirds are living in poor or developing countries

Figure 1. People with diabetes worldwide¹

lifestyle (exercise and diet). The changes do not need to be drastic and modest corrections in lifestyle are helpful and can last for years after the intervention has been stopped. Following the dramatic results of the study, a nationwide type 2 prevention programme has been set up in Finland in order to translate these important research findings to the population at large. The programme is co-ordinated by the Finnish Diabetes Association and it is implemented within the existing healthcare system.

A simple Finnish Diabetes Risk Score to identify people who are at high risk of type 2 diabetes has been produced and an intensified community-based prevention programme has been implemented through primary healthcare in five hospital districts covering approximately 1.4 million inhabitants during 2003 to 2007. This is the first of its kind in the world.

The role of drug therapy in stemming the tide

An industry perspective on its potential role in helping to manage the diabetes epidemic was presented by Eddie Gray (UK) who is the General Manager and Senior Vice President of GSK UK Business Operations. Mr Gray appeared to doubt that relying purely on social measures (reducing access for our youth to high fat high carbohydrate foods and increasing access to sports facilities) would be sufficient to

stem the flow of new diabetes cases. He argued that the pharmaceutical industry had a key role to play in raising the profile of type 2 diabetes and encouraging access to quality care for all. The industry had a primary role to play in innovation, providing new therapeutic approaches to prevent type 2 diabetes and treatments for established cases. There has been a massive investment in type 2 diabetes research which is beginning to bear fruit, and a range of new therapy classes overdue to reach the market over the next few years.

Examples of such new therapies were provided by Cliff J Bailey (Birmingham, UK) during his comprehensive presentation. Despite the range of antidiabetic agents currently available, these seldom reinstate and sustain an entirely normal pattern of glucose homeostasis – hence the need for new agents, said Professor Bailey. In addition to the single tablet combinations now available with more such 'polypills' on the way (Figure 2), there are currently new agents in development or recently introduced. For example, injectable analogues of the hormone glucagon-like peptide I (GLP-I) stimulate glucose-induced insulin secretion, reduce glucagon secretion, slow gastric emptying, exert a satiety effect and assist weight loss.

The new agents known as 'gliptins' or DPP4 inhibitors are in an advanced stage of development. These are taken orally and act by slowing the breakdown of endogenous GLP-I and probably altering the concentrations of some other circulating peptides that affect glucose control.

The first inhaled insulin preparation has received regulatory approval and other dry powder/liquid aerosols are expected. These insulins are designed for mealtime

**Single tablet antidiabetics**

Glucovance – metformin + glibenclamide
Metaglip – metformin + glipizide
Advandamet – metformin + rosiglitazone
Avaglim (Avandaryl) – rosiglitazone + glimepiride
Competact (Actoplusmet) – metformin + pioglitazone
Duetact – pioglitazone + glimepiride

Across indications

Caduet – atorvastatin + amlodipine
Advicor – lovastatin + niaspan
Polypills – e.g. statin + aspirin + antihypertensive

Figure 2. Single-tablet 'fixed dose' combinations and polypills

bolus administration of rapidly available insulin.

As an adjunct to insulin therapy an injectable amylin analogue (pramlintide) is being introduced and suppresses glucagon secretion and reduces appetite; enabling glycaemic control to be improved without up-titrating the insulin.

A new orally administered antiobesity agent has been developed (rimonabant) which inhibits the endocannabinoid receptor CBI. This mainly reduces appetite, but it also substantially reduces HbA_{1c} levels in obese patients with type 2 diabetes and may have additional effects on cardiometabolic risk beyond those expected from weight loss alone, added Professor Bailey. And there is continued research on the 'glitazars' (dual PPAR γ / α agonists), a group of agents designed to improve insulin sensitivity and improve the blood lipid profile.

The metabolic syndrome*Does it exist?*

The metabolic syndrome (and, indeed, whether it exists or not!) has aroused much controversy recently and Stefano Del Prato (University of Pisa Italy) threw much-needed light on its existence. The syndrome encompasses a constellation of metabolic disturbances, all known cardiovascular

risk factors, and is a common, age-related disorder mainly driven by obesity and has been claimed to be a powerful predictor of cardiovascular disease. However, the existence of such a syndrome has been recently challenged on the basis of uncertainty of the pathogenetic mechanism(s), too many definitions and diagnostic criteria and doubt about any advantage as compared to existing risk calculators.

Professor Del Prato said that on pragmatic grounds all cardiovascular risk factors should be treated without regard as to whether a patient meets the criteria for diagnosis of the metabolic syndrome. As he pointed out, although it is imprecisely defined, it does offer a simple public health concept and easily identified starting point for clinical intervention. He gave some examples of the different definitions of the syndrome and observed that although there is a lack of certainty regarding its pathogenesis, insulin resistance may contribute to the clustering of several factors; if not adding to them in term of CVD risk. Even though there may be doubt regarding its value as a CVD risk marker, insulin resistance and its cluster of associated abnormalities are probably as important as hypercholesterolemia as CHD risk factors.

The seeds of the metabolic syndrome?

The seeds of the metabolic syndrome are probably sown early in childhood, reported Alison Jeffery (Peninsula Medical School and Derriford Hospital, Plymouth, UK). Ms Jeffery updated delegates on findings from the ongoing EarlyBird study; is a non-intervention, prospective investigation of 300 healthy children and their parents. A number of novel and unexpected findings are emerging. For example, neither birth weight nor early infant weight gain seems to programme subsequent insulin resistance. Adiposity increases progressively before puberty, yet insulin resistance unexpectedly falls. Girls are intrinsically more insulin resistant than boys and this difference impacts significantly, and adversely, on their metabolic status. However, the relationships between insulin resistance and BMI, waist circumference and adiposity strengthen from five to eight years, when waist circumference is the strongest predictor of insulin resistance. One of most worrying findings reported by Ms Jeffery is that 60% of parents of overweight children are unaware and unconcerned about their child's weight. In a telling phrase she added that 'It is a sad fact that theirs may be the first generation where a significant number of parents will outlive their children'.

Most of the children and adolescents with type 1 diabetes in Croatia do not achieve satisfactory metabolic control, which places them at high risk of diabetic complications in adulthood, reported Jasna Radanovic and colleagues from the Department of Pediatrics, University Hospital Center Zagreb, Zagreb, Croatia. Their study found that mean HbA_{1c} was 9.24%, with only 21% of patients achieving levels of less than



8.0%. Children aged six to 12 were in better metabolic control than adolescents and, overall, boys achieved better HbA_{1c} levels than girls. There was better control in families where both parents had university degrees, compared to families where one or both parents only had secondary education. In spite of regular visits to diabetes management teams, optimal control was not achieved, so other strategies should be developed to further improve the motivation for self-monitoring and metabolic control in the patients, especially adolescents, concluded Ms Radanovic.

Psychosocial and educational aspects of diabetes

Depression in diabetes

During a masterclass on psychosocial aspects, Frans Pouwer (Amsterdam, The Netherlands) said that there are specific emotional problems in diabetes. These include fear of hypoglycaemia, worries about (and coping with) existing and future complications, fear of injecting and self-testing, non acceptance of their diabetes and uncomfortable interactions with family, friends, colleagues and teachers. General emotional problems that are more common in diabetes include sexual, and eating problems (bulimia/anorexia) and anxiety. Depression is particularly common: its prevalence is doubled in patients with diabetes and co-morbid disease, particularly in those with complications and major depressive disorder affects 20 million people with diabetes: 'This means that one or two every patient you see is depressed', added Dr Pouwer. He pointed out that depression often has a negative effect on HbA_{1c} and thus increases the risk of complications. In short, the recognition of depression by nurses and doctors needs to be increased.

Patient education and art-therapy

Alain Golay and colleagues from the Service of Therapeutic Education for Chronic Diseases – Geneva University Hospital, Switzerland, reminded delegates that therapeutic education is a patient-centred approach, focused on patients' needs, resources, values and strategies. However, the most difficult part of therapeutic education occurs when patients with low self-esteem must change their behaviour. And obese patients with a low self-esteem and a poor body image encounter major barriers when they need to change their eating behaviour. In Geneva, art-therapy and dance-therapy workshops allow patients to express their painful life experience in a non verbal manner. As being a part of multidisciplinary approaches in therapeutic education, these art-therapy workshops allow patients to become emotionally and physically aware, recognising personal resources and progressively modifying their life behaviour.

Therapeutic education

A poster which discussed therapeutic education (TPE) won the FEND DESG award. Margarida Jansa and colleagues from Spain described an observational, transversal study of inpatients with long term chronic conditions (CC) who received TPE. The most frequent CC as principal or secondary diagnoses were: hypertension (31%), cancer (23%), ischaemic heart disease (17%), diabetes (14%), hyperlipidaemia (13%), cardiac arrhythmia (12%), tobacco abuse (12%) and chronic obstructive pulmonary diseases (10%). The prevalence of diabetes was 2.3%, 7.4%, 13.3% and 49.7% for 1, 2, 3, >3 CC respectively. Diabetes represented 1.6% of all causes of CC hospitalisation. It was concluded that the high frequency of patients with multiple CC requires the implementation of transversal integrated

chronic care programmes in which TPE is an essential component.

The FEND award

This year, the FEND Poster Award went to Ketia Alexandre and colleagues from Lausanne, Switzerland for their study which determined the impact of nurse-led management on perinatal outcomes in 65 women with gestational diabetes (GDM). The study found that when diabetes nurses have a primary role, this contributes to the improvement of perinatal outcomes and the women's satisfaction regarding those aspects of care that they consider most important.

This was Mrs Felton's last appearance as Chairman of FEND. She will become President and Deirdre Kyne-Grzebalski will take over as Chair ('A very worthy successor', observed Mrs Felton). Delegates showed their appreciation and affection with an ovation for the crucial role that Mrs Felton has played in guiding the Federation to its present size and importance in the world of diabetes.

Delegate quotes

'If only more of our DSNs could attend an international meeting like this! They would learn so much. I will be going back home full of new ideas' – Laila King (Tower Hamlets, UK)

'It has been a marvellous opportunity to learn and to meet and listen to so many well known people' – Qingqing Lou (Zhejiang, China)

Reference

1. International Diabetes Federation. *Diabetes Atlas*. 2nd Ed. Brussels: IDF, 2003.

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