

5<sup>th</sup> International Conference on  
**Ophthalmology & Eye Surgery**

**Scientific Sessions**

March 23-24, 2023

Webinar



Ophthalmology Surgery 2023

## Effect of phaco energy on macular thickness in diabetes mellitus type 2

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### Introduction:

Worldwide cataract is the major cause of preventable blindness, affecting 47.8% of patients worldwide. The aim of present study was to find out effect of phaco-parameters used in different grades of nuclear sclerosis.

### Material and Method:

Group 1 has 50 diabetic type 2 and group 2 has 61 non diabetic patients as control. The inclusion criteria was Grade NS2 to NS4 by LOCS III criteria, in group 1 patients with type 2 DM with no diabetic retinopathy and group 2 with no systemic disease. Exclusion criteria were systemic disease other than type 2 DM, Age below 45 and above 75, complicated cataract, grade above NS4/below NS2, past History of ocular disease, surgery, laser, intravitreal injection, drugs and eventful cataract surgery. All undergone detail ocular examination and macular thickness by Optical Coherence Tomography before and post operatively on day 01,07,30,60 and on 90th day.

### Statistical Analysis:

Statistical analysis was done on SPSS. Continuous variables values over time within the group were analyzed and presented as mean  $\pm$  SD. Nominal categorical data between the groups were compared using the chi-square test and Fisher exact test as appropriate.  $P < 0.05$  was considered statically significant.

### Result:

The mean central macular thickness in both groups preoperatively was  $217.06 \pm 17.27 \mu\text{m}$  in group 1 and  $203.93 \pm 12.87 \mu\text{m}$  in group 2. On postoperative day 7, central macular thickness in group 1

was  $232.40 \pm 16.56 \mu\text{m}$ ; in group 2 was  $218.67 \pm 12.63 \mu\text{m}$  pod 30 macular thickness in both groups increased subsequently  $244.36 \pm 18.75 \mu\text{m}$  and  $224.13 \pm 13.29 \mu\text{m}$ . Mean difference was found more in diabetic patients as compared to non diabetic from POD 7 and POD 30. On postoperative day 60, macular thickness subsequently decreased to  $228.24 \pm 16.85 \mu\text{m}$  and  $214.3 \pm 12.67 \mu\text{m}$ . The macular thickness on pod 90 decreased to  $223.12 \pm 18.48 \mu\text{m}$  in group 1 and  $205 \pm 12.32 \mu\text{m}$  in group 2.

### Conclusions:

The present study shows significant increase of macular thickness due to phaco energy in both groups. But increase of macular thickness doesn't affect the visual acuity postoperatively.

### Biography

Manisha Gupta is working in Shri Guru Ram Rai Institute of Medical and Health Sciences, India. She has published more than 35 papers in reputed journals and has been serving as an editorial board member of repute. Her research interests are Phacoemulsification, Senile cataract, Diabetes. She also achieved President's Appreciation Award for outstanding service & contribution to the Dehradun Ophthalmological Society year-2017.

## The loss of microglia activities facilitates [glaucoma](#) progression in association with CYP1B1 gene mutation

**Bahauddeen M. Alrfaei**

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Irreversible loss of eyesight caused by glaucoma was estimated to be the second main reason for blindness worldwide. Progression of the disease is due to changes around the optic nerve and others. One type of glaucoma called Primary Congenital Glaucoma (PCG) which has knowledge gap. We aim to study a mutation called (c.182G>A, p.Gly61Glu) within *CYP1B1* gene which was reported in PCG. We report the *CYP1B1* mutation in the context of microglia, astrocytes and mesenchymal stem cells. The cellular behaviour of those cells needed to maintain eye homeostasis was investigated in response to *CYP1B1* mutation. CRISPR technology was used to edit normal *CYP1B1* genes within normal astrocytes, microglia and stem cells in vitro. Metabolic activities dropped by 40% after 72 hrs of mutation insertion. In addition, NADP/NADPH reducing equivalent process decreased by 50% on average after 72 hrs of manipulation. The cytokines measured on mutated microglia and astrocytes showed progressive activation leading to apoptosis or abnormality as compared to the control. The results suggested a progressive inflammation that was induced by mutant (p.Gly61Glu) on *CYP1B1*. Furthermore, the mutant enhances microglia's loss of activity. We are the first to show the direct impact of the mutation

on microglia. This progressive inflammation might be responsible for primary congenital glaucoma complications which could be avoided by an anti-inflammatory regimen. Moreover, microglia is important for ganglion cells survival along with clearing pathogens and inflammation. The loss of their activities may jeopardize the homeostasis around optic nerve environment and complicate protection to optic nerve components (such as retinal ganglion cells and glial cells).

### Biography

Bahauddeen M. Alrfaei is working in King Abdullah International Medical Research Centre (KAIMRC), Cellular Therapy Dept, Stem Cells and [Regenerative Medicine](#) Unit. He has published more than 35 papers in reputed journals and has been serving as an editorial board member of repute. His research interest are [Cancer Stem Cells](#), Regenerative Medicine, Pathology, miRNA, [Cancer Biology](#), Flow Cytometer, Cell Signalling, Gene Expression, Primary Cell Culture, Epigenetics, Molecular Biology, Cancer Research, Genetics and Cell Culture.

## Prevention or delay development of **diabetes** in women with GDM

**Lalith Halambarachchige**

*Ministry of Health, Sri Lanka*

### Introduction:

There is a significant risk of developing Type 2-Diabetes (T2DM) in Women With a history of Gestational Diabetes (WWGDM) and evidence-based interventions are recommended to for the prevention or delay of development T2DM. Post-natal period is considered suitable for such interventions.

### Objective:

To describe the knowledge, perceptions and practices of Public Health Midwives (PHM) and post-natal WWGDM and factors associated with provision of post-natal care for women with GDM in selected Medical Officer of Health (MOH) areas in Gampaha District.

### Methods:

A descriptive cross-sectional study was carried out in 2021 in randomly selected nine MOH areas in Gam Paha District. Multistage sampling technique was used to recruit 368 PHMs and 404 WWGDM. Data were collected with a self-administered questionnaire from PHMs on knowledge, perceptions and practices and interviewer administered questionnaire from WWGDM on knowledge and practices; both pre-tested. Data were collected by trained data collectors: Knowledge, perceptions and practices were categorized as good, or poor based on a cut off of 60% on calculated scores. Descriptive statistics and significances were calculated through SPSS software version 21.

### Results:

There were 355 PHMs (response rate of 98%) and 400 women with GDM (response rate of 86%). Of them, 316 (89.0%) PHMs had a good knowledge, 225 (63.4%) good practice and 347 (97.7%) good perception on prevention of T2DM in women with GDM.

Among women with GDM, 258 (64.5%) had a good knowledge. 308 (77.0%) poor practices. Age, experience in service, knowledge and perceptions of PHMs were not significantly associated ( $p>0.05$ ) with good practice. Similarly for women with GDM the age, parity, employment status and postnatal period had no significant association ( $p>0.05$ ) with their practices. There was a

significant association with the knowledge and the practice of the women with GDM ( $p<0.05$ ).

### Conclusion:

The PHMs knowledge and perceptions were good I however, practices were comparatively poor. Since there is a significant association of knowledge and practices of WWGDM, improvement of their knowledge can produce better practice. Further studies needed to identify the reasons for poor practices among PHMs and conduct awareness programs to enhance knowledge on GDM to WWGDM.

### Keywords:

Gestational diabetes, Post-natal care, Type-2 diabetes.

### Biography

Lalith Halambarachchige has completed his Diploma in [Family medicine](#) from RCGP and MSc from Postgraduate Institute of Medicine University of Colombo. He is the [Medical Doctor](#) at Ministry of Health in Sri Lanka.

## Relationship between symptom burden and HRQOL among Kuwaiti women recently diagnosed with breast cancer: A cross-sectional study

Hanan Safar

*Frances Payne Bolton School of Nursing, Kuwait*

### Background:

Breast cancer is a life-threatening chronic condition associated with distress and psychological symptoms. Breast cancer also leads to ongoing ambiguity around the symptom burden of the disease and its treatment over the long-term, which impacts Health-Related Quality Of Life (HRQOL). The factors influenced HRQOL of Kuwaiti women with breast cancer is unclear and not well understood.

### Purpose:

The purpose of the study was to explore the relationships between the symptom burden and HRQOL of Kuwaiti women diagnosis with breast cancer within their first year.

### Methods:

This cross-sectional correlational study surveyed 100 Kuwaiti women diagnosed with breast cancer within the previous year at the Kuwait Cancer Control Center Hospital (KCCC). The study collected data using a combination of five questionnaires: The Memorial Symptom Assessment-Short Form Scale (MSAS-SF), the Medical Outcomes Study Social Support Survey (MOS-SSS), the Functional Assessment of Cancer Therapy-General (FACT-G) and demographic/clinical questionnaire.

### Results:

The 100 Kuwaiti women in the study experienced moderate symptom burden ( $M=2.35$ ,  $SD=0.28$ ), which is significantly

negatively associated with HRQOL. The most prevalent symptoms the women reported were pain, difficulty sleeping, lack of energy and hair loss. Symptom burden was significantly negatively associated with HRQOL.

### Conclusion:

The findings of this study suggest the need for more training for clinicians to diagnose and treat common symptoms. Improved screening tools and psychosocial interventions also need to be developed. Future research should focus on longitudinal data and qualitative methods to gain a more comprehensive understanding of Kuwaiti women's experiences with breast cancer.

### Biography

Hanan Safar is a registered nurse and a Master of Nursing. She's employed at the Frances Payne Bolton School of Nursing, Kuwait as a member of the Nursing department teaching staff. Her responsibilities include lecturing on Gerontological nursing and Nursing care in community nursing and outpatient care, coordination of geriatric and community nursing clinical training, preparation and leadership of workshops on experiential learning methods and execution of workshops for nursing clinical mentors and students.

## The impact of geriatric role-play workshops on nursing students' professional competencies: Survey

Ester Benko and Melita Persolja

*University of Primorska, Slovenia*

### Background:

Simulation and role-playing are the most commonly used experiential teaching methods in nursing education. These methods enable the acquisition and consolidation of knowledge and a variety of skills. Studies describe the entities of role-play in general, but any of them researched geriatric role-play yet.

### Objectives:

The purpose of the study was to describe the impact of geriatric role-play workshops on the knowledge and skills of nursing students. We set two hypotheses: (1) Students believe that learning through experiential role-play improves their professional competencies. (2) Students evaluate the method of experiential role-play as an effective learning method.

### Design:

We conducted a descriptive quantitative study, collecting the data with a questionnaire.

### Settings/Participants:

The study included 266 first-year nursing students who underwent 10 hours of role-playing workshops in gerontological nursing.

### Methods:

The questionnaire was compiled for the purpose of the present study; its' internal consistency was 0.844 (n=27). We used descriptive and correlation statistical analysis.

### Results:

Respondents were convinced that they gained and consolidated knowledge and connected theory with practice through role-playing. They especially emphasized the increased ability to understand and empathize (r=0.53; Sig.=0.00), increased communication skills (r=0.523; Sig.=0.00), self-confidence (r=0.472; Sig.=0.00) and consolidated skill of assessing the patient's condition (r=0.463; Sig.=0.00).

### Conclusions:

Respondents understand the use of the role-play method as an effective form of learning in geriatric nursing. They are convinced that they will be able to use the experience when working with an elderly patient in a clinical setting.

### Biography

Ester Benko is a registered nurse and a Master of Nursing. She's employed at the University of Primorska Faculty of Health Sciences as a member of the Nursing department teaching staff. Her responsibilities include lecturing on Gerontological nursing and Nursing care in community nursing and outpatient care, coordination of geriatric and community nursing clinical training, preparation and leadership of workshops on experiential learning methods and execution of workshops for nursing clinical mentors and students. From 2011 to 2014 she participated as a lecturer, mentor and organizer in the Erasmus Intensive Program project Positive and Resource Oriented Approaches in Care Towards Elderly (IP PRO ACTE).

Melita Persolja is a registered nurse and an Associate Professor at the Faculty of Health Sciences at the University of Primorska. She has a PhD and is a lecturer at 1st and 2nd Cycle nursing programs where she teaches Evidence based and Management in nursing.

## Comparing the impact of SGLT2 inhibitors and GLP-1 agonists on lipid profile among the patients with type 2 diabetes

**Nestan Bostoganashvili**

*National Institute of Endocrinology, Georgia*

In Georgia, significantly huge number of patients with Diabetes Mellitus Type 2 (DMT2) suffers from Cardio-Vascular Diseases (CVD) and obesity. Since, dyslipidemia is one of major factors leading to CV-mortality, it is crucial to investigate the effects of relatively novel hypoglycemic agents-Sodium Glucose co-Transporter 2 (SGLT2) (Dapagliflozin) or Glucagon Like Peptide 1 (GLP-1) agonists (Liraglutide) on lipid profile. The aim of our observational study was to assess the benefits of these two medications among the patients with DMT2 and dyslipidemia.

### Methodology:

A total of 68 persons with T2DM, (mean age  $51.8 \pm 6.1$ , mean duration of diabetes  $\pm 10.3$  yrs) were recruited in the study. All of them were treated with GLP1 agonists or SGLT2 inhibitors (35 patient with SGLT2 inhibitors, 33 patients with GLP1 agonists) as add on therapy to Metformin. We paid serious attention to dietary recommendations and physical activity in all patients. We compared the effects of GLP-1 agonists and SGLT2 inhibitors on lipid profile at baseline and after 18 weeks. Anova test was used to see the differences in groups.

### Results:

62 patients completed the follow-up. After 18 weeks of the treatment, the study showed the upward trend of Total Cholesterol (CH), HDL-Cholesterol (HDL-CH) and LDL-cholesterol (LDL-CH) among patients treated with SGLT2 inhibitors-Median LDL-CH +0.2 mmol/l, Median total CH +0.2 mmol/l and Median HDL-

CH +0.3 mmol/l. Median LDL-CH was reduced (-0.2 mmol/l) among the patients, treated with GLP-1 agonists. However, there was no significant effect shown on HDL-CH or total Cholesterol. Mean levels of Triglycerides (TG) remained unchanged in the both groups.

### Findings:

We think that different impacts of hypoglycemic medications on lipid profile seen in our patients should be taken in concern and outlined. The SGLT-2 inhibitor was associated with increase of both- HDL-CH and LDL-CH, while GLP-1 agonists with reduction of LDL-CH. However these are short-term observational study results, we do hope to investigate accurately the whole lipid profile among our patients for the following months.

### Biography

Nestan Bostoganashvili has finished Tbilisi State Medical University in Tbilisi Georgia. She has worked as Intern on the basis on National Institute of Endocrinology, She has completed dissertation on "Growth hormone replacement therapy effect on the lipid profile in growth hormone deficient adults". She is the first author of several publications, since the first day of her practice; she is interested in different fields of Endocrinology: Diabetes Mellitus, Pituitary-hypothalamic axis, obesity. She is the member of National Nutritionists association. She is assistant professor in different Universities of Georgia.

## Influence of mirabegron, adrenaline and ascorbic acid on the intensity of iron-induced biochemiluminescence of erythrocytes in whole blood in men

NS Zavalin

Kirov State Medical University, Russia

### Introduction:

Obesity is the most common chronic disease today and methods for the prevention and treatment of obesity are an important area of modern medicine. Among the new directions it is proposed to use agonists of  $\beta$ 3-Adrenergic Receptors ( $\beta$ 3-AR), including mirabegron. The purpose of this study was to confirm the ability of mirabegron as a selective agonist of  $\beta$ 3-AR (compared to ascorbic acid and adrenaline) to reduce the free radical activity of erythrocytes, which are known to lack mitochondria (the main sources of ROS), but are rich in lipids.

### Materials and Methods:

The object of the study was heparinized venous blood of 20 male donors. The intensity of free radical activity was assessed by the iron-induced biochemiluminescence method on a biochemiluminometer BHL-07 manufactured by Medozons (Russia). We studied the background values of blood biochemiluminescence intensity (light sum S), which served as a control and evaluated the effect of the agonist  $\beta$ 3-AR mirabegron, ascorbic acid as a classic antioxidant and adrenaline.

### Results:

It has been established (Table 1) that mirabegron at a concentration of 10–6 g/mL of Krebs solution statistically significantly reduces the intensity of erythrocyte biochemiluminescence. A similar effect is exerted by the Classic antioxidant ascorbic acid (10–4 g/mL), as well as adrenaline (10–5 g/mL).

Table 1. Indicators S of free radical activity of whole blood of male donors under the action of ascorbic acid, adrenaline, mirabegron, in % of the background level.

	10 <sup>6</sup>	10 <sup>4</sup>	10 <sup>5</sup>	10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>4</sup>
Whole blood						
		86 <sup>*</sup>	92	88 <sup>**</sup>	96	80 <sup>*</sup>
Vitamin C	-	(83;92)	(89;97)	(80;97)	(26;101)	(70;87)
	95	108 <sup>AA</sup>	101	101	94	
Adrenalin	(86;107)	(102;113)	(93;116)	(88;111)	(85;96)	-
				90 <sup>AA</sup>		
Mirabegron				(84;94)	-	-

### Conclusion:

This indicates the possibility and expediency of using mirabegron for the treatment of obesity in which the intensity of lipid peroxidation is increased.

### Biography

Zavalin NS is a lecturer at the Department of Physics and Medical Informatics at the Kirov State Medical University. He graduated from the Vyatka state university of Humanities in 2015, Specialty is medical physics. Then he completed his postgraduate studies at the Vyatka State University in the direction of human physiology in 2019.

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March 23-24, 2023

Webinar

Optometry: Open Access

ISSN: 2476-2075 | Volume: 08

## Real world evidence of the new antidiabetic medications (GLP1-RA and SGLT2-I): A retrospective cohort study

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### Introduction and Background:

GLP1 Receptor Agonists and SGLT2 Inhibitors are effective in reducing A1c level, blood pressure and weight in patients with Type 2 Diabetes (T2DM). However, side effects including nausea, vomiting and diarrhoea were reported with GLP1-RA, urinary tract infections and genital symptoms associated with SGLT2-I. It is essential to conduct multiple real-world studies, in various populations, to determine the effectiveness and side effects of GLP1-RA and SGLT2-I among T2DM patients. This study aims to evaluate the effectiveness of both GLP1-RA and SGLT2-I, compared to other standard treatments, in lowering HbA1c, blood pressure and BMI in patients with type 2 diabetes in the UAE and to detect the side effects associated with both medications.

### Methods:

In this retrospective cohort study, from January 2020 to January 2022, medical records of all T2DM patients registered in the diabetic clinics at University Hospital of Sharjah (UHS) were reviewed and only patients who met the study's eligibility criteria were selected. Male and female patients who were above 18 years old and were on anti-diabetic medications for at least 3 months with no discontinuation were eligible to be included. Patients who had irregular follow-ups, were newly diagnosed with T2DM within the past year, or were non-diabetic obese were excluded from the study sample. Patients' demographics, physical (weight) and biochemical data were collected at baseline, three, six, twelve and eighteen months. Patients were categorized into two groups: those who were on GLP1-RA and SGLT2-I and those who were on standard treatments. Mann Whitney U test and Chi-square test were used to conduct inferential statistics. SPSS 28 was used to conduct data analysis and the level of significance was set at 5%.

### Results:

This study involved 100 patients with type 2 diabetes, with a mean age of 60 years (SD: 12.6), 44% were female and 56% were

male. Patients on standard treatment showed no reduction in BMI over 3,6,12 and 18 months of follow-up. While patients on new medications, including GLP1-RA and SGLT2-I, showed clinically significant weight loss up to 1.5 kg/m<sup>2</sup>. The average reduction in A1c in patients on standard treatment was 0.9%, whereas the average reduction in patients on new regimen treatment was 1.5%. Both medication groups, however, showed no improvement in their blood pressure. In patients receiving older regimens, hypoglycaemia is the most common side effect with 7% of the patients, while SGLT2-I inhibitors were associated with UTIs and genital itching with 4% of the patients. In addition, one patient stopped Liraglutide after experiencing severe diarrhoea.

### Discussion:

In this study a comparison of SGLT2-I and GLP1-RA with other standard treatments has demonstrated their efficacy in reducing A1c and BMI. Side effects of these medications can lead to the discontinuation of the medication. However, no improvements were observed in blood pressure between two groups.

### Conclusion:

SGLT2-I and GLP1-RA have been widely prescribed in UHS endocrine clinics. Both medications have been noted and preferred for reducing weight and A1c. A low percentage of patients experienced side effects that led to discontinuation. Patients' baseline characteristics and lack of adherence may also be important factors to consider.

### Biography

Nada Maher is a General Practitioner Graduated with MBBS degree from Sharjah University, 2012. She holds a diploma in science of diabetes from Middlesex University, UK 2015. Currently she is pursuing a master's in diabetes management from Sharjah University 2021-2023.

Received: March 10, 2023 | Accepted: March 13, 2023 | Published: April 5, 2023