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(rate ratio 31% lower 00:00-05:59h; 24% lower in the clinically defined window). Absolute difference in numbers of events (favoring Gla-300) was greater in the clinically defined window (1145 vs 556).

Conclusion: The nocturnal hypoglycemia benefit of Gla-300 vs Gla-100 is confirmed with both windows. Greater relative reduction of percent people affected and event rates is suggested for 00:00-05:59h, but lower absolute numbers of events with Gla-300 during a clinically defined fasting period may be more clinically relevant.

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A SINGLE SUBCUTANEOUS SOMATOSTATIN RECEPTOR 2 ANTAGONIST INJECTION TO PREVENT HYPOGLYCEMIA AFTER RECURRENT HYPOGLYCEMIC EVENTS

E. Leclair[1], T. Teich[1], R. Liggins[2], D. Coy[3], M. Vranic[4], M. Riddell[1]

[1]York University, School of Kinesiology and Health Science - Faculty of Health, Toronto, Canada
[2]The Center for Drug Research and Development, Division of Drug Delivery, Vancouver, Canada
[3]Tulane University Medical Center, Department of Medicine - Peptide Research Labs, New Orleans, USA
[4]University of Toronto, Departments of Physiology and Medicine, Toronto, Canada

Background and Aims: Recurrent hypoglycemia (hypo) causes defective hormone counterregulation and increases the susceptibility to subsequent events. Pancreatic and/or circulating somatostatin levels are elevated in diabetes which inhibits counterregulation. A selective somatostatin receptor 2 antagonist (PRL-2903) improves counterregulation after four hypo events over a two day period. Here we examined the efficacy of a single subcutaneous administration of PRL-2903 in ameliorating insulin induced hypo after a four week exposure to recurrent hypo.

Method: Eight STZ-diabetic rats underwent 4 h of hypoglycemic challenges twice a week (48 hours apart) for 4 weeks with individualized doses of s.c. insulin based on initial blood glucose concentrations (ranging from 11-33 mM). PRL-2903 was administered (10 mg/kg s.c.) one hour before hypo challenge on week 5.

Results: During the four weeks, hypo depth and duration became more severe and was always more severe on second challenge (BG nadir: 2.0±0.5) than on the first (2.5±1.1) ($p<0.05$) each week. PRL-2903 treatment on week 5 reduced both the depth and duration of hypoglycemia compared to week 4 (see table). Time to reach 3.5 mM after insulin dosing was longer with PRL-2903 treatment (week 5) vs. placebo treatment (week 4). However, on the second hypo, PRL-2903 treatment was less effective, perhaps because of limited liver glycogen reserves in STZ-diabetic rats.

Time Point	N	N Excluded †	N Adjusted	Nadir <1.9 mM	Rescued from Hypo	Sustained Hypo *	Recovered from Hypo	No Hypo
Wk4-1	8	0	8	7 (88%)	1 (12%)	7 (88%)	0	0
Wk4-2	4	0	4	4 (100%)	2 (50%)	2 (50%)	0	0
Wk5-1	8	1	7	1 (14%)	1 (14%)	1 (14%)	4 (57%)	2 (29%)
Wk5-2	8	2	6	6 (100%)	5 (83%)	3 (50%)	0	0

† Rats were excluded from the results due to lack of hyperglycemia before challenge or to lack of response to insulin. * Hypo was considered as sustained when rats were hypoglycemic and were not rescued or did not recover in the 190 min following insulin injection.

Conclusion: A single subcutaneous injection of PRL-2903 was efficacious in preventing insulin-induced hypo after 4 weeks of recurrent hypo events. Further work to improve and maintain liver glycogen stores may help to maintain this efficacy.

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THE SOCIAL ACCEPTANCE OF FUTURE ARTIFICIAL PANCREAS TECHNOLOGY: PARENTS' PERCEPTIONS OF PEDARPAN (PEDIATRICS ARTIFICIAL PANCREAS)

A. Troncone[1], R. Bonfanti[2], D. Iafusco[3], I. Rabbone[4], A. Sabbion[5], R. Schiaffini[6], A. Galderisi[7], M. Marigliano[5], N. Rapini[8], A. Rigamonti[2], D. Tinti[4], V. Vallone[9], A. Zanfardino[3], F. Boscari[9], S. Del Favero[10], S. Galasso[9], G. Lanzola[11], M. Messori[12], F. Di Palma[12], R. Visentin[10], R. Calore[13], Y. Leal[14], L. Magni[15], E. Losiouk[16], D. Chernavvsky[17], S. Quaglini[18], C. Cobelli[19], D. Bruttomesso[20]

[1]Second University of Naples, Department of Psychology, Caserta, Italy
[2]Pediatric Department and Diabetes Research Institute- Scientific Institute- Hospital San Raffaele- Milan- Italy, Department of Pediatrics, Milan, Italy
[3]Second University of Naples, Department of Pediatrics, Naples, Italy
[4]University of Turin, Department of Pediatrics, Turin, Italy
[5]Regional Center for Pediatric Diabetes- Clinical Nutrition & Obesity- University of Verona, Department of Life & Reproduction Sciences, Verona, Italy
[6]Unit of Endocrinology and Diabetes- Bambino Gesu-Children's Hospital, Department of Pediatrics, Rome, Italy
[7]University of Padua, Department of Woman's and Child's Health, Padua, Italy
[8]Pediatric Diabetology Unit- Policlinico di TorVergata-University of Rome TorVergata, Department of Pediatrics, Rome, Italy
[9]Unit of Metabolic Diseases- University of Padua, Department of Internal Medicine-DIM, Padua, Italy
[10]University of Padua, Department of Information Engineering, Padua, Italy
[11]University of Pavia, Department of Electrical- Computer and Biomedical Engineering, Pavia, Italy
[12]University of Pavia, Department of Civil Engineering and Architecture, Pavia, Italy
[13]Department of Information Engineering, University of Padova, Padova, Italy
[14]Universidade Tecnológica Federal do Paraná, Curitiba, Brasil
[15]Department of Civil Engineering and Architecture, University of Pavia, Pavia, Italy
[16]Department of Industrial and Information Engineering, University of Pavia, Pavia, Italy
[17]Center for Diabetes Technology, University of Virginia, Charlottesville, USA

[18]Department of Electrical, Computer and Biomedical Engineering, University of Pavia, Pavia, Italy
[19]Department of Information Engineering, University of Padova, Padova, Italy
[20]Unit of Metabolic Diseases, Department of Internal Medicine-DIM, University of Padova, Padova, Italy

Background and Aims: To explore the experiences of parents of 5–8-year-old children with type 1 diabetes participating in a clinical trial regarding artificial pancreas (AP), semistructured interviews, based on the Technology Acceptance Model, were conducted after 3 days of children's treatment.

Method: Questions focused on evaluating parents' perceived usefulness of, perceived ease of use of, trust in, and intention to use the new system. Interviews were conducted by a psychologist, and the answers, both audio-recorded and transcribed verbatim, were assessed using qualitative research methods.

Results: Altogether, 27 (22 mothers) of 30 parents were interviewed (Table 1), and their overall attitude toward AP was positive (96%). Perceived advantages included stable glucose regulation (52%), better quality of life for children (22%), relief of parents' daily concerns (15%), and reduced need for continual parental monitoring of nocturnal blood glucose (11%), while perceived disadvantages included having to constantly wear a bulky, heavy device (37%) and the risk of technical error (33%). Participants were mostly confident in the positive impact of AP on diabetes control (96%) and in children's, especially older ones', capability to use the system (55%). The reactions of teachers and friends were reported to be generally positive, though some parents (28%) expected an initially fearful reaction from teachers. Nearly all participants expressed trust in AP and in the quality of glucose control (96%), as well as the intention to use the new system when available (100%).

Conclusion: Results indicate that, thanks to the psychological and physical benefits of AP, parents expressed a strong likelihood of future acceptance.

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SINGLE- AND DUAL-HORMONE ARTIFICIAL PANCREAS FOR OVERNIGHT GLUCOSE CONTROL IN TYPE 1 DIABETES

A. Haidar[1], R.L. Rémi[1], L. Legault[2], E. Lovblom[3], R. Rakheja[1], V. Messier[1], É. D'Aoust[4], C.M. Falappa[3], T. Justice[3], A. Orszag[3], H. Tschirhart[3], M. Dallaire[1], M. Ladouceur[5], B.A. Perkins[6]

[1]IRCM Institut de recherches Cliniques de Montréal, Metabolic Diseases, Montréal, Canada
[2]McGill University Health Centre, Montreal Children's Hospital, Montréal, Canada
[3]Mount Sinai Hospital, Lunenfeld-Tanenbaum Research Institute, Toronto, Canada
[4]Université de Montréal, Hôpital Maisonneuve-Rosemont, Montréal, Canada
[5]Université de Montréal, Centre de Recherche, Montréal, Canada
[6]University of Toronto, Lunenfeld-Tanenbaum Research Institute- Mount Sinai Hospital, Toronto, Canada

Background and Aims: The added benefit of glucagon in artificial pancreas systems for overnight glucose control in type 1 diabetes has not been fully explored. We aimed to compare the efficacy of dual-hormone (insulin and glucagon) artificial pancreas, single-hormone (insulin alone) artificial pancreas, and conventional insulin pump therapy.

Method: In a three-centre, randomized, three-arm, open-label crossover trial, we compared the three interventions in 28 participants (21 adults, 7 adolescents) with type 1 diabetes in home settings. Each intervention was activated from 21:00-07:00h over a night following exercise and a second night following a high carbohydrate/high fat meal to mimic real-life glycemic excursions. The primary outcome was the proportion of time-in-target (4-8mmol/l) by continuous glucose monitoring from 23:00-07:00h. Analysis was by intention to treat.

Results: The median(IQR) percentage of time-in-target glucose range was 47(36,71)% for conventional therapy, higher on both single-hormone [76(65,91)%, $p<0.001$] and dual-hormone artificial pancreas [81(68,93)%, $p<0.001$]. The median(IQR) time spent below 4 mmol/L was 14(4,28)% for conventional therapy, lower on both single-hormone [5(0,13)%, $p=0.004$] and dual-hormone artificial pancreas [1(0,8)%, $p<0.001$]. There were 14 hypoglycemic events on conventional therapy compared to 6 incidences on single-hormone artificial pancreas ($p=0.059$) and 3 incidences on dual-hormone artificial pancreas ($p=0.017$). None of these outcomes differed significantly between single- and dual-hormone configurations.

Conclusion: Single- and dual-hormone artificial pancreas systems both provided better glucose control than conventional therapy. Though the dual-hormone configuration did not increase overnight time-in-target glucose levels, an effect on lowering hypoglycemia risk cannot be ruled out.

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IN-HOME OVERNIGHT PREDICTIVE LOW GLUCOSE SUSPEND (PLGS) EXPERIENCE: DIFFERENCES ACROSS AGE GROUPS

L.H. Messer[1], P. Calhoun[2], B.A. Buckingham[3], D.M. Wilson[3], I. Hramiak[4], T.T. Ly[3], M. Driscoll[4], D.M. Maahs[1]

[1]University of Colorado Anschutz, Barbara Davis Center for Diabetes, Aurora- CO, USA
[2]Jaeb Center for Health Research, Jaeb Center for Health Research, Tampa- FL, USA
[3]Stanford University, Pediatrics- Division of Endocrinology and Diabetes, Palo Alto- CA, USA
[4]St. Joseph's Health Care- London, Division of Endocrinology and Metabolism, London- Ontario, Canada

Background and Aims: Overnight predictive low glucose suspend (PLGS) reduces hypoglycemia across all ages; however, there are no reports on behavior or experience differences across age groups.

Method: As run in for a subsequent randomized clinical trial (RCT), 127 subjects (50% male) ages 4-45 yo utilized the experimental PLGS system nightly for 5-10 nights (PLGS Active phase). During this PLGS Active phase, we analyzed number of blood glucose (BG) checks and boluses given per age group.

During the subsequent 42 night RCT phase, we analyzed sensor use, skin reactions, errors, and why the experimental system was not used.

Results: In 821 nights of Active PLGS, subjects ages 4-6 yo (and their parents) tested BG levels 75% of nights compared with 65% of nights (7-10 yo), 53% of nights (11-14 yo), 33% of nights (15-25 yo) and 28% of nights (26-45 yo) respectively ($P<0.001$). Likewise, youngest subjects (and parents) administered insulin boluses 56% of nights during Active PLGS use compared to