ID #6 Type: Basic Science

TITLE: CANADIAN WOMEN'S PERSONAL NARRATIVE ACCOUNTS OF PCOS DIAGNOSIS AND TREATMENT

AUTHORS: Soucie, K (1); Tapp, K., (2), Kobrosli, J (3), Rakus, M (4), Katzman, R. (5), Schramer, K (6), Samardzic, T (7), Sanchez, N (8), Cao, P (9)

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OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #8 Type: Clinical Science

TITLE: LIFESTYLE INTERVENTIONS IN WOMEN WITH POLYCYSTIC OVARY SYNDROME: A SCOPING SYSTEMATIC REVIEW

AUTHORS: Al-Wattar BH (1), Hussain NM (2), Khan KS (3)

Affiliation: (1) Reproductive medicine unit, University College London Hospitals, London, UK; (2) College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK; (3) Department of Preventive Medicine and Public Health, University of Granada, Granada, Spain;

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #9 Type: Basic Science

TITLE: LEVERAGING NORTHERN EUROPEAN POPULATION HISTORY: NOVEL LOW FREQUENCY VARIANTS FOR PCOS

AUTHORS: Pujol-Gualdo N (1,2), Tyrmi JS (3,4,5), Arffman RK (1), Kurra V (6), Papunen LM (1), Sliz E (3,4,5), FinnGen, EstBB Research Team, Piltonen TT (1), Laisk T (2), Kettunen J (3,4,5,7), Laivuori H (8,9,10)

Affiliation: (1) Department of Obstetrics and Gynecology, PEDEGO Research Unit, Medical Research Centre, Oulu University Hospital, University of Oulu, Oulu, Finland; (2) Estonian Genome Centre, Institute of Genomics, University of Tartu, Tartu, Estonia; (3) Computational Medicine, Faculty of Medicine, University of Oulu, Oulu, Finland; (4) Center for Life Course Health Research, Faculty of Medicine, University of Oulu, Oulu, Finland; (5) Biocenter Oulu, University of Oulu, Oulu, Finland; (6) Department of Clinical Genetics, Tampere University Hospital and Tampere University, Faculty of Medicine and Health Technology, Tampere, Finland; (7) Finnish Institute for Health and Welfare, Helsinki, Finland; (8) Department of Obstetrics and Gynecology, Tampere University Hospital and Tampere University, Faculty of Medicine and Health Technology, Tampere, Finland; (9) Medical and Clinical Genetics, University of Helsinki and Helsinki University Hospital, Helsinki, Finland; (10) Institute for Molecular Medicine Finland, Helsinki Institute of Life Science, University of Helsinki, Helsinki, Finland;

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #10 Type: Clinical Science

TITLE: GLUT4 MRNA EXPRESSION IN ADIPOSE TISSUE AFTER METFORMIN WITHDRAWAL IN PCOS: IS THERE LEGACY EFFECT?

AUTHORS: Jensterle M (1,2), Kravos NA (2), Dolžan V (3), Goričar K (3), Herman R (1,2), Rizzo M (4) and Janež A (1,2)

Affiliation: (1) Department of Endocrinology, Diabetes and Metabolic Diseases, University Medical Center Ljubljana, 1000 Slovenia (2) Department of Internal Medicine, Faculty of Medicine, University of Ljubljana, 1000 Slovenia 3) Pharmacogenetics Laboratory, Institute of Biochemistry, Faculty of Medicine, University of Ljubljana, 1000 Slovenia 4)Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties (Promise), University of Palermo, 90133 Italy

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #11 Type: Clinical Science

TITLE: A REVIEW OF THE NHANES DATASET TO IDENTIFY INDIVIDUALS WITH PCOS

AUTHORS: Cree-Green M (2), Sherif K (3), Sugahara O (4), Pokuah F (4), Kennerley V (4), Lyle AN (4), Vesper HW (4), Ottey S (1)

Affiliation: (1) PCOS Challenge: The National Polycystic Ovary Syndrome Association, Atlanta, GA (2) Div. of Ped Endocrinology, Uni. of Colorado, Anschutz, Aurora CO (3) Dept. of Medicine, Thomas Jefferson Uni., Philadelphia, PA (4) Clinical Chemistry Branch, NCEH, Center for Disease Control and Prevention, Atlanta, GA

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #12 Type: Clinical Science

TITLE: PCOS with metabolic syndrome & psychological distress.

AUTHORS: Shaikh Zinnat ara nasreen, Sabereen Huq, Saleheen Huq, Safinaz Shahreen

Affiliation: Z.H Sider women's medical college & Hospital, Dhaka 1209,Bangladesh, b North Middlesex university hospital, NHS, London, UK, C Peterbrough city hospital, NHS, Cambridgeshire, UK. dLuton and Dunstable University Hospital NHS Foundation Trust Luton, Luton, UK LU4 0DZ

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #13 Type: Clinical Science

TITLE: HYPERTENSION, OBESITY AND MATERNAL AGE NEGATIVELY ASSOCIATED WITH REPRODUCTIVE OUTCOMES IN PCOS

AUTHORS: Tay CT (1,2), Loxton D (3), Bahri Khomami M (1,2), Teede H (1,2), Joham AE (1,2).

Affiliation: (1) Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine, Monash University, Victoria, Australia; (2) Department of Diabetes and Vascular Medicine, Monash Health, Victoria, Australia; (3) Research Centre for Generational Health and Ageing, School of Medicine and Public Health, University of Newcastle, Callaghan, New South Wales, Australia

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #14 Type: Translational Science

TITLE: METABOLOMICS PROFILE OF YOUNG ADULTS: INFLUENCE OF SEX, FUNCTIONAL HYPERANDROGENISM AND OBESITY

AUTHORS: Martínez-García M.Ángeles (1,3), Insenser María (1,3), Cañellas Nicolau (2,3), Luque-Ramírez Manuel (1,3), Correig Xavier (2,3), Escobar-Morreale Héctor F. (1,3).

Affiliation: (1) Diabetes, Obesity and Human Reproduction Research Group, Department of Endocrinology and Nutrition, Hospital Universitario Ramón y Cajal & Universidad de Alcalá & Instituto Ramón y Cajal de Investigación Sanitaria, Madrid, Spain.

(2) University Rovira i Virgili, Department of Electronic Engineering & Institut d'Investigació Sanitària Pere Virgili, Tarragona, Spain.

(3) Spanish Biomedical Research Centre in Diabetes and Associated Metabolic Disorders (CIBERDEM), Spain.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #15 Type: Clinical Science

TITLE: HEALTHCARE EXPERIENCES IN WOMEN AND GENDER DIVERSE INDIVIDUALS WITH PCOS

AUTHORS: Williams, SL.

Affiliation: Department of Psychology, East Tennessee State University, Johnson City, TN, USA

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #16 Type: Clinical Science

TITLE: CAN WE JUST USE SCOFF TO PREDICT EATING DISORDERS IN WOMEN WITH PCOS? – TESTING THE RECOMMENDATIONS

AUTHORS: Bennett CJ(1), Hindle A(2), Pirotta S(3), Lim S(4), Joham A(4), Brennan L(2)* and Moran LJ(4)*

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OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #17 Type: Clinical Science

TITLE: PREVALENCE OF FUNCTIONAL HYPERANDROGENISM IN WOMEN WITH TYPE 1 DIABETES.

AUTHORS: Bayona A (1,2), Nattero-Chávez L (1,2), Fernández-Durán E (1,2), Dorado-Avendaño B (1), Luque-Ramírez M (1,2,3), Escobar-Morreale HF (1,2,3).

Affiliation: (1) Department of Endocrinology and Nutrition, Hospital Universitario Ramón y Cajal, Madrid, Spain; (2) Grupo de Diabetes, Obesidad y Reproducción Humana. Universidad de Alcalá & Instituto Ramón y Cajal de Investigación Sanitaria (IRYCIS) & Centro de Investigación en Biomédica en Red de Diabetes y Enfermedades Metabólicas asociadas (CIBERDEM), Spain; (3) Universidad de Alcalá, Madrid, Spain.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #19 Type: Clinical Science

TITLE: CHARACTER STRENGTHS OF WOMEN WITH POLYCYSTIC OVARY SYNDROME

AUTHORS: Ghazeeri G (1), Ibrahim N (2), Khalifeh F (1), Beyrouthy C (1), El Taha L (1), Bizri M (2)

Affiliation: (1) Department of Obstetrics and Gynecology, Faculty of Medicine, American University of Beirut, Beirut, Lebanon; (2) Department of Psychiatry, Faculty of Medicine, American University of Beirut, Beirut, Lebanon;

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #20 Type: Clinical Science

TITLE: Investigation of the mechanism of action of duodenal mucosal resurfacing in PCOS. The DOMINO study.

AUTHORS: Dimitriadis GK (1), (2)*, Vasha K (3)*, Pérez-Pevida B (3), Bansi DS (4), Jayasena C (3), Bate D (5), Houghton R (3), Fielding B (6), Balfoussia D (7), Webber L (7), Miao Y (3), Mears F (3), Jackson N (6), Coppin L (6), Perez J (8), Williams M (8), John

Affiliation: (1) Department of Endocrinology, King's College Hospital NHS Foundation Trust, Denmark Hill, SE5 9RS, UK (2) Obesity, Type 2 Diabetes and Immunometabolism Research Group, Department of Diabetes, Faculty of Life Sciences, School of Life Course Sciences, King's College London, London SE1 9RT, UK (3) Department of Metabolism, Digestion and Reproduction, Imperial College London, UK (4) Department of Gastroenterology, Imperial College Healthcare NHS Trust, UK (5) Warwickshire Institute for Diabetes, Endocrinology & Metabolism, University Hospitals Coventry & Warwickshire, UK (6) Department of Nutritional Sciences, University of Surrey, UK (7) Department of Gynaecology, Imperial College Healthcare NHS Trust, UK (8) Biostatistics, Avania Clinical, US (9) Department of Experimental & Translational Medicine, Warwick Medical School, UK.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #21 Type: Basic Science

TITLE: FUNCTIONAL ANALYSIS OF PATHOGENIC ANTI-MULLERIAN HORMONE VARIANTS IN PATIENTS WITH PCOS

AUTHORS: Meng L, McLuskey A , Visser JA

Affiliation: Dept. of Internal Medicine, Erasmus MC, University Medical Center Rotterdam, The Netherlands

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #22 Type: Clinical Science

TITLE: CARDIOMETABOLIC PROFILE IN WOMEN WITH POLYCYSTIC OVARY SYNDROME IN LATIN AMERICA: SYSTEMATIC REVIEW

AUTHORS: Marchesan, LB (1,2), Ramos, RB (2), Spritzer, PM (1,2,3)

Affiliation: (1) Gynecological Endocrinology Unit, Division of Endocrinology, Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brazil; (2)Post-graduate Program in Endocrinology, Medicine School, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil; (3)Department of Physiology, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil;

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #23 Type: Translational Science

TITLE: COMPARISON OF THREE AMH ASSAYS WITH AMH AND FOLLICLE NUMBER IN PATIENTS WITH PCOS

AUTHORS: Moolhuijsen LME(1), Louwers YV(2), Kumar A(3), Kalra B(3), Laven JSE(2), Visser JA(1)

Affiliation: (1) Gynecological Endocrinology Unit, Division of Endocrinology, Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brazil; (2)Post-graduate Program in Endocrinology, Medicine School, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil; (3)Department of Physiology, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil;

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #24 Type: Clinical Science

TITLE: EFFECT OF COVID-19 PANDEMIC ON SLEEP IN PATIENTS WITH PCOS

AUTHORS: Oppermann K (1,2), Weber LR (1), Rinaldi LR (1), Link RA, Franciscatto ME (1) , Wohlenberg R (1).

Affiliation: (1) Dept of Ob/ Gyn, Passo Fundo School Of Medicine, Passo Fundo, RS, Brazil: (2) Residency in Gynecology and Obstetrics, Hospital São Vicente de Paulo, Passo Fundo, RS, Brazil

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

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CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #25 Type: Clinical Science

TITLE: ASSESSING INDIRECT AND INTANGIBLE COSTS OF PCOS IN THE U.S.

AUTHORS: Delau O (1), Yadav S (2), Patterson W (3), Ottey S (3), Azziz R (4-7)

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OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #26 Type: Translational Science

TITLE: METFORMIN REDUCES INFECTIONS AND INCREASES SERUM CYTOKINES IN PREGNANT WOMEN WITH PCOS - AN RCT

AUTHORS: Ryssdal M (1,2), Giskeødegård GF (3), Stokkeland LMT (1,2), Jarmund AH (1,2), Steinkjer B (1,2), Løvvik TS (1,4), Madssen TS (5), Iversen AC (1,2) and Vanky E (1,4).

Affiliation: (1) Department of Clinical and Molecular Medicine, Norwegian University of Science and Technology (NTNU), 7491 Trondheim, Norway; (2) Centre of Molecular Inflammation Research (CEMIR), Norwegian University of Science and Technology, 7491 Trondheim, Norway; (3) Department of Public Health and Nursing, Norwegian University of Science and Technology, 7491 Trondheim, Norway; (4) Department of Obstetrics and Gynecology, St. Olavs hospital, Trondheim University Hospital, 7006 Trondheim, Norway; (5) Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, 7491 Trondheim, Norway.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #27 Type: Translational Science

TITLE: VARIABLE DISCRIMINATORY POWER OF OVARIAN MARKERS ACROSS LIFESPAN WARRANT AGE-SPECIFIC PCOS CRITERIA

AUTHORS: Pea J (1), Jarrett BY (1), Vanden Brink H (1), Brooks ED (1), Hoeger KM (2), Spandorfer SD (3), Pierson RA (4), Chizen DR (4), and Lujan ME (1)

Affiliation: (1) Division of Nutritional Sciences, Cornell University, Ithaca, NY, USA (2) Department of Obstetrics and Gynecology, University of Rochester Medical Center, Rochester, NY, USA (3) Center for Reproductive Medicine, Weill Cornell Medicine, New York, NY, USA (4) Department of Obstetrics, Gynecology and Reproductive Sciences, University of Saskatchewan, Saskatoon, SK, Canada

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #28 Type: Clinical Science

TITLE: IMPACT OF PCOS ON CORNOVIRUS DISEASE 2019 (COVID-19) INCIDENCE AND SEVERITY IN THE UNITED STATES

AUTHORS: Alur-Gupta, S (1), Boland, MR (2), Dokras, A (3)

Affiliation: (1) Department of OBGYN, University of Rochester, Rochester, NY, USA; (2) Department of Biostatistics, Epidemiology & Informatics, University of Pennsylvania, Philadelphia, PA, USA; (3) Department of OBGYN, University of Pennsylvania, Philadelphia, PA, USA

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #29 Type: Basic Science

TITLE: CONVERSION OF CLASSICAL AND 11-OXYGENATED ANDROGENS BY AKR1C3 IN A MODEL OF PCOS ADIPOCYTES

AUTHORS: Paulukinas RD (1), Mesaros CA, Ph.D. (1), and Penning TM, Ph.D. (1)

Affiliation: (1) Department of Systems Pharmacology and Translational Therapeutics & Center of Excellence in Environmental Toxicology, University of Pennsylvania, Philadelphia, PA, United States;

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #30 Type: Clinical Science

TITLE: DIRECT COSTS OF MENTAL HEALTH DISORDERS IN PCOS: SYSTEMATIC REVIEW AND META-ANALYSIS

AUTHORS: Yadav S (1), Delau O (2), Patterson W (3), Ottey S (3), Azziz R (4-7)

Affiliation: (1) Dept. of Epidemiology, New York University School of Global Public Health, NY, USA; (2) Dept. of Biostatistics, New York University School of Global Public Health, NY, USA; (3) PCOS Challenge, Atlanta, GA, USA; (4) Dept. of Ob/Gyn, and (5) Dept. of Medicine, School of Medicine, and (6) Dept. of Healthcare Organization & Policy, School of Public Health, The University of Alabama at Birmingham, Birmingham, AL, USA; (7) Dept of Health Policy, Management, and Behavior, School of Public Health, University at Albany, SUNY, Rensselaer, NY, USA

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #31 Type: Clinical Science

TITLE: CHANGES IN PCOS PHENOTYPE WITH WEIGHT LOSS ARE ASSOCIATED WITH BASELINE FREE ANDROGEN STATUS

AUTHORS: Carter, FE (1), Jarrett, BY (1), Vanden Brink, H (1), Oldfield, AL (1), Lujan, ME (1)

Affiliation: (1) Division of Nutritional Sciences, Cornell University, Ithaca, NY, USA

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #32 Type: Clinical Science

TITLE: CLINICAL VERSUS SELF-ASSESSMENT OF HIRSUTISM

AUTHORS: Oliveira TF(1), Oliveira T(1), Gonçalves BA (2),Santana DC(2), Rocha AL(3), Azevedo RC(1),Reis FM(3), Cândido AL(2),Comim FV(2)

Affiliation: (1) Hospital das Clinicas, Serviço de Endocrinologia, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil (2) Department of Internal Medicine, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil (3)Department of Obstetrics and Gynecology, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #33 Type: Translational Science

TITLE: DISTINCT ANDROGEN AND IMMUNE PROFILES IN PREGNANT WOMEN OF HYPER- AND NORMOANDROGENIC PCOS PHENOTYPE

AUTHORS: Stokkeland LMT (1,2), Giskeødegård GF (3), Ryssdal M (1,2), Jarmund AH (1,2), Løvvik TS (1,4), Schmedes AV (5), Iversen AC (1,2), Vanky E (1,4).

Affiliation: (1) Dept. of Clinical and Molecular Medicine, Norwegian University of Science and Technology, Trondheim, Norway. (2) Centre of Molecular Inflammation Research (CEMIR), Norwegian University of Science and Technology, Trondheim, Norway. (3) Department of Public Health and Nursing, Norwegian University of Science and Technology, Trondheim, Norway (4) Dept. of Obstetrics and Gynecology, St. Olavs hospital, Trondheim University Hospital, Trondheim, Norway. (5) Biochemistry and Immunology, Lillebælt Hospital, Vejle, Denmark.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #34 Type: Clinical Science

TITLE: PSYCHOLOGICAL INTERVENTIONS FOR DEPRESSION IN WOMEN WITH PCOS: SYSTEMATIC REVIEW AND META-ANALYSIS

AUTHORS: Jiskoot G(1,2), van der Kooi ALF(2),Busschbach JJ(2), Laven JSE(2) and Beerthuizen A(2)

Affiliation: (1) Dept. of Reproductive Medicine, Erasmus MC, Rotterdam, The Netherlands

(2) Dept. of Medical Psychology and Psychotherapy, Erasmus MC, Rotterdam, The Netherlands.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #35 Type: Clinical Science

TITLE: PREVALENCE OF POLYCYSTIC OVARY SYNDROME IN TYPE 1 DIABETES. A SYSTEMATIC REVIEW AND META-ANALYSIS.

AUTHORS: Bayona A (1,2), Martínez-Vaello V (1), Zamora J (3), Nattero-Chávez L (1,2), Luque-Ramírez M (1,2,4), Escobar-Morreale HF (1,2,4).

Affiliation: (1) Department of Endocrinology and Nutrition, Hospital Universitario Ramón y Cajal, Madrid, Spain; (2) Grupo de Diabetes, Obesidad y Reproducción Humana. Universidad de Alcalá & Instituto Ramón y Cajal de Investigación Sanitaria (IRYCIS) & Centro de Investigación en Biomédica en Red de Diabetes y Enfermedades Metabólicas asociadas (CIBERDEM), Spain; (3) Clinical Biostatistics Unit, Hospital Universitario Ramón y Cajal (IRYCIS), Madrid. Centro de Investigación Biomédica en Red de Epidemiología y Salud Pública (CIBERESP). Institute of Metabolism and Systems Research, University of Birmingham; (4) Universidad de Alcalá, Madrid, Spain.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #36 Type: Basic Science

TITLE: IMPACT OF SEX AND DIET-INDUCED OBESITY IN PRENATALLY ANDROGENIZED RATS

AUTHORS: Insenser M (1,2), Martínez-García M (1,2), Fiers T (3), Kaufman JM (3), Reyns T (3) Luque-Ramírez M (1,2), Escobar-Morreale HF (1,2).

Affiliation: (1) Diabetes, Obesity and Human Reproduction Research Group, Department of Endocrinology and Nutrition, Hospital Universitario Ramón y Cajal & Universidad de Alcalá & Instituto Ramón y Cajal de Investigación Sanitaria, Madrid, Spain. (2) Spanish Biomedical Research Centre in Diabetes and Associated Metabolic Disorders (CIBERDEM), Spain. (3) Laboratory for Hormonology and Department of Endocrinology, Ghent University Hospital, 9000 Ghent, Belgium.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #37 Type: Basic Science

TITLE: ROLE OF MICROGLIA IN POLYCYSTIC OVARY SYNDROME (PCOS)-LIKE BRAIN

AUTHORS: Sati A (1), Prescott M (1), Jasoni CL (2), Desroziers E (1), Campbell RE (1).

Affiliation: (1) Department of Physiology and Centre for Neuroendocrinology, School of Biomedical Sciences, University of Otago, Dunedin, New Zealand; (2) Department of Anatomy and Centre for Neuroendocrinology, School of Biomedical Sciences, University of Otago, Dunedin, New Zealand.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #38 Type: Clinical Science

TITLE: EFFECTS OF METFORMIN ON FOLISTATIN AND OXYNTOMODULIN LEVELS IN PCOS

AUTHORS: Rachel Damasceno[1], Flávia R Oliveira, Maíra Casalechi[1], Ana L Cândido[3], Fernando M Reis[1], Ana Luiza L Rocha[1]

Affiliation: [1]Department of Obstetrics and Gynecology, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, [2] Odete Valadares Maternity Hospital, Fundação Hospitalar do Estado de Minas Gerais, Belo Horizonte, Brazil [3] 4Department of Internal Medicine, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil,

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #39 Type: Translational Science

TITLE: DEEP LEARNING MODEL ANALYSIS OF LEUCOCYTE COUNTS AND PROLIFERATION IN NON-PCOS AND PCOS ENDOMETRIUM

AUTHORS: Kangasniemi MH (1), Komsi EK (1), Rossi HR (1), Liakka A (2), Khatun M (1), Chen JC (3), Paulson M (4,5), Hirschberg AL (4,5), Arffman RK (1), Piltonen TT (1)

Affiliation: (1) Dept. of Obstetrics and Gynecology, PEDEGO Research Unit, Medical Research Center, Oulu University Hospital, University of Oulu, Oulu, Finland; (2) Dept. of Pathology, Medical Research Center, Oulu University Hospital, University of Oulu, Oulu, Finland; (3) Dept. of Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco, CA, USA; (4) Dept. of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden; (5) Dept. of Gynecology and Reproductive Medicine, Karolinska University Hospital, Stockholm, Sweden

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #40 Type: Clinical Science

TITLE: THE PHENOTYPE OF PCOS CHANGES THROUGHOUT TIME: A 30-YEAR FOLLOW UP STUDY

AUTHORS: Dietz de Loos ALP (1), van Keizerswaard J (1), Louwers YV (1), Laven JSE (1)

Affiliation: (1) Division of Reproductive Endocrinology and Infertility, Dept. of Ob/Gyn, Erasmus MC, Rotterdam, the Netherlands.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #41 Type: Clinical Science

TITLE: Altered bile acids are related to BAs synthesis route in lean PCOS: potential role of androgen

AUTHORS: Yuchen Zhu, Chang Shan, Yi Zhang, Jie Yu, Yushan Li, Jiarong Fu, Tao Tao

Affiliation: Department of Endocrinology and Metabolism, Renji Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #42 Type: Translational Science

TITLE: Therapeutic potential of Mesenchymal Stem Cell derived Extracellular Vesicle to treat the PCOS

AUTHORS: Hang-soo Park, Esra Cetin, Hiba Siblini, Mohammad Mousaei Ghasroldasht, Farzana Begum Liakath Ali, Jin Seok, Ayman Al-Hendy

Affiliation: Department of Obstetrics and Gynecology, University of Chicago, 5841 S. Maryland Ave. Chicago, IL 60637, USA

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #43 Type: Clinical Science

TITLE: AMH, LH and FSH hormone levels through-out cycle phase in ovulatory and anovulatory women with PCOS

AUTHORS: Komsi EK (1), Nurmenniemi JK (1), Korhonen E (1), Koivurova S (1), Arffman RK (1), Piltonen TT (1).

Affiliation: (1). Dept. of Obstetrics and Gynecology, Medical Research Center, Oulu University Hospital, University of Oulu, Finland

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #44 Type: Translational Science

TITLE: DOES POLYCYSTIC OVARY SYNDROME (PCOS) AFFECT MALE GERMLINES TRANGENRATIONALLY?

AUTHORS: Sanjiv Risal1, Congru Li1,2, Qing Luo1,10, Romina Fornes1,3,10, Maria Manti1, Haojiang Lu1, Claes Ohlsson4, Eva Lindgren1, Nicolas Crisosto5,6, Manuel Maliqueo6, Barbara Echiburú6, Sergio Recabarren7, Teresa Sir Petermann6, Anna Benrick8,9, Nele Brusselae

Affiliation: 1 Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm, Sweden 2 Center of Reproductive Medicine, Department of Obstetrics and Gynecology, Peking University Third Hospital, Beijing 100191, China 3 Department of Microbiology, Tumor and Cell Biology, Karolinska Institutet, Stockholm, Sweden 4 Centre for Bone and Arthritis Research, Department of Internal Medicine and Clinical Nutrition, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden 5 Endocrinology and Metabolism Laboratory, West Division, School of Medicine, University of Chile, Carlos Schachtebeck 299, Interior Quinta Normal, Santiago, Chile 6 Endocrinology Unit, Clinica Las Condes, Estoril 450, Santiago, Chile 7 Laboratory of Animal Physiology and Endocrinology, Faculty of Veterinary Sciences, University of Concepción, Chillán, Chile 8 Department of Physiology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden 9 School of Health Sciences, University of Skövde, Skövde, Sweden 10 These authors contributed equally. 11 These authors jointly supervised this work.

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #45 Type: Basic Science

TITLE: INFLUENCE OF METFORMIN ON HYPERANDROGENISM IN WOMEN WITH PCOS: A META-ANALYSIS OF CLINICAL TRIALS

AUTHORS: Fontes AFS (1), Reis FM (2), Cândido AL (2), Gomes KB (1), Tosatti JAG (1)

Affiliation: (1) Department of Clinical and Toxicological Analysis, Faculty of Pharmacy, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil; (2) Department of Internal Medicine, Faculty of Medicine, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil;

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #47 Type: Clinical Science

TITLE: ANDROGENIC STATUS DURING REPRODUCTIVE AGE AND CARDIOMETABOLIC PROFILE YEARS LATER IN WOMEN WITH PCOS

AUTHORS: van der Ham K (1), Koster MPH (1), Velthuis BK (2), Budde RPJ (3), Fauser BCJM (4), Boersma E (5), Laven JSE (1), Louwers YV (1)

Affiliation: 1 Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Erasmus University Medical Center, Rotterdam, The Netherlands; 2 Department of Radiology, University Medical Center Utrecht, University of Utrecht, Utrecht, The Netherlands; 3 Department of Radiology, Erasmus University Medical Center, Rotterdam, The Netherlands; 4 Department of Reproductive Medicine & Gynecology, University Medical Center Utrecht, University of Utrecht, Utrecht, The Netherlands; 5 Department of Cardiology, Erasmus University Medical Center, Rotterdam, The Netherlands;

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).

ID #48 Type: Translational Science

TITLE: THE ROLE OF B CELLS IN IMMUNE CELL ACTIVATION IN POLYCYSTIC OVARY SYNDROME

AUTHORS: Angelo Ascani (1), Sara Torstensson (1), Sanjiv Risal (1), Haojiang Lu (1), Gustaw Eriksson (1), Congru Li (1), Katalin Sandor (1), Martin Helmut Stradner (2), Camilla I Svensson (1), Barbara Obermayer (2), Elisabet Stener-Victorin (1)

Affiliation: (1) Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm, Sweden (2) Department of Internal Medicine, Medical University Graz, Austria

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

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ID #49 Type: Translational Science

TITLE: RHESUS MACAQUE: MODEL FOR POLYCYSTIC OVARY SYNDROME & ENDOMETRIOSIS

AUTHORS: Rush, SK (1); Willging, MM (2); McGregor, SM (3); Simmons, H (4); Weisman, P (3); Kemnitz, JW (5); Levine, JE (6); Abbot, DH (7); Patankar, MS (8)

Affiliation: 1: Division of Gynecology Oncology, Department of Obstetrics & Gynecology, University of Wisconsin, Madison, WI 2: Center for Women's Health, Endocrinology Reproductive Physiology Graduate Training Program and Wisconsin National Primate Research Center, University of Wisconsin, Madison, WI 3: Department of Pathology, University of Wisconsin, Madison, WI 4: Department of Pathology Services and Tissue Distribution, Wisconsin National Primate Research Center, University of Wisconsin, Madison, WI 5: Department of Cell and Regenerative Biology, and Wisconsin National Primate Research Center, University of Wisconsin, Madison, WI 6: Department of Neuroscience, and Wisconsin National Primate Research Center, University of Wisconsin, Madison, WI 7: Department of Obstetrics and Gynecology, and Wisconsin National Primate Research Center, University of Wisconsin, Madison, WI 8: Endocrinology and Reproductive Physiology Program, Department of Obstetrics & Gynecology, University of Wisconsin, Madison, WI

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

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ID #50 Type: Basic Science

TITLE: OXIDATIVE STRESS AND WHITE ADIPOSE TISSUE IN A RAT MODEL OF POLYCYSTIC OVARY SYNDROME

AUTHORS: Pruett JE (1), Everman S (1), Salau F (1), Taylor L (1), Nguyen C (1), Hoang N (1), Edwards K (1), Hosler J (1), Romero DG (1-3), Yanes Cardozo LL (1-4)

Affiliation: (1) Dept. of Cell and Molecular Biology, University of Mississippi Medical Center (UMMC), Jackson, MS, USA; (2) Women's Health Research Center, UMMC, Jackson, MS, USA; (3) Cardio Renal Research Center, UMMC, Jackson, MS, USA; (4) Dept. of Medicine (Division of Endocrinology, Diabetes and Metabolism), UMMC, Jackson, MS, USA

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

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ID #51 Type: Clinical Science

TITLE: CHARACTERIZING PCOS BY ANDROGEN EXCESS AND OLIGO-ANOVULATION IN AN ELECTRONIC HEALTH RECORD DATASET

AUTHORS: Canseco Neri, J. (1), James, K. (1), Li, H. (2), Jiang, VS. (1), Mahalingaiah, S. (1,2)

Affiliation: (1) Dept. of Ob/Gyn, Massachusetts General Hospital, Boston, MA, USA; (2) Dept. of Environmental Health, Harvard T.H Chan School of Public Health, Boston, MA, USA

OBJECTIVE: To determine the impact of weight loss on the phenotypic presentation of PCOS and identify factors associated with phenotypic change.

METHODS: Women with PCOS and obesity (N=23) participated in a weight loss intervention requiring 2–4 visits per week to a clinical research center. PCOS was defined by the Rotterdam criteria and participants were designated, in order of phenotypic severity, as Frank, Non-PCO, Ovulatory and Non-Androgenic PCOS upon study entry. Participants consumed a hypocaloric commercial meal program for 3 (N=20) or 6 (N=3) months with the goal of 1–2lbs of weight loss per week. Weight and menstrual cycle status were monitored at least twice-weekly. Anthropometry, dual x-ray absorptiometry, transvaginal ultrasonography, hirsutism scoring and an oral glucose tolerance test were conducted at baseline and end of the intervention. Upon completion of the intervention, participants were grouped based on responsiveness to the intervention: 1) a positive responder (N=8) was defined by transition to a less severe PCOS phenotype, 2) a negative responder (N=8) by a transition to a more severe phenotype or 3) non-responders (N=7) had no change in phenotype. Differences in anthropometric, reproductive and metabolic features pre- and post-intervention were assessed by Wilcox signed-rank test and differences across groups by Kruskal-Wallis tests.

RESULTS: At baseline, 48% of participants were classified as Frank, 43% Non-Androgenic, 9% Non-PCO and none had Ovulatory PCOS. Post intervention, participants classified as Frank, Ovulatory, Non-Androgenic or Non-PCO changed to 44%, 26%, 22% and 4% respectively. One participant (4%) lost their PCOS designation. All participants experienced significant decreases in weight, waist and hips circumference, and percent total and abdominal fat during the intervention (all $p<0.05$), with average weight loss for the positive, no change and negative responder groups being -8.8%, -9.6%, -6.3%, respectively ($p=0.19$). Baseline free androgen index (FAI) ($p=0.041$) and sex-hormone binding globulin (SHBG) ($p=0.004$) concentrations as well as SHBG post-intervention ($p=0.011$) were significantly different across groups. Negative responders had higher baseline FAI versus the no change group ($p=0.047$). Likewise, baseline SHBG levels were lowest in negative responders with significant differences detected between negative and the no change group ($p=0.007$). Post intervention, lower SHBG persisted in the negative responders versus the no change group ($p=0.025$) and tended to be lower versus positive responders ($p=0.062$). No other anthropometric, reproductive or metabolic features differed across groups at baseline or post-intervention.

CONCLUSIONS: Intensive weight loss therapy is successful in driving phenotypic changes in PCOS. Individuals with higher FAI and lower SHBG levels are least likely to experience short-term phenotypic changes in PCOS. As such, free androgen status may serve as useful biomarker to predict phenotypic change in response to weight loss. (NIH R01HD09374, 4T32DK007158-41, 5R25GM125597-03; CIHR FRN146182).