



Selección de Resúmenes de Menopausia

Semana del 3 a 9 de enero 2024

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Modeling delay of age at natural menopause with planned tissue cryopreservation and autologous transplantation

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Background: Ovarian tissue cryopreservation has been proven to preserve fertility against gonadotoxic treatments. It has not been clear how this procedure would perform if planned for the purpose of slowing ovarian aging. **Objectives:** The objective of this study was to determine the feasibility of cryopreserving ovarian tissue to extend reproductive life span and delay menopause by auto-transplantation near menopause. **Study design:** Based on the existing biological data on follicle loss rates, we generated a stochastic model of primordial follicle wastage to determine the years of delay in menopause (denoted by D) by ovarian tissue cryopreservation and transplantation near menopause. Our model accounted for: i) age at ovarian tissue harvest (21-40), ii) the amount of ovarian cortex harvested, iii) transplantation of harvested tissues in single 6BBA 70D2 6E81 1433 DE98 B1A3 6F07 A0C4 7564 F1B6 versus multiple procedures (fractionation); and iv) post-transplant follicle survival (40%- conservative vs. 80%-improved vs. 100%-ideal/hypothetical). **Results:** Our model predicted that for most women aged <40 years, ovarian tissue cryopreservation and transplantation would result in a significant delay in menopause. The advantage is greater if the follicle loss post-transplant can be minimized. As an example, D for a woman with median ovarian reserve who cryopreserves 25% of her ovarian cortex at age 25 and for whom 40% of follicles survive post transplantation would be approximately 11.8 years but this extends to 15.5 years if the survival is 80%. As another novel finding, spreading the same amount tissue to repetitive transplants significantly extends the benefit. For example, for the same 25-year-old with median ovarian reserve, 25% cortex removal, and 40% follicle survival, fractionating the transplants to 3 or 6 procedures would result in the corresponding D of 23 or 31 years. The same conditions (3 or 6 procedures) would delay menopause as much as by 47 years if post-transplant follicle survival is improved to 80% with modern approaches. An interactive web tool was created to test all variables and feasibility of ovarian tissue freezing and transplantation to delay ovarian aging (here). **Conclusions:** Our model predicts that with harvesting at earlier adult ages and better transplant techniques, a significant menopause postponement and, potentially, fertile lifespan extension can be achieved by ovarian tissue cryopreservation and transplantation in healthy women.

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A comprehensive evaluation of predictors of obesity in women during the perimenopausal period: A systematic review and narrative synthesis

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Introduction: Obesity during perimenopausal transition can be attributed to various factors. Identifying these factors is crucial in preventing obesity and developing effective strategies to manage weight during this phase. This review aimed to systematically understand predictors of obesity during menopausal transition. **Methods:** The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and searched databases like PubMed, Wiley Online Library, and Cochrane Reviews. Cohort and cross-sectional studies in English language assessing obesity among menopausal women were included. The methodological quality was assessed using Joanna Briggs Checklist for critical appraisal. Risk of Bias (RoB) was generated using Review Manager 5.4.1 (RevMan). Identified predictors were assessed for overall quality of evidence using adopted Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. **Results:** This review encompassed 42 studies, (21 cross-sectional and 21 cohort) with sample ranging from 164 to 107,243 across studies. Higher parity (≥ 3 children) emerged as a strong predictor of obesity across seven studies, with good-quality evidence. Lower physical activity was another predictor, supported by eight studies with good-quality evidence. Sociodemographic factors like lower education (<8 years or < than college degree), socioeconomic background, menopausal transition, and older age at menarche showed associations with weight gain, with moderate-quality evidence. Lifestyle factors (high-fat consumption, sedentariness, active smoking status, and psychological difficulties) also showed moderate-quality evidence. **Conclusion:** This review underscores the multifaceted factors associated with obesity during the

perimenopausal transition. Identifying these factors will be helpful in prevention and management of obesity among these women.

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Different effects of CO2 laser and estrogen treatment on vaginal mucosa microbiota and function in genitourinary syndrome of menopause patients

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Aim: To characterize the effects of CO2 laser treatment and estrogen treatment on vaginal microbiota in patients with genitourinary syndrome of menopause (GSM). **Methods:** Sixty-four patients with genitourinary syndrome were divided into the estrogen group, the CO2 laser group, and the control group. The control group did not receive any treatment. Vaginal mucosa was collected after 3 and 12 months of treatment. The former was used for 16S rRNA sequencing, and the latter was used for pathological evaluation. Vaginal health and voiding function were assessed using the vaginal health index (VHI) scale and the UDI-6 scale at 3 and 12 months after treatment. **Results:** The results showed that both treatments reduced alpha diversity in the vaginal flora. Additionally, the abundance of 65 genera differed significantly between the treatment and control groups, with an increase in potentially beneficial bacteria such as *Lactobacillus*, *IheB3_7*, *Mycoplasma urealyticum*, and *Streptococcus*. In addition, the VHI and UDI-6 scores improved in both treatment groups compared to the control group after 3 months. Whereas VHI and UDI-6 scores were close to baseline in the estrogen group, and remained significantly improved in the CO2 laser group after 12 months. Pathological results showed that both methods improved the vaginal health status of patients with GSM after 12 months of treatment. However, the CO2 group exhibited a more significant increase in type III collagen. **Conclusions:** Both CO2 laser and estrogen therapies can regulate the vaginal flora imbalance of GSM and improve the corresponding symptoms. However, the long-term efficacy of CO2 laser therapy is superior compared to estrogen therapy.

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Impact of vaginal estriol on serum hormone levels: a systematic review

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The genitourinary syndrome of menopause (GSM) affects up to 84% of postmenopausal women and may significantly reduce the quality of life in some. For symptom relief, there are several non-hormonal and hormonal vaginal products available. In Europe, vaginal estriol (E3) is the most frequently chosen estrogen for GSM treatment. The aim of this systematic review was to assess the impact of vaginal E3 on serum sex hormone levels, an outcome that has been previously used to assess safety in similar products. In our review, we did not find any alterations in serum estrone, estradiol, testosterone, progesterone and sex hormone binding globulin levels after vaginal E3 application. In contrast, some studies showed a minimal and transient decrease in serum gonadotropin levels, which however remained within the postmenopausal range. Similarly, only a few studies reported a minimal and transient increase of serum E3 levels, with the rest reporting no changes. The lack of clinically relevant long-term changes in serum sex hormone levels supports the current literature providing evidence about the safety of vaginal E3 products.

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Connections between reproductive health and cognitive aging among women enrolled in the HCHS/SOL and SOL-INCA

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Introduction: Reproductive health history may contribute to cognitive aging and risk for Alzheimer's disease, but this is understudied among Hispanic/Latina women. **Methods:** Participants included 2126 Hispanic/Latina postmenopausal women (44 to 75 years) from the Study of Latinos-Investigation of Neurocognitive Aging. Survey linear regressions separately modeled the associations between reproductive health measures (age at menarche, history of oral contraceptive use, number of pregnancies, number of live births, age at menopause, female hormone use at Visit 1, and reproductive span) with cognitive outcomes at Visit 2 (performance, 7-year change, and mild cognitive impairment [MCI] prevalence). **Results:** Younger age at menarche, oral contraceptive use, lower pregnancies, lower live births, and older age at menopause were associated with better cognitive performance. Older age at menarche was protective

against cognitive change. Hormone use was linked to lower MCI prevalence. Discussion: Several aspects of reproductive health appear to impact cognitive aging among Hispanic/Latina women.

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Development and validation of an eight-item calcium screener to assess daily calcium intake of patients with osteoporosis in clinical practice

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Objective: To validate a short food frequency questionnaire (screener) estimating daily average calcium intake from dietary sources to guide calcium supplementation of patients with osteoporosis in clinical practice. **Methods:** An eight-item calcium screener was developed based on existing literature, food consumption data and expert opinion. Convergent validity was determined by comparison with 3-day food records using mean difference, Spearman's correlation coefficients (SCC) and Bland-Altman analysis. Test-retest reliability was assessed by SCC and intraclass correlation coefficients (ICC). We calculated sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) to identify patients requiring calcium supplementation (<1200 mg dietary calcium intake/day). **Results:** Fifty-two patients filled out the eight-item calcium screener and the 3-day Food record (mean age of 66.8 ± 12.9 (SD)) and 38 patients filled out the screener twice for reliability analysis (mean age of 65.8 ± 12.8 (SD)). Dietary calcium intake between the calcium screener and food records showed a strong correlation (N = 52 patients, SCC = 0.53, $p \leq 0.001$) and mean difference of 21 mg ($p = 0.70$). Bland-Altman analysis showed agreement within 95% confidence intervals for 49/52 comparisons (94%). Test-retest reliability of the calcium screener was excellent (SCC = 0.96, $p \leq 0.001$; ICC = 0.99, $p \leq 0.001$). **Conclusion:** The calcium screener shows good convergent validity, reliability and feasibility to estimate daily calcium intake of patients with osteoporosis in routine clinical practice.