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DETERMINANTS OF POLYCYSTIC OVARIAN SYNDROME AMONG ADOLESCENTS WITH OVERWEIGHT AND OBESITY: A CASE-CONTROL STUDY PROTOCOL

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INTRODUCTION

Polycystic ovarian syndrome (PCOS) is a complex endocrine disorder that significantly affects adolescent girls, particularly those with overweight or obesity. However, data examining the determinants and metabolic profiles of PCOS among adolescents with overweight and obesity remain limited, especially in Malaysia. This protocol describes a case-control study investigating the cardiometabolic, dietary, and psychosocial determinants of PCOS among adolescents with overweight and obesity.

METHODOLOGY

This study is designed as a case-control study involving adolescent girls aged 13–16 years with a body mass index z-score $\geq +1$ standard deviation. Cases are defined

as adolescent girls with a confirmed diagnosis of PCOS based on the recommendations of the 2017 International Consortium of Paediatric Endocrinology (ICPE), while controls are those who do not meet the diagnostic criteria for PCOS. A total sample size of 440 participants is required. Participants will be recruited from 22 secondary schools selected from a list of schools in Kuala Lumpur. Data on sociodemographic characteristics, psychosocial health, physical activity, and dietary intake will be collected using structured questionnaires. Blood samples will be obtained and analyzed for diagnostic testing (free testosterone), exclusion tests (thyroid-stimulating hormone, follicle-stimulating hormone, luteinizing hormone, estradiol, prolactin, and dehydroepiandrosterone sulfate), and biochemical parameters (liver function tests, lipid profile, hemoglobin A1c, fasting glucose, fasting insulin, and inflammatory markers).

RESULTS

The study is expected to generate comprehensive data on the cardiometabolic, dietary, and psychosocial determinants of PCOS among adolescents with overweight and obesity. The findings will inform early screening strategies and targeted interventions aimed at reducing long-term reproductive and cardiometabolic complications.

CONCLUSION

This protocol outlines a structured approach to investigating PCOS in adolescence and addresses current gaps in early identification and risk stratification among high-risk populations.

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BASELINE PHYSICAL ACTIVITY ENHANCES GLP-1 RECEPTOR AGONIST WEIGHT LOSS IN OBESE MALAYSIAN PATIENTS WITH T2DM

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INTRODUCTION

While Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are effective for weight reduction in type 2 diabetes mellitus (T2DM), interindividual variability exists. Lifestyle factors, particularly baseline physical activity, may modify weight loss outcomes. This study examined whether baseline activity influences GLP-1 RA efficacy in Malaysian patients.

METHODOLOGY

A retrospective cohort of adults with obesity and T2DM receiving GLP-1 RAs (semaglutide or liraglutide) from January 2023 to December 2024 was analyzed. Baseline physical activity was classified as active or inactive. Primary outcomes were achievement of ≥ 3 and $\geq 5\%$ weight loss over 6–12 months. Associations were assessed using Fisher's exact test and logistic regression.

RESULTS

Among GLP-1-treated patients, those reporting baseline physical activity were more likely to achieve $\geq 3\%$ weight loss and demonstrated trends toward higher, $\geq 5\%$, weight loss. Logistic regression suggested baseline activity increased the odds of clinically meaningful weight reduction, though statistical significance was limited by sample size.

CONCLUSION

Baseline physical activity may enhance GLP-1 receptor agonist-mediated weight loss in obese patients with T2DM. Integrating lifestyle interventions with pharmacotherapy may optimize treatment outcomes. Larger prospective studies are warranted to confirm these findings.

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GRAY-MARKET PEPTIDES, GRAVE CONSEQUENCES: SADDLE PULMONARY EMBOLISM AND DIABETIC KETOACIDOSIS FROM UNSUPERVISED RETATRUTIDE, AOD-9604, AND TESAMORELIN

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INTRODUCTION

The growing popularity of glucagon-like peptide-1 receptor agonists (GLP-1 RAs) for weight management has inadvertently perpetuated demand for unregulated experimental peptides procured through gray markets. Retatrutide, a novel triple GLP-1/glucose-dependent insulinotropic polypeptide (GIP)/glucagon receptor agonist undergoing Phase III trials; AOD -9604, an abandoned synthetic human growth hormone fragment; and tesamorelin, a synthetic GHRH analogue, are increasingly self-administered without medical supervision. Their combined metabolic and thromboembolic risks remain unknown and unreported.

CASE

A 50-year-old Malaysian female with morbid obesity and poorly controlled type 2 diabetes mellitus (hemoglobin A1c 13%) presented with acute dyspnea, chest tightness, syncope, and cardiogenic shock. Three weeks prior, she had self-initiated subcutaneous retatrutide, AOD-9604, and tesamorelin procured through unregulated online platforms, achieving rapid weight loss of 10 kg. Despite markedly reduced oral intake from GLP-1-mediated gastrointestinal side effects, she continued her prescribed high-dose insulin regimen and sodium-glucose cotransporter-2 (SGLT2) inhibitor without dose adjustment. She developed concurrent diabetic ketoacidosis, confirmed biochemically, alongside massive saddle pulmonary embolism with right ventricular strain on echocardiography and computed tomography pulmonary angiography. She was successfully treated with systemic thrombolysis using alteplase, guideline-directed diabetic ketoacidosis management including fixed-rate insulin infusion and fluid resuscitation, and anticoagulation. The SGLT2 inhibitor was withheld throughout admission. She was discharged on rivaroxaban with counseling to cease all unregulated compounds. All three agents were submitted to the National Pharmaceutical Regulatory Authority/Malaysian Adverse Drug Reactions Advisory Committee for adverse drug reaction reporting.

CONCLUSION

To our knowledge, this is the first reported case of concurrent massive pulmonary embolism and diabetic ketoacidosis precipitated by unsupervised gray-market retatrutide, AOD-9604, and tesamorelin. Clinicians should enquire about unregistered supplement use, counsel insulin-dependent patients on sick-day rules when appetite-suppressing agents are initiated, and report adverse events to pharmacovigilance authorities.

EP_A079

POST-BARIATRIC METABOLIC EMERGENCY: A CASE OF DKA IN A NON-INSULIN-DEPENDENT PATIENT

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INTRODUCTION

Bariatric surgery is an effective treatment for morbid obesity and metabolic syndrome, including type 2 diabetes mellitus. However, metabolic complications such as diabetic and starvation ketoacidosis may occur in the perioperative period, particularly in patients with reduced oral intake, rapid weight loss, and altered insulin requirements.