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Diabetes Update from our Fellow

(P.L. Chan photo) Pei Lin Chan, MBBS (IMU), MRCP (UK)

Our 2019 Fellow Scholarship winner, Dr. Pei Lin Chan, recently attended the American Diabetes Association's 79th Scientific Sessions in San Francisco, California. She has summarized the key sessions in the following article. Take a moment to read her report and check back here monthly for further editorial contributions from Dr. Chan.

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(Article)

Diabetes Update from our Fellow: News from ADA 79th Scientific Sessions

The American Diabetic Association's (ADA) 79th Scientific Sessions were held in the vibrant city of San Francisco this year from the 7th to 11th of June with the theme "Bridging Diabetes Research with Groundbreaking Discoveries". The schedule was packed with sessions on subjects ranging from basic science, nutrition, obesity, and therapeutics to the latest technologies in diabetes care.

The Latest on Vitamin D Supplementation, Obesity Management and Nutrition
(photo/image to be provided)

On Day 1, the results of the D2d study, the largest clinical trial to look at the effect of vitamin D supplementation on prediabetes, was unveiled. Previous observational studies have reported an association between low vitamin D levels and a predisposition to developing Type 2 diabetes; however, in this large study, which involved 2,423 participants, the rate of progression to Type 2 diabetes was similar in both treatment and placebo groups. In the session on obesity management, it was an eye opener to see the progress in endobariatics, a treatment option to consider in between pharmacotherapy and the more invasive bariatric surgery. The session on nutrition "Does when we eat matter? Effects of timing on weight, metabolic risk factors, and glycemic control," garnered the largest crowd of the day. This session covered the different dietary strategies that manipulate energy intake, such as intermittent energy restriction and time-restricted feeding (TRF). Experts shared that calorie restriction was not necessary for TRF to be effective and when limited to early or mid-day, showed more benefits in terms of hunger reduction, weight loss, glucose level reduction and lower oxidative stress.

What do PREVIEW and TODAY2 Study Results Tell Us?
(photo/image to be provided)

On the second day of the conference, we delved into the topic of diabetes prevention and were presented with the results of the PREVIEW study (PREVention of diabetes through lifestyle Intervention

and populations studies in Europe and around the World), the largest randomized controlled trial to date on the prevention of type 2 diabetes in adults with pre-diabetes through diet and exercise over a three-year period. This was the first diabetes prevention study to use total meal replacements (to induce ≥8% weight loss in eight weeks) and then compare two diets of different composition (high vs. moderate protein, moderate vs. low glycemic index), and two different physical exercise intensities (high versus moderate). Overall, researchers found the cumulative incidence rate of diabetes mellitus were 4% in all intervention groups over the three-year period. Without any intervention, an estimated 21% of participants would have developed diabetes mellitus. We were also given results from the TODAY2 which is a post-intervention, follow-up study from the Treatment Options for type 2 Diabetes in Adolescents and Youth (TODAY) study. With the study cohort having a mean age of 25 and diabetes duration of 7.5 years, complications rates were high. About 40% of participants showed evidence of early diabetic kidney disease, 50% had evidence for diabetic retinal disease on retinal examinations, and 33% had early signs of diabetic nerve disease. Pregnancy outcomes were also assessed; of the 236 pregnancies with known outcomes, there were higher rates of miscarriage, stillbirths, preterm births, and neonatal and maternal complications. These alarming results highlight the importance of focusing our efforts on achieving good glycemic control in our young patients with diabetes.

More on REWIND and DECLARE-TIMI 58 Studies
(photo/image to be provided)

As we entered into the exciting third day of the conference, we were finally able to learn more about the REWIND trial (Researching Cardiovascular Events with a Weekly Incretin in Diabetes)**.** Late last year, Eli Lilly & Company had announced the positive cardiovascular outcomes achieved with dulaglutide. Dulaglutide 1.5mg weekly was shown to reduce composite cardiovascular (CV) outcomes by 12% compared to placebo and was mainly driven by reduction in non-fatal stroke. Although the reduction was modest compared to other GLP-1 receptor agonists, this study differed in that only a third of patients had established CV disease. As a result, the REWIND trial is the largest primary prevention CV outcome study and the longest, with a median of 5.4 years, for this class of drug. We also heard more about the DECLARE-TIMI 58 trial (Dapagliflozin Effect on CardiovascuLAR Events - Thrombolysis in Myocardial Infarction [TIMI]) in terms of secondary renal outcomes. Dapaglifozin showed a 24% reduction compared with placebo in the relative risk of composite renal outcomes; these results were seen irrespective of the presence of established atherosclerotic CV disease and in patients with multiple risk factors. Heart failure hospitalization was reduced in both groups while reduction of CV events was seen in high-risk patients with prior heart failure, reduced ejection fraction, or myocardial infarction.

Exciting CAROLINA, CREDENCE and PIONEER Study Results Wrap up the Conference
(photo/image to be provided)

The morning of Day 4 started off with a lively debate on glycemic goals. The American College of Physicians recommendations for an HbA1C target of 7-8% in non-pregnant patients last year, against the standard of <7%, had provoked controversy among healthcare providers and we heard the justification for each goal by both parties. The discussion on the management of dyslipidemia in various groups of patients (including those with Type 1 diabetes , the elderly, and those with chronic kidney disease) was

very enlightening, as we came away with a better understanding of the benefits of treatment for these patients. The CAROLINA study (Cardiovascular Outcome Study of Linagliptin Versus Glimepiride in Patients With Type 2 Diabetes) which looked at the CV outcomes for linagliptin, was the first study for this class of medication against an active comparator, glimepiride, and gave us valuable information on both drugs. Although neither drug showed added CV benefits, the study provides reassurance on the CV safety of sulfonylureas which has long been questioned.

With diabetes being a leading cause of chronic kidney disease, the findings of the CREDENCE study (Canagliflozin and Renal Events in Diabetes with Established Nephropathy Clinical Evaluation) enlightened the diabetes and nephrology community by providing information about the first new treatment option--since angiotensin receptor blockers in 2001--to delay the progress of chronic kidney disease in diabetes. The trial found a 30% relative risk reduction in the primary composite end point of end stage kidney disease, doubling of serum creatinine and renal or cardiovascular death. Further subgroup analysis looking into its benefit in patients with no prior cardiovascular disease (primary prevention) and patients with previous cardiovascular, cerebrovascular or peripheral vascular disease (secondary prevention) also found similar reductions in renal specific outcomes. On this final day of the sessions, we were also presented with data from the PIONEER trials (Peptide Innovation for Early Diabetes Treatment), with a highlight on the PIONEER 6 which looked at the CV outcomes of oral semaglutide. This first oral form of GLP-1 receptor agonist, was shown to be an effective anti-hyperglycemic agent. Although no added CV benefits were seen with oral semaglutide, efficacy against hyperglycemia was comparable to that seen with a subcutaneous GLP-1 receptor agonist; oral semaglutide also had a better weight loss profile.

Participating in this conference has really expanded my knowledge in the diabetes field and it has also provided me with a platform to converse with healthcare providers from other parts of the world. We share the same struggles in helping our patients achieve glycemic control and, hopefully, with the progress in this field, we will have more options to offer our patients in their path toward a long and healthy life.
- Pei Lin Chan, MBBS (IMU), MRCP (UK)

Any editorial comments about this article can be sent to: Jane.Savio@worldwidediabetes.org