“All in all – Diabetes management as a joint task”

ISPAD 2017 | Breakfast Symposium | Innsbruck, Austria | Thursday, October 19, 2017
Welcome to Innsbruck – welcome to the ISPAD 2017.
Chair: Birgit Rami-Merhar | Vienna, Austria

07:45 Introduction
Birgit Rami-Merhar | Vienna, Austria

07:50 - 08:05 All for One
Psychosocial benefits of insulin pump therapy in children and their families – results from the PUMPKIN study
Verena Wagner | Rostock, Germany

08:05 - 08:20 One on One
Connected blood glucose information for children and parents – results from the CatS study
Gnanagurudasan Prakasam | Sacramento, CA, USA

08:20 - 08:35 One for All?
Accuracy of different insulin pump models in pediatric dosing ranges – results from the ICE study
Ralph Ziegler | Münster, Germany

08:35 Discussion & Closing remarks
Birgit Rami-Merhar | Vienna, Austria
Birgit Rami-Merhar
MD, Pediatric Diabetologist  |  Vienna, Austria

Birgit Rami-Merhar, MD, Assoc. Professor, MBA is a pediatrician from Vienna, Austria. She has been working in the field of pediatric diabetology within various diabetes research projects since 1995. She has completed her pediatric residency at the Medical University of Vienna, Austria in 2004 and qualified as pediatric endocrinologist and diabetologist in 2007.

Dr. Rami-Merhar has been the head of the diabetes working group at the Medical University of Vienna since 2013, which takes care of the largest diabetes outpatient clinic in Austria.

Her research and clinical interest are new technologies, including insulin pumps, sensors, digital data management and closed-loop systems. Further interests are epidemiology, quality control, benchmarking and improving the standards of care for children and adolescents with diabetes.

Dr. Rami-Merhar has been the chair of the Austrian working group for pediatric endocrinology and diabetes (2009-2011), board member of the Austrian Diabetes Association (2010-11 and 2014-15) and she is an active member of the DPV- and the SWEET initiative.

In addition to her clinical work as a consultant and leader of the diabetes working group, Dr. Rami-Merhar is also dedicated to teaching and training medical students at the Medical University of Vienna, Austria.
Dear friends and colleagues,

It is my great pleasure to welcome you to the Roche Diabetes Care Breakfast Symposium at the 43rd ISPAD Annual Meeting in Innsbruck, Austria.

Diabetes management in the context of a multidisciplinary team represents the daily life of physicians and their teams. It is important to guide patients and families through different phases of their life with diabetes, always considering new therapeutic options and their impact on the families and patients. As will be presented by our experts, this management will never stop throughout the “diabetes career” of people with diabetes; and it has to be adapted to the age and needs of the children, families and young adults.

Verena Wagner from Ulm, Germany, will give us an insight to the PUMPKIN study, which focusses on the psychosocial benefits of continuous subcutaneous insulin infusion (CSII) in children and their families. The Pumpkin study is a large study with children randomized either to multiple daily injections (MDI) or CSII-therapy. Dr. Wagner will present the 6 months outcome-data regarding the psychosocial effects on the children and their parents.

Gnanagurudasan Prakasam from Sacramento, CA, USA, will be presenting data from the CatS study- connected blood sugar information for children and parents. Accu-Chek® Connect was tested in a prospective, clustered, interventional, multi-center, post-market, pilot study, where 78 parents of type 1 diabetes (T1D) children/adolescents were randomized to either the control group or the Accu-Chek® Connect diabetes management system.

Ralph Ziegler from Münster, Germany, will focus on the accuracy of insulin delivery in CSII, which is especially important in toddlers with a demand for a low insulin dosage. Available data show a variability of accuracy as well as different approaches towards insulin delivery with different insulin pump models. In this lecture, first data of a comparative study with different insulin pump models will be presented as well as the topic in general with all different aspects will be discussed.

I look forward to an inspiring symposium and to hearing and discussing with you about these topics. They might be the basics of diabetes treatment, but it is an art to use them in the right way in daily practice.

Sincerely yours,

Birgit Rami-Merhar
Chair
Verena Wagner
MD, Pediatric Diabetologist | Rostock, Germany

Dr. Verena Wagner studied in Cologne, Lübeck (Germany) and Christchurch (New Zealand). She graduated from Lübeck University and pursued a career in pediatric and adolescent diabetology and endocrinology since 1989. Her research interests include diabetes education, quality of life and family burden.

Since 2009 Dr. Wagner also is working in a private diabetology and endocrinology practice. She is running a teaching curriculum for medical students, general practitioners and pediatrician in cooperation with the University of Rostock.
All for One

Psychosocial benefits of insulin pump treatment – preliminary results from the PUMPKIN study

Intensive insulin treatment either by multiple daily injections (MDI) or continuous subcutaneous insulin infusion (CSII) is the golden standard from the onset of the disease to minimize the risk for long-term complications, to ensure normal physical and social development and to meet the child’s and family’s emotional and psychosocial needs. Advances in technology and insulin analogs have made it easier to meet tight metabolic treatment goals. CSII has gained increasing popularity in the pediatric age group. Up to 80% of children 6 years and younger will receive a pump mostly from the onset of the disease. 50% of children aged 6 -<12 years and 40% of the adolescents 12 -18 years use a pump (DPV registry 2014).

Is pump treatment superior to MDII? Investigations related to metabolic outcome and acute complications showed conflicting results. Improvement of HbA1c was only seen in meta-analysis with modest effect. Up to date unequivocal evidence for the long-term benefit of CSII is still lacking.

Why is the pump so popular, there must be something beyond metabolic control? To understand the true impact of a treatment regimen it is important to look beyond metabolic efficacy. Life-long intensive diabetes management places a considerable burden on the child and family. Adjusting insulin administration to match variable and at times erratic food intake and activity level presents unique challenges in this population. All children with type 1 diabetes experience loss of spontaneity with regard to meals, physical activity and social interaction. Diabetes puts a strain on the entire family.

The patients’ and parents’ subjective experience of the impact of diabetes and its treatment can be measured in a standardized manner by completion of patient reported outcomes (PROs).

In a pilot study, relevant psychosocial key parameters of CSII were identified. The used questionnaires showed to be reliable and sensitive to treatment change. These instruments were used now in a multicenter German open parallel controlled trial, to have the patients’ and the caregivers’ report about their experience with diabetes treatment.

The PUMPKIN study hypothesized that CSII has a substantial psychosocial benefit compared to MDI.

The presentation will show the results of patient and parent reports. The data of quality of life (QOL), parent burden and treatment satisfaction will be discussed. The results indicate better QOL, less caregivers’ burden and an improved treatment satisfaction in the intervention group.

Patient reported outcomes can help to understand the patients’ experience and demonstrate the benefit of CSII treatment.
Gnanagurudasan Prakasam
MD, Pediatric Diabetologist  |  Sacramento, CA, USA

Gnanagurudasan Prakasam is the medical director and founder of Center of Excellence in Diabetes and Endocrinology in Sacramento, CA and also heads the Pediatric Endocrine Service at Sutter Children’s Hospital, Sacramento, CA.

He got his medical degree from Madras Medical College, Chennai, India. His pediatric residency training is from India, UK and the US. He did his pediatric endocrine fellowship at Winthrop University Hospital, New York and Master in Health Administration from University of Southern California.
One on One
Connected blood glucose information for children and parents – results from the CatS study

Because parents/caregivers are ultimately responsible for managing their child’s diabetes, the numerous daily tasks and relentless stress can lead to anxiety, increased distress, depression and diminished quality of life.\(^{(1-6)}\) A key contributor to parental stress is fear of hypoglycemia,\(^{(7)}\) which can prompt “hypoglycemia avoidance” behaviors, leading to poor glycemic control and increased risk of long-term complications.\(^{(8,9)}\)

The Accu-Chek® Connect system consists of a blood glucose meter, smartphone application (app) and an online data management web portal. The meter connects wirelessly, via Bluetooth\(^{\text{®}}\) low energy technology to the user’s smartphone app, which provides multiple functions to facilitate diabetes management. The system provides automatic, wireless transfer of blood glucose results from meter to the app and then to secure personal and clinical web portals. Users also have the option to share glucose data with others via text message. A key feature of the system is the clinician portal home page, which automatically organizes the patient data, identifying patients who are at risk for acute glycemic events, thereby, providing clinicians the ability to triage patients according to greatest need. Manual download of data is unnecessary. We hypothesized that use of the system may reduce parental diabetes-related distress.

Children at School (CatS) was a prospective, interventional, multi-center, post-market, cluster-randomized, exploratory study that assessed the impact of using the Accu-Chek® Connect system among parents of children/adolescents with type 1 diabetes (T1D). The study included 78 parents of T1D children/adolescents: 46 intervention; 32 control. The parent version of the Problem Areas in Diabetes (PAID-YP) scale was administered to assess the impact of system use on diabetes-related distress.

In this presentation, Dr. Prakasam reports on the study results and discusses his clinical experiences with the Accu-Chek® Connect system.

REFERENCES

\(^{(4)}\) Grey M. Children’s health care: journal of the Association for the Care of Children’s Health. 2009;38(2):91-106
\(^{(8)}\) Barnard K et al. BMC Pediatr. 2010;10:50
Dr. Ralph Ziegler, MD, is a pediatrician from Münster (Germany), where he has operated a private pediatric and adolescent diabetology practice since 1993. His long-standing career as a pediatric diabetologist started in 1985 and includes 2 years of research training at the Joslin Diabetes Center of Harvard Medical School in Boston (USA).

In Germany, Dr. Ziegler has pioneered the use of insulin pumps for treating children. He has also spent many years using various tools that help optimize diabetes management and has put immense effort into teaching and motivating pediatric patients, their families and caregivers. His research interests lie in the area of SMBG, Bolus advisors, CSII, CGM and data management. In acknowledgement of his clinical and research experience in the field of pediatric diabetology, Dr. Ziegler was appointed as a pediatric diabetology consultant for the Children's Hospital of St. Franziskus-Hospital in 2005.

In addition to his clinical work, Dr. Ralph Ziegler is also dedicated to teaching and training medical students at the renowned Wilhelms-Universität Münster.

Dr. Ziegler is currently Chair of the Board of the German Working Group for Pediatric Diabetes (AGPD).
One for All?

Accuracy of different insulin pump models in pediatric dosing ranges – results from the ICE study

Continuous subcutaneous insulin infusion (CSII) is an alternative to conventional multiple daily injection (MDI) representing a more physiological way of insulin delivery. Continuous infusion of the basal rate and the delivery of boluses can be adjusted to the individual needs of the patients. For young children, CSII is the recommended first-line therapy, but also for older children and adolescents, suffering e.g. from recurrent (severe) hypoglycemia, Dawn phenomena or high glycemic variability.

Often only small amounts of insulin are intended to be delivered by the insulin pump, as little as 0.05 IU at one spurt or 0.02 IU/h as basal rate or boluses of 0.5 IU. Obviously, this raises the question about accuracy of insulin delivery, both for the basal rate as well as for a single bolus, especially in children. Although there exists a standard for insulin pump accuracy, few data are available regarding this question and even the standard itself is being challenged. But available data show a variability of accuracy as well as different approaches towards insulin delivery with different insulin pump models. This is regarding accuracy, occlusion detection and also time/duration of delivery.

Apart from a scientific/engineering view one should look at the practical effect of insulin delivery accuracy, occlusion alarm and delivery time on the daily treatment regimen of children using CSII and the glycemic outcome. Is there a way to estimate the influence of an error in delivery accuracy on clinical relevant glycemic outcome? These questions are not so trivial, especially when moving forward to using faster insulin and (semi-) closed-loop systems.

In this lecture, data from a comparative study with different insulin pump models (ICE, Insulin pump Comparative Evaluation) will be presented and different aspects of the topic will be discussed.
Accu-Chek® –
A Companion For Life

Visit booth number 2 in the
exhibition area and find out more.

Information also available:
www.accu-chek-congresses.com