
Scientific Tracks & Sessions

November 29, 2019

Diabetes 2019

Diabetes Congress 2019



Joint Event on
28th International Conference on
Diabetes and Endocrinology
&
3rd International Conference on
Diabetes and Metabolism

November 29-30, 2019 | Frankfurt, Germany

An introductory review of resistant starch type 2 from high-amylose cereal grains and its effect on glucose and insulin homeostasis

Kathryn Harris

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Refined carbohydrates result from milling techniques that remove the outer layers of a cereal grain and grind the endosperm into a flour ingredient that is high in digestible starch and devoid of dietary fiber. The frequent use of refined grain flour in processed foods is contributing to the fiber deficient diet commonly followed in Western societies, which is believed to be associated with a number of non-communicable diseases such as Type 2 Diabetes. Technologies have been developed to produce high amylose cereal grains that have a significantly higher resistant starch type 2 and thus dietary fiber content in the endosperm of the cereal grain, which has positive implications for human health. A review of the literature was conducted to study the effects of resistant starch type 2 derived from high amylose grains on glucose and insulin response. While there are thousands of articles published on resistant starch, a total of 30 articles focused on how resistant starch type 2 from high amylose grains influenced acute and long term responses of glucose

and insulin control. Results showed that resistant starch has the ability to attenuate acute postprandial responses when replacing rapidly digestible carbohydrate sources, but there is insufficient evidence to conclude that resistant starch can improve insulin resistance and/or sensitivity.

Speaker Biography

Kathryn Harris is a Product Development and Nutrition Scientist at Bay State Milling Company, USA where she plays a key role in new product development of plant-based ingredients. With a Bachelor of Science degree in Food Science and Technology from the University of Massachusetts Amherst, USA and a Masters of Science degree in Human Nutrition and Functional Medicine from the University of Western States, USA Kathryn aspires to bridge the gaps between food science and nutrition communities. With a goal of delivering affordable food products that provide optimal nutrition to the consumer, Kathryn uses her experience from academia to read and dissect clinical nutrition research and apply that information to specific areas of food technology.

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 Notes:

The effect of *Sticopus hermanii*- Hyperbaric Oxygen Therapy to osteogenesis of diabetic periodontitis

Dian Mulawarmanti and Widyastuti Widyastuti

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Background: Diabetes and periodontitis affecting a large number of populations worldwide. Osteoprotegerin (OPG) is cytokine regulating osteoclastogenesis, related to osteoclast and osteoblast implicated in various inflammations including periodontitis and diabetes. Hyperbaric oxygen therapy (HBOT) has been used as adjuvant therapy to heal chronic wound problem. *Sticopus Hermanii* (SH) has been consumed as food rich with content of sulfated glycosaminoglycans (GAGs) which affect wound healing. The aim of this study is to examine the effect of HBOT and *Sticopus hermanii* to the expression of OPG, osteoclast and osteoblast in periodontitis diabetic rats.

Methods and Material: The research was an experimental laboratories with post test only control group design. Fourty five male Wistar rats aged 8-10 weeks were equally divided in 5 groups of: healthy group (G1), diabetic periodontitis group (G2), diabetic periodontitis group treated SH (G3), diabetic periodontitis group treated with HBOT 2,4 ATA 3x30' interval 5' for 7 days (G4), diabetic periodontitis group treated with combination SH-HBOT (G5). Diabetes was conducted by single dose of streptozotocin 65 mg/kg of BW intraperitoneal, while periodontitis were induced by *Porphyromonas gingivalis* ATCC 33277. The OPG expressions were examined

by immunohistochemistry, while the number of osteoclast and osteoblast by hematoxylin eosin staining.

Results: It was found that combination SH-HBOT (G5) in OPG could increased (12.50 ± 2.082) than diabetic-periodontitis group(G2) 2.50 ± 0.577 . The combination SH-HBOT (G5) in osteoblast can increased significantly (28.47 ± 3.20) than diabetic-periodontitis group(G2) 9.22 ± 4.95 . Osteoclast was decreased significantly in combination SH-HBOT (G5) 3.50 ± 0.957 than diabetic-periodontitis group diabetic-periodontitis group 0.500 ± 816 . ($p < 0.05$)

Conclusion: HBOT increased OPG expression and osteoblast, reduced the number of osteoclast in periodontitis diabetic rats.

Speaker Biography

Dian Mulawarmanti has completed her PhDs from Airlangga University, Indonesia. She is associate professor of Universitas Hang Tuah Indonesia as a lecturer in faculty of dentistry. She got some national research grants from Directorate of Higher Education of Indonesian Ministry of Education & Culture about Marine Biota and HBOT Research in Dentistry since 2013 –at present.

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 Notes:

Evaluation of the health seeking practices among diabetics (>10 years of duration) in the field practice areas of government medical college, Amritsar

Mohan Lal

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Diabetes has become global issue due to premature illness and its complications leading to death. Epidemiological transitions and demographic transitions in developing countries are contributing to this rise. Though the problem reigns in both developing and developed countries, it is the former which suffers the most due to lack of awareness. Awareness about good health seeking practices are essential for prevention, early diagnosis and management of diabetic complications. This study was conducted to evaluate the health seeking practices among diabetics in the field practice areas (rural and urban) of Government Medical College, Amritsar.

A community based cross-sectional study was carried out in both rural and urban areas of district, Amritsar. A total of 200 diabetic patients who had diabetes equal to or more than 10 years of duration were interviewed using pretested and predesigned questionnaire. Data such collected was analysed at $p < 0.05$.

Out of total 200 diabetic respondents, 50% (100) were from urban and 50% (100) were from the rural area. In both urban and rural areas, majority were literate i.e. 80% (161) and employed i.e. 51% (103). The mean age of diabetic respondents was 58.05 years with a male to female ratio of 1.1:1. The majority 82% (165) were diagnosed in the private

sector and 99% (198) were on allopathic treatment. Oral hypoglycaemic agents were used by 77% (153) patients to manage their disease. 23% (45) were using both oral hypoglycaemic agents and insulin. About 48% (96) were monitoring their RBS regularly, 76% (151) were on regular treatment for diabetes and 55 (27%) were doing physical activity.

Lack of awareness and poor health seeking practices and about non pharmacological measures are main factors for development of complications among diabetic patients.

Speaker Biography

Mohan Lal is a postgraduate (MD) in Community Medicine & Post Graduate Diploma in Hospital & Health Management. Worked about 10 years in Regional Health and Family Welfare Training Center. Published two books 1. Women & Child Health Care (Vernacular Language) 2. Let's know about Health problems! (Vernacular Language). Worked with John Hopkins School of Public Health in Road Safety -10 Project. Principal Investigator for a Multicentric Study at National Level. Currently involved as an investigator in Project "Burden of NCD risk factors in Punjab, India. According to Researchgate, RG score is 16.85 He has 46 publications that have been cited 50 times, and his publication H-index is 2 and has been serving as a reviewer member of journals. Worked as Supervisor (7) and Co-supervisor (6) for thesis work. Nodal officer for state level capacity building training for medical officers. Member Secretary, Academic College Council, Secretary, IAPSM, Punjab Chapter.

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 Notes:

Clinical study on risk factors and fetomaternal outcome of severe pre-eclampsia in Bangabandhu Sheikh Mujib Medical University

Aklima Sultana

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Background: Pre-eclampsia (PE) is a leading cause of morbidity and mortality among mothers and infants. The aim of this study was to determine the maternal risk factors and fetomaternal outcome of severe pre-elampsia.

Methods: A total of 100 patients were recruited. Patients with singleton pregnancy between 28 to 40 weeks of gestation with severe pre-eclampsia were selected as cases. A questionnaire including patient's age, gestational age, parity, family history of hypertension, weight and body mass index (BMI), was completed for each patient. Maternal complications before or after delivery, and perinatal outcome were also recorded. And finally data analysis was done.

Results: Among cases and controls, age>34 years, BMI, history of preeclampsia, were found significant ($p<0.05$) between the two groups. In case group, 2 patients developed eclampsia, 3 abruptio placenta, 2 HELLP syndrome, 4 ascites, and 1 oliguria; 7 patients developed PPH and 3 pulmonary edema. In the control group, 5 developed PPH and 1pulmonary edema. In case group, 5 babies had very low birth weight (<1.5 kg) and 21 had low birth weight (<2.5 kg). In control


group only 8.0% had low birth weight. 56.0% had APGAR score 4-6 at one minute in case group and 24.0% in control group. In case group 17 babies developed birth asphyxia and 15 babies developed prematurity, where as in control group 7 babies developed birth asphyxia and 3 developed prematurity. 32 newborns needed admission in NICU in cases and 10 in controls ($p<0.05$). 35 babies could be taken home safely in case group as compared to all babies in control group. Early neonatal death was found in 5 and still birth in 10 in case group; none found in control group ($p<0.05$).

Conclusion: Maternal and fetal outcome are worse in sever preeclampsia.

Speaker Biography

Aklima Sultana has completed her Fellowship in Gynaecology and Obstetrics at the age of 33 She is trained in basic and advanced laparoscopy both from nation and abroad. She also has basic training on colposcopy. Currently is an assistant professor of Obstetrics and Gynaecology at Chattogram Maa O Shishu Hospital Medical College where she teaches medical students and manages over 350 patients per week.

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 Notes:

Retrospective real-life efficacy assessment of teneligliptin in Indian T2DM patients

Nikhil S Nasikkar

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Background: Teneligliptin has been introduced recently in the Indian market and data available are limited on Indian patients. Hence, the hospital-based real-life retrospective evaluation was planned to evaluate the efficacy of teneligliptin in type 2 diabetes mellitus in the Indian population. Hence, the study was designed as a retrospective evaluation of the efficacy of teneligliptin in type 2 diabetes mellitus in the Indian population.

Methods: Data of 11400 patients who were prescribed teneligliptin was collected from hospital records. Teneligliptin 20mg was prescribed to all patients who were uncontrolled on other OHAs and for a mean duration of 8 weeks. Parameters evaluated in this study were change in FBG, PPBG and HbA1c from the baseline at 8 weeks. With profile of outcome i.e. response and failure rates were also assessed with respect to age, gender, BMI and duration of diabetes.

Results: Of 11400 patients enrolled, 6612 were males and 4788 females. The average age was 52.77 years among the study population. The mean duration of diabetes was 23 months. There was a significant change in HbA1c, fasting and postprandial blood glucose levels at 2.55 ± 1.88 months ($p=0.001$) of teneligliptin therapy. Changes in HbA1c, FPG and PPG from baseline to end of study were $-1.35 \pm 1.08\%$


($p=0.001$), -49.01 ± 26.48 mg/dl ($p=0.001$) and -79.80 ± 32.10 mg/dl ($p=0.001$) respectively. Out of 11400 patients, 1642 (14.4%) were non-responders where it was further sub-analysed with different parameters such as age, gender, BMI and duration of diabetes in order to observe the response of teneligliptin in diabetic patients.

Conclusions: This real-life retrospective evaluation showed the efficacy of teneligliptin in a real-world scenario. It can be an effective alternative to conventional gliptins available for prescription in India.

Speaker Biography

Nikhil Sunil Nasikkar is a postgraduate in internal medicine from the national board of examinations, From Bhabha Atomic Research Centre Hospital Mumbai. Also a postgraduate in diabetology from Annamalai University Tamilnadu, India. Has experience of diabetes management since last 16 years both inpatient and outpatient. Has publications both national and international level. Practising as consultant diabetics specialist and physician in Mumbai. Also working as Assistant Professor in Department of Medicine and running the department of diabetes and endocrine. Currently working on diabetes and pregnancy with use of flash glucometers. Active member of RSSDI national body for diabetes research in India. Organising co-secretary 48th National RSSDI conference in Mumbai Dec 2020.

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 Notes:

A Comparative study of muscle symptoms of atorvastatin with rosuvastatin in patients of rtherosclerotic cardiovascular disease

Md Rakibul Hasan Rashed

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Statins are the corner stone therapy of atherosclerotic cardiovascular disease (ASCVD). Statin may cause myalgia, myotoxicity, myopathy and rhabdomyolysis along with its lipid lowering properties and pleiotropic effects. Statins associated muscle symptoms (SAMS) are the leading cause of nonadherent and discontinuation. This study was conducted to evaluate and understand the muscle symptoms of high intensity statin therapy (atorvastatin 40 mg and rosuvastatin 20 mg) for a period of three months in individual patient with clinical atherosclerotic cardiovascular disease. A total of 280 patients with clinical atherosclerotic cardiovascular disease were studied to once daily atorvastatin 40 mg and rosuvastatin 20 mg. It was a randomized controlled single blind trial. The primary end point was muscle symptoms-muscle pain, fatigue, cramp/spasticity and weakness at 4 weeks and in 3 months of study period. Serum creatinine kinase was measured in every patient with muscular symptoms. Patients of atorvastatin group noticed severe pain more than rosuvastatin group at the end of 4 weeks and 3 months of treatment period respectively. Significantly more patients felt extremely bad and bad with atorvastatin compared with rosuvastatin. Patients of atorvastatin group showed more marked increase muscle spasm than rosuvastatin group by spasticity grade.

Three patients of atorvastatin group developed grade 3 muscle power. Serum creatine kinase > 1500 U/L was observed more in atorvastatin than rosuvastatin group. Statin associated muscle symptoms (more severe muscle problem, myositis/myopathy) observed more in atorvastatin than that of rosuvastatin group. Both treatments were well tolerated. No cases of rhabdomyolysis, incident diabetes, hepatic or renal insufficiency were recorded during the study period. Rosuvastatin had better outcome profile of muscle symptoms than atorvastatin in patients with clinical atherosclerotic cardiovascular disease among the Bangladeshi population.

Speaker Biography

Md Rakibul Hasan Rashed has completed my Doctor of Medicine in (MD) in Cardiology in July, 2018 from Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. He is acting as Assistant Registrar in Department of Cardiology, Rajshahi Medical College Hospital, Rajshahi, Bangladesh. He has over 6 publications that have been cited over 10 times. He is now working in a place where potential source of data exit regarding different medical issues, specially cardiology and endocrine subject. He has interest on research of medical science to contribute a bit in my sector.

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 Notes:

Young Research Forum

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Facilitating and evaluating the impact of technology-enabled specialist diabetes care delivery to care homes

Rebecca Mathews

University of the Highlands and Islands, UK

Diabetes is increasing in prevalence and complexity in the care home setting, affecting up to 27% of care home residents in the United Kingdom. Health outcomes for these residents are impacted by management of the disease, healthcare professionals' decision-making skills within the care home setting, and, access to specialist services.

This project focuses on the use of technology having the potential to recognise opportunities for early intervention enabling efficient responsive care, taking a fundamental role in linking the care home community to wider specialist services and multi-disciplinary teams for support. By triangulating the perspectives of the care home community, it is anticipated that this project will represent an up to date, evidenced-based overview of the potential for using technology within the care home setting for diabetes management, education and training, as well as stimulate research in this area.


Five studies study have been completed with each study informing the next, commencing with a Systematic Review of the literature to give a wider understanding of technologies already being used, followed by questionnaires to 71 care

homes within the Highlands and Islands as part of a service evaluation, a focus group with the Community Diabetes Specialist Nurses to gain expert opinion, and, 28 one-to-one interviews with care home staff across the Highlands and Islands to understand their perspectives. These studies lead to the final study of facilitating and evaluating an intervention in practice with care home staff led by a Community Diabetes Specialist Nurse and Specialist Dietician.

Speaker Biography

Rebecca has completed 3 years of her PhD and is currently concluding the last 6 months at the University of the Highlands and Islands in Inverness, Scotland, United Kingdom. "Diabetes, Care Homes and the Influence of Technology on Practice and Care Delivery in Care Homes: Systematic Review and Qualitative Synthesis" was published in JMIR in April 2019. Rebecca has been a student with the University of the Highlands and Islands since 2008 when training to become a Registered Adult Nurse, continuing to complete a 2 year Masters Degree in Care of the Older Person. She then spent 2 years in practice working as a healthcare professional within the public and private sectors of acute, community and care home settings.

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 Notes:

Study of Birth Complications in Diabetic Mothers

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The Indus Hospital Kahna Nau, Pakistan

The current study was being performed to evaluate the birth complications in diabetic mothers; including both maternal and fetal complications; miscarriages. The nature of study was observational cross-sectional. The study was being taken place at different hospitals, clinical settings, and maternity homes of Lahore during September 2016 - November 2016. The demographic data, family history, socio-economic history, indications, examination findings, results, lab findings etc were recorded. Total 200 pregnant diabetic patients were evaluated for this study. The age limit for this study was 18-40 years. The patients were being analyzed for their FBS/BSR or HbA1c findings and the type of diabetes was being recorded. Out of 200 patients, 81% had GDM while the remaining patients were being presented with pre-gestational diabetes (type I 5%, type II 14% patients). Most of the GDM cases were being diagnosed during 5th to 8th week of pregnancy. Out of 200 pregnancies, 20.5% (41) of these patients had normal pregnancies, and had no major fetal complications except uncontrolled sugar level in mothers. Remaining 79.5% (159) pregnancies/deliveries were associated with some major complications including respiratory distress, macrosomia,

hypoglycemic babies, CVS malformations and still births/miscarriages. The ratio of normal vaginal delivery to CS was found out to be 29% to & 76%. The major indications for these CS deliveries were placental abruption (19.74%), dystocia (14.47%), uterine rupture (13.16%), breech position (6.58%), fetal distress (46.05%) and to some extent previous CS. The miscarriages were being associated with hypertension (41.5%), polyhydramnios (22%), Hughes syndrome (12.2%), and uncontrolled sugar level (24.3%). In our study population TT immunization status was good i.e. 76%. Diabetes is still a major problem of birth complications and miscarriages. Public awareness program is required to educate the people about reproductive health and to motivate them to undergo BSR/FBS during pregnancy prior to 24th gestational weeks to diagnose for GDMn.

Speaker Biography

Hafiz Hafeez Ullah, has completed his Pharm. D at the age of 25 years from Hajvery University, Lahore, Pakistan. He is the Hospital Pharmacist at "The Indus Hospital Kahna Nau, Lahore, Pakistan".

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