DPP2012

亞洲糖尿病基金會
Asia Diabetes Foundation

co-organized by:

International Diabetes Federation
IDF Centre of Education
2011-2015

Intercontinental Hotel, Hanoi, Vietnam **26-27 May 2012**

www.adf.org.hk/dpp2012

DIABETES PREVENTING THE PREVENTABLES DPP 2012 FORUM

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Welcome Message

Dear Faculty and Delegates,

Welcome to Hanoi, a beautiful city with a rich history and culture. Just like most cities in Asia undergoing rapid transition, diabetes has come a long way over the last two decades. From a simple classification of type 1 and type 2 diabetes, there is now an explosion of information on the phenotypes and genotypes of this complex disease. From a handful of medications, we are now overwhelmed with a growing number of compounds for the treatment, of not just diabetes, but many of its associated conditions and comorbidities.

Diabetes is a lifelong disease and the most challenging aspect in managing diabetes is to help patients manage their disease for the rest of their life. To do this effectively, the care team has to systematically collect and manage a large amount of information, collected at any one time and over time, in order to assess and advise their patients accordingly.

Our health care systems have never been designed to manage these chronic problems and information which are new health care challenges. This DPP Forum is a meeting designed to address these needs. It aims to foster collaborations amongst all relevant stakeholders, who see the need of a new paradigm shift to change the way how chronic care should be delivered, in order to bring out the best of our expertise and technologies to make chronic care accessible, sustainable and affordable.

To this end, we are fortunate to have invited a faculty of experts and thought leaders with a diversity of experiences who will share with us their views and insights into this health care challenge.

We shall also share with you the successes and challenges in implementing the Joint Asia Diabetes Evaluation Program (JADE), which aims to use a team approach to implement structured care augmented by information technology.

We hope you will enjoy this 1.5 day meeting and that you will continue to be part of this growing network to prevent and control diabetes and chronic disease.

Best regards,

Juliana CN Chan
Co-director, IDFCE
CEO, ADF

CC Chow
Co-director, IDFCE
Executive Councillor, ADF

Greg Lyubomirsky
Executive Councillor, ADF

Organizers

Principle Organizer – Asia Diabetes Foundation

亞洲糖尿病基金會
Asia Diabetes Foundation

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Co-organizers

International Diabetes Federation
IDF Centre of Education
2011-2015

Chinese University of Hong Kong
Prince of Wales Hospital, Hong Kong
International Diabetes Federation (IDF) Centre of Education

Organizing Committee

Chairman:	**Prof. Juliana CN Chan**
Co-chairman:	**Dr. Greg Lyubomirsky** **Dr. CC Chow**
Members:	**Ms. Nicola Brown** **Ms. Sally Chau** **Ms. Vanessa Lau** **Dr. Andrea Luk** **Dr. Vanessa Ng** **Dr. Risa Ozaki** **Ms. Yi Sui** **Mr. Patrick Wong** **Ms. Jenny Zhang**

Faculty

Peter BENNETT
NIDDK, National Institute of Health, Arizona, USA

Dr. Peter Bennett is currently Scientist Emeritus in the Phoenix Branch of the US National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). For more than 40 years he conducted extensive research on the epidemiology and pathogenesis of diabetes mellitus and its complications especially among the Pima Indian population of Arizona. These investigations led to major advances in understanding the causes, pathogenesis and prevention of type 2 diabetes and its complications.

Juliana CHAN
Chinese University of Hong Kong, Hong Kong

Professor Juliana Chan is currently Professor of Medicine and Therapeutics and Assistant Dean (Education) at the Chinese University of Hong Kong. Her major areas of interest include genetic epidemiology, clinical trials and care models in diabetes. The diabetes risk stratification program and collaborative care model developed by her team since mid-90s has formed the framework for the government chronic care model. This care model has also been successfully translated to the community through private public partnerships.

Ed FISHER
University at North Carolina at Chapel Hill, USA

Professor Edwin B. Fisher is based in the Gillings School of Global Public Health at the University of North Carolina-Chapel Hill, U.S.A psychologist, he is also Global Director of Peers for Progress, a program of the American Academy of Family Physicians Foundation that is promoting peer support in diabetes management and other areas of health, health care, and prevention around the world.

Edward GREGG
Centers for Disease Control and Prevention, USA

Dr. Edward Gregg is Chief of the Epidemiology and Statistics Branch of the Division of Diabetes Translation at the Centers for Disease Control and Prevention, U.S. His efforts have involved oversight of the National Diabetes Surveillance system and the integration of surveillance, epidemiology, health services, and economic studies at CDC to guide health policy for chronic diseases.

Greg LYUBOMIRSKY
Asia Diabetes Foundation, Hong Kong

Dr. Lyubomirsky is Director of the Commercial Initiatives & Healthcare Strategy, Asia Pacific Region in MSD, where he has had a major impact leading Regional diabetes initiatives in partnership with Chinese University of Hong Kong and Asia Diabetes Foundation. He has developed and implemented patient adherence initiatives across Asia Pacific countries and franchises to enhance patient adherence and outcomes.

Ronald MA
Chinese University of Hong Kong, Hong Kong

Dr. Ronald Ching Wan Ma is Professor at the Department of Medicine and Therapeutics, Chinese University of Hong Kong and Honorary Consultant at the Prince of Wales Hospital, Hong Kong. He is currently the President of Diabetes Hongkong, a charitable voluntary organization dedicated to promote social awareness of diabetes and serve diabetic patients. His research interests include epidemiology and genetics of diabetes and its complications, gestational diabetes and polycystic ovary syndrome.

Helen McGUIRE
International Diabetes Federation, Belgium

Helen McGuire is the Senior Diabetes Education and Health Systems Specialist at the International Diabetes Federation. Helen designs and leads international projects in various countries and heads international networks such as the IDF Centres of Education.

Brian OLDENBURG
Monash University, Australia

Professor Oldenburg's research focuses on health policy, global health and the prevention and control of chronic conditions, such as diabetes and heart disease. He has conducted research in health-care settings, work organisations, schools and other community settings in Australia and in countries such as China, Malaysia, India, Sri Lanka, South Africa and Finland. He holds current Honorary Professorships in Finland and Beijing CDC.

Ellen OR
Independent Trainer, Hong Kong

Ellen Or has over 15-year professional experience in management consulting / training specializing in Project Management and Change Management. She has been working in a number of international consulting firms / companies in many Asian countries. Her professional qualifications include Master of Business Administration, Project Management Professional (PMP®), Certified Management Consultant, and Neuro Linguistic Programming (NLP) Master Practitioner.

Ego SEEMAN
University of Melborne, Australia

Ego Seeman is Professor of Medicine, Endocrinologist in the Department of Medicine and Endocrinology, Austin Health, University of Melbourne. He has worked extensively in the study of metabolic bone disease for 30 years with over 300 publications. He has achieved many accolades and awards throughout his career including the 2009 International Osteoporosis Foundation Medal of Achievement for Outstanding Investigation in Osteoporosis Research.

Programme

▶ Saturday 26/5

Time	Topics	Speakers
8:30 - 9:00	Welcome remarks and meeting objectives	Juliana Chan
	UNMET NEEDS IN DIABETES AND CHRONIC CARE	Chair: Dr. CC Chow
9:00 - 9:45	Diabetes and osteoporosis; diseases Sans Frontiers	Ego Seeman, Australia
9:45 - 10:30	Evolution of NCD prevention and control	Brian Oldenburg, Australia
10:30 - 10:45	Q & A Session	
10:45 - 11:15	Coffee break	
	FROM BEHAVIOURAL CHANGE TO SYSTEM CHANGE	Chair: Dr. Larry Ho
11:15 - 12:00	Can we change patients' and doctors' behaviors?	Ed Fisher, USA
12:00 - 12:45	Crafting the next generation of strategies to improve the quality of diabetes care	Edward Gregg, USA
12:45 - 13:00	Q & A Session	
13:00 - 13:15	Group photo	
13:15 - 14:30	Lunch	
	DIABETES CARE – MORE THAN A MEDICAL MODEL	Chair: Dr. WY So
14:30 - 15:00	Building networks to strengthen the interdisciplinary response to the diabetes epidemic	Helen McGuire, IDF
15:00 - 15:30	What are the outcome measures in chronic care?	Juliana Chan, Hong Kong
15:30 - 15:45	Q & A Session	
15:45 - 16:15	Coffee break	
16:15 - 17:30	Team building, motivational interview and neuro-linguistic programming	Ellen Or, Hong Kong
19: 30 - 21:30	Dinner	

▶ Sunday 27/5

Time	Topics	Speakers
	FROM PREVENTION TO PERSONALIZED THERAPY	Chair: Dr. MW Tsang
9:00 - 9:45	Contribution of epidemiology to advancement of diabetes care	Peter Bennett, USA
9:45 - 10:30	Genetic discovery using a Diabetes Registry	Ronald Ma, Hong Kong
10:30 - 11:00	How to personalize the use of anti-diabetic drugs?	Juliana Chan, Hong Kong
11:00 - 11:15	Q & A Session	
11:15 - 11:30	Coffee break	
	JOINT ASIA DIABETES EVALUATION (JADE) PROGRAM	
11:30 - 13:00	JADE progress report and demo of JADE portal Sharing of experience and panel discussion	Juliana Chan Greg Lyubomirsky
12:45 - 13:00	Closing remarks	Greg Lyubomirsky
13:00 - 14:00	Lunch and departure	

Unmet Needs in Diabetes and Chronic Care

Diabetes and Osteoporosis; diseases Sans Frontiers

Saturday 26th May 2012 | 9:00 a.m.

Ego Seeman *– Professor, Departments of Endocrinology and Medicine, Austin Health, University of Melbourne, Melbourne, Australia.*

Fracture risk is increased in patients with diabetes. In type 1 diabetes the increased risk is 1.3–2.6 for spine, femoral neck, and distal radius fractures. Post-menopausal women with type I diabetes have a 7-12-fold risk for hip fracture. Fracture risk in patients with type 2 diabetes is 1.7-fold at any skeletal site.

The morphological basis for the fracture risk is not defined because the material composition and structure of bone is not defined. Most studies use crude measures such as areal bone mineral density which is reduced in some but not all studies in patients with type 1 diabetes and high or normal BMD in patients with type 2 diabetes. This does not exclude bone fragility; most fractures in the community occur in persons without osteoporosis (BMD <-2.5 SD). Type 2 diabetics are said to have a 10% higher tibial trabecular volumetric BMD (13.8%; $P < 0.05$). However, this is probably an artifact of intracortical remodeling which falsely elevates trabecular BMD as cortical remnants that look like trabeculae are included in the measurements.

The best documented abnormality in material composition is the accumulation of advanced glycation end (e.g. pentosidine) reduce the ductility of bone. AGEs also signal through the RAGE receptor on osteoblasts and osteoclasts increasing NF-kB activity and reactive oxygen species attenuating osteoblast differentiation and enhancing bone resorption.

In type 1 diabetes, reduced bone formation occurs due to reduced osteoblast synthesis from stem cells which are diverted to the adipocyte lineage, reduced work and shortened survival. PPARg activation in stem cells increases the differentiation of adipose tissue. Antidiabetic compounds activate PPARg (rosiglitazone) induce marrow adiposity and increase fracture risk. Osteocalcin mRNA is decreased in type 1 diabetic mouse bone and associated with a reduced mineral apposition. Osteoblast surface and osteoid surfaces are also reduced which may reflect reduced tissue level remodeling, not reduced bone formation. Reduced bone formation may also contribute to bone fragility in type 2 diabetes. In rat models of obese type 2 diabetes, plasma osteocalcin, bone content of osteocalcin per femur, bone length, bone strength, and weight of powdered bone in Wistar fatty rats were decreased. Torii rats, nonobese type 2 diabetes, have a reduction in osteoblast number and activity, osteoid surface, and bone strength restored by insulin therapy. Markers of oxidative stress are increased in bone and may reduce bone formation.

Bone is an endocrine organ. Undercarboxylated osteocalcin increases insulin sensitivity and secretion; bone participates in energy metabolism. Mouse insulin sensitivity is improved by undercarboxyalted osteocalcin. Deficiency of insulin signaling in osteoblasts is associated with low bone mass through modulation of osteocalcin activity. In human subjects the link between bone remodeling, insulin sensitivity is yet to be established but some evidence does exist offering new approaches to the prevention and treatment of diabetes and to understanding energy metabolism.

Unmet Needs in Diabetes and Chronic Care

Evolution of NCD Prevention and Control

Saturday 26th May 2012 | 9:45 a.m.

Brian Oldenburg *– Professor and Director, International Public Health & Associate Dean for Global Health, Monash University, Australia*

Diabetes and the other associated conditions of unhealthy ageing constitute a very severe threat to health systems in Low and Middle Income countries (LMICs), which are not adequately prepared for such a challenge. Hence, the very important need to implement cost-effective approaches for the prevention and long term self-management of chronic conditions such as diabetes. Regular contacts (or follow-up) and ongoing support are critical success factors for long term lifestyle change and self-management of diabetes by individuals. Indeed, 50 years of research has clearly demonstrated that long maintenance of behaviors such as abstinence from smoking or improved diabetes self-management are best predicted by ongoing monitoring, support and encouragement and assistance in solving problems and addressing barriers to more desirable behavior patterns. Support from the social, physical ('living') and policy environment is also really important. However, regardless of whether the focus is on chronic disease prevention or improving disease management, the provision of ongoing follow-up and support to individuals to make lifestyle changes is a big challenge in all of our countries and our health systems are generally very poor at delivering and supporting such programs. More 'high tech' interventions using smartphones and the internet now offer new approaches to monitoring self-management and clinical status indicators relevant to diabetes management and progression, linking individuals to needed care, assisting in problem solving, and, even, providing long term social support and encouragement ("soft touch"). These methods can also be combined with new evidence-based approaches that utilize peer support and other more 'soft touch' approaches, as well. This presentation will briefly consider some of our recently conducted intervention trials of such approaches over the past 10 years and how these approaches could be "scaled up" to improve the prevention and control of diabetes in LMICs.

From Behavioral Change to System Change

Can we change patients' and doctors' behaviors?

Saturday 26th May 2012 | 11:15 a.m.

Ed Fisher *– Professor, Department of Health Behavior, Gillings School of Global Public Health, University of North Carolina-Chapel Hill, USA*

The answers to the questions of the title of this presentation are "yes" and "yes"! Substantial evidence indicates that patients' and doctors' behaviors can be changed. Our knowledge of how to do this has evolved considerably over the past 50 years. In the mid-20th century, we thought that simply providing information would change health behaviors. Explaining to doctors the research behind recommendations was expected to be sufficient to change practices and explaining to patients the importance of health behaviors was expected to lead to their widespread adoption. In the late 20th century, this view of patients and doctors as passive adopters of facts and recommendations was replaced by recognition of the importance of the agency of the individual — for patients, "compliance" was replaced by "adherence" and "empowerment." Now, in the 21st century, behavioral science has come to an integration of the agency of the actor with a recognition of the multiple determinants of actors' choices and behaviors. Professionals and patients are empowered by systems, organizations, and incentives that facilitate their behaviors. Understanding complex environmental determinants of behavior is not antithetical to individual freedom. Rather, using that understanding to promote wise or healthy behaviors enhances the individual's senses of freedom and dignity. This presentation will illustrate these three phases — delivery of health information, patient empowerment, system-individual interaction — with examples from both patient and physician education. It will then go on to discuss implications for emerging areas of improving chronic disease prevention and management from both the provider and patient perspectives, and close with brief review of peer support as a practical strategy for enhancing professionals' impacts and facilitating patients' healthy behaviors and quality of life.

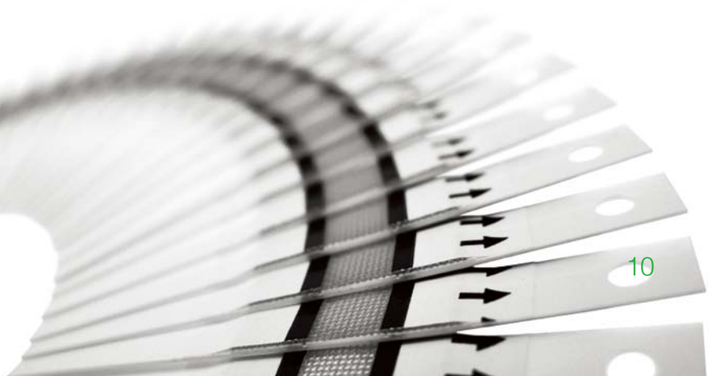
From Behavioral Change to System Change

Crafting the Next Generation of Strategies to Improve the Quality of Diabetes Care

Saturday 26th May 2012 | 12:00 noon

Edward Gregg *– PhD, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, USA*

Efforts to systematically measure and improve the quality of diabetes care have been an essential component of the public health response to the world wide diabetes problem. In many countries, these efforts have led to improved delivery of preventive care, better self-management, and reductions in the incidence of diabetes complications. Major variation and weaknesses in the diabetes care, outcomes, and equity remain, however, as economic and individual-level barriers make comprehensive diabetes management complex. New generation quality of care metrics are needed that are more sensitive to the aspects of care that affect outcomes, account for patient-centered barriers and outcomes, quantify clinical inertia, and consider the composite effect of multiple risk factors. The next major challenge will be to develop effective models for health systems to influence the primary prevention of diabetes. The incorporation of primary prevention into quality of care efforts will require 3 major steps. First, the health and economic impact of different risk stratification approaches need to be clarified, matched to the settings and interventions that are being used. Second, the specific role of clinicians, communities, and clinical-community partnerships in prevention need to be clarified. Finally, simple but effective metrics to incentivize health systems to prevent diabetes need to be developed and refined. This presentation will summarize evidence and progress in improving diabetes care and outline steps necessary for health systems to influence primary prevention efforts for the population.



Diabetes Care - More than a Medical Model

Building networks to strengthen the interdisciplinary response to the diabetes epidemic

Saturday 26th May 2012 | 2:30 p.m.

Helen McGuire *– Senior Diabetes Education and Health Systems Specialist, International Diabetes Federation*

It is well established that an estimated 366 million people with diabetes require lifelong interdisciplinary care and education from health workers. Without this powerful combination of care and education they will be at increased risk for costly complications and reduced quality of life. It is expected that this number will rise to 552 million people by 2030 with the greatest increases found in low income countries and marginalized populations in high income countries.

One of the fundamental barriers to providing evidenced based diabetes education and care is the lack of qualified health care professionals. There is currently a shortage and misdistribution of health workers around the globe; the competencies required of health professionals do not match the changing needs of populations suffering from multiple chronic diseases; those that seek out specialized training are not recognized or reimbursed for their expertise; and diabetes health professionals often shift to other departments within health facilities and/or to other parts of the world. As a result, it is increasing difficult for the growing numbers of people with diabetes to access health care professionals trained to provide quality diabetes care and education.

IDF has established two complementary networks to support the global health workforce for diabetes. The IDF International Diabetes Education Network for Health Professionals is a virtual community of practice to support on-going learning and inquiry by health professionals within a supportive environment. IDF centres of education form a network of high performing organizations sharing the vision that all people with diabetes will access high quality diabetes care and education from an interdisciplinary team of trained health professionals with the experiences and expertise to meet their health needs. Centres of education provide education and regional leadership to strengthen the global health workforce for diabetes. This presentation will describe the two networks and their role in strengthening the interdisciplinary approach to care.

1. IDF Diabetes Atlas, Fifth Edition.

Diabetes Care - More than a Medical Model

What are the outcome measures in chronic care?

Saturday 26th May 2012 | 3:00 p.m.

Juliana CN Chan *- Professor of Medicine and Therapeutics and Co-Director, The Chinese University of Hong Kong - The Prince of Wales Hospital – International Diabetes Federation Centre of Education, Hong Kong*

The impact of diabetes on physical and psychological health is now increasingly recognized. Apart from depressive symptoms, people with diabetes often experience anxiety and stresses related to their disease perception, demands on self-care and need for long term follow up and medications. These psychological burdens are often compounded by other stresses related to work, pleasure, interpersonal relationships and disabilities due to diabetes. These mental factors can in turn affect bodily functions and health behaviors resulting in poor treatment compliance, default or suboptimal self-care, resulting in preventable complications and poor quality of life.

Due to the silent nature of diabetes especially during its early stage, clinical inertia with delayed intervention by care professionals as well as poor treatment compliance and frequent default by patients, especially those who are young and gainfully employed are not infrequent. The unwillingness to 'pay now' by patients, payors and government in order to 'save later' is a major barrier in our attempt to promote preventive care. To this end, there is an urgent need to address the incentives for care professionals to provide preventive care and patients to improve self-management and to develop systems to ensure care integration provided by generalists, specialists and other care professionals to avoid overlap and gaps.

Although there is consensus that patient empowerment and preventive care are keys to successful diabetes management, there is a paucity of data on the evaluation of such interventions in real settings. In partnership with other stakeholders, clinician scientists are in a position to translate evidence to practice and develop solutions to address unmet needs. However, given the size of the problem and resource implications, clinician scientists have to face up the challenge to take on multiple roles as innovators, researchers and managers to design and evaluate the reach, effectiveness, implementation, adoption and maintenance of care prototypes to change practice and influence policy in order to reduce the burden of these chronic diseases.

Diabetes Care - More than a Medical Model

Team building, motivational interview and neuro-linguistic programming

Saturday 26th May 2012 | 4:15 p.m.

Ellen Or *– Independent Trainer, Hong Kong*

This session will start with experiencing different perspectives through visual and somatic experiencing exercises. By moving between different perspectives and experiencing different positions, the participants may be able to see the situation in new ways and so develop new choices of response to the patients/clients.

A case of a diabetic patient will be presented. It shows how self-motivation tips, which are based upon the Neuro-linguistic programming (NLP) reframing and logical levels of change, shift the attitudes of a diabetic patient.

Reframing can be applied through communication attempt to let the situation appear in another point of view (frame) so that someone feels relieved or is able to deal with the situation better, even shifting from the role as a passive victim into an active role that leads to change in states and behaviors.

Self-motivation is at its highest peak when one is fully aligned on each of the NLP Logical Levels of Change. Every level feeds the level below in a logical hierarchy. It means that changes in higher level of the hierarchy (such as identity, values) will drive the changes in lower level (such as behaviors).

From Prevention to Personalized Therapy

Contribution of epidemiology to advancement of diabetes care

Sunday 27th May 2012 | 9:00 a.m.

Peter Bennett *– Scientist Emeritus, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), Phoenix, Arizona, USA*

Until the 1960's little was known about the pathogenesis of diabetes, or its complications and there was great uncertainty as to whether the common forms of the disease represented a single entity with various phenotypic manifestations or different diseases. Treatment was limited to dietary manipulation and insulin therapy.

Early epidemiological studies conducted mainly in the late 1960's and 1970's focused on descriptive studies which documented large variations in the incidence of childhood onset diabetes and in the prevalence of diabetes in adults in different countries and ethnic groups. These studies suggested that both genetic and environmental factors were important determinants. In 1980 based on clinical and epidemiological studies, an internationally recognized classification of diabetes and other forms of hyperglycaemia was adopted along with standardized criteria for diagnosis. These criteria based largely on the early longitudinal epidemiological studies, set the stage for rapid expansion of investigations into diabetes. In turn, these led to a much deeper understanding of suspected risk factors and the discovery of new aetiological factors. Furthermore, these longitudinal studies provided information on the development and natural history especially of type 2 diabetes and the role of insulin resistance in its pathogenesis. At the same time the epidemiological studies led to recognition not only of the role of hyperglycaemia in the pathogenesis of many of the complications, but of the aetiological importance of other factors such as blood pressure, hyperlipidaemia and albuminuria.

Subsequently these studies became the basis for clinical trials providing experimental proof that many of the aetiological factors discovered in the epidemiological studies were true risk factors or determinants. Many of these risk factors were amenable to therapeutic intervention and this knowledge is the scientific basis for current diabetes care and management. Similarly, knowledge of modifiable risk factors for type 2 diabetes formed the basis for trials to determine if the onset of the disease could be prevented or delayed which now form the basis for public health actions to prevent the disease.

From Prevention to Personalized Therapy

Genetic Discovery using a Diabetes Registry

Sunday 27th May 2012 | 9:45 a.m.

Ronald Ma *– Professor, Department of Medicine and Therapeutics, Chinese University of Hong Kong*
Honorary Consultant, Department of Medicine and Therapeutics, Prince of Wales Hospital, Hong Kong

Asia is in the midst of an epidemic of diabetes and obesity. Identification of subjects at risk of diabetes or diabetic complications may help to empower subjects towards lifestyle modification or better compliance to treatment targets. Novel genetic markers may also reveal novel biological pathways relating to the pathogenesis of diabetes or its complications. There are at present more than 60 genetic loci identified to be associated with type 2 diabetes, and various genetic regions have been implicated to be associated with diabetic complications. Nevertheless, most of these loci were first identified in subjects of European descent, and the relevance of these genetic markers in Asian populations is not entirely understood. Establishing Diabetes Registries in Asian populations will greatly facilitate the identification of Asian-relevant genetic markers. The Hong Kong Diabetes Registry, which was established in 1995, now includes more than 10000 Chinese patients with type 2 diabetes, with more than 3000 accrued clinical events on prospective follow-up, including development of end-stage renal disease. We have previously utilized this registry to identify different clinical risk factors associated with development of diabetic complications and co-morbidities. More recently, we have systematically used candidate-gene as well as hypothesis-generating whole-genome approach to identify novel genetic factors associated with diabetes and diabetic complications. For example, using candidate gene approach, we have examined the role of candidate genes implicated in insulin secretion and insulin resistance for association with type 2 diabetes. This has confirmed the role of variants within PPARG, ADIPOQ and HNF4a to be associated with type 2 diabetes in Chinese, with modest effect size (OR ranging 1.16-1.48). In collaboration with other Asian investigators, we have also utilized genome-wide approach and identified several regions associated with type 2 diabetes in East Asians and Chinese. Candidate-gene approach for diabetic complications has led to identification of genetic variants implicated in the renin-angiotensin pathway, aldose reductase pathway and protein kinase C-□ pathway being associated with development diabetic kidney complications. Recently, using genome-wide association study, we have identified several novel genetic regions associated with diabetic kidney complications. The advent of next-generation sequencing technology looks set to further empower future genetic discoveries.

From Prevention to Personalized Therapy

How to personalize the use of anti-diabetic drugs?

Sunday 27th May 2012 | 10:30 a.m.

Juliana Chan *– Professor of Medicine and Therapeutics and Co-Director, The Chinese University of Hong Kong - The Prince of Wales Hospital – International Diabetes Federation Centre of Education, Hong Kong*

Large scale epidemiological and clinical trial data have confirmed the beneficial effects of improving glycemic control in reducing cardiovascular and renal outcomes. However, two key questions remain – what is the optimal A1c goal and how to achieve this goal? Diabetes is a complex disease with marked phenotypic heterogeneity. Apart from inter-individual variations, there are within-individual variations during the life course of a person with diabetes. Depending on the demographic profile and clinical stage of the disease, people with diabetes develop different combinations of risk factors and complications which need to be taken into consideration when deciding glycemic goal and treatment choices.

An ideal blood glucose lowering drug should have low risk of hypoglycemia, neutral (or reducing) effects on body weight, durability of glycemic control and lack of systemic side effects. Compared to metformin, sulphonylurea, alpha glucosidase inhibitors and insulin, novel blood glucose lowering drugs including thiazolidinedione, incretin mimetics and sodium-glucose transporter (SGLT2) inhibitors possess some of these desirable effects although their long term safety and benefits on clinical outcomes need to be confirmed.

With better understanding of the pathophysiology of type 2 diabetes characterized by varying combinations of insulin resistance and deficiency together with the need to minimize risk of hypoglycemia especially in patients with cardiovascular and renal complications, most experts now advocate a personalized approach in diabetes management. By taking into consideration the Age, Body weight, Complications and Duration of disease (ABCD) of the patients, clinicians will be more informed in individualizing the A1c goal and treatment choices in order to maximize benefits and minimize harm. In this light, the increasingly young age of onset of diabetes with many of the patients having dual features of insulin resistance and insufficiency who face long disease duration, the effects of these novel drugs with particular emphasis on durability of glycemic control will need to be examined in order to reduce premature mortality and co-morbidities in these high risk subjects.

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Notes

Notes

Notes

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