Selección de Resúmenes de Menopausia

Semana de 13 al 19 de octubre de 2021
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Sex differences in Alzheimer's disease: metabolic reprogramming and therapeutic intervention

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Studies on the sporadic form of Alzheimer's disease (AD) have revealed three classes of risk factor: age, genetics, and sex. These risk factors point to a metabolic dysregulation as the origin of AD. Adaptive alterations in cerebral metabolism are the rationale for the Metabolic Reprogramming (MR) Theory of the origin of AD. The theory contends that the progression toward AD involves three adaptive events: a hypermetabolic phase, a prolonged prodromal phase, and a metabolic collapse. This article exploits the MR Theory to elucidate the effect of hormonal changes on the origin and progression of AD in women. The theory invokes bioenergetic signatures of the menopausal transition to propose sex-specific diagnostic program and therapeutic strategies.

The relationship between dairy products intake and breast cancer incidence: a meta-analysis of observational studies

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Background: The effect of dairy products intake on breast cancer (BC) is highly controversial. This study aims to investigate the relationship between dairy intake and BC incidence. Methods: A search was carried out in PubMed, EBSCO, Web of Science, and Cochrane Library databases before January 2021. The primary objective was the risk of BC and intake of dairy products were exposure variables. Results: The meta-analysis comprised 36 articles with 1,019,232 participants. Total dairy products have a protective effect on female population (hazard ratio (HR) =0.95, 95% confidence interval (CI) =0.91-0.99, p = 0.019), especially for estrogen receptor-positive (ER+) (HR = 0.79, p = 0.002) and progesterone receptor-positive (PR+) BC (HR = 0.75, p = 0.027). For ER+/PR+ BC, there is a trend of protection, but it has not reached statistical significance (HR = 0.92, p = 0.075). Fermented dairy products can reduce BC risk in postmenopausal population (HR = 0.96, 95%CI = 0.93-0.99, p = 0.021), but have no protective effect on premenopausal population (HR = 0.98, 95%CI = 0.94-1.03, p = 0.52). Non-fermented dairy products have no significant effect on BC occurrence (p > 0.05). High-fat dairy products are harmful to women, without statistical difference (HR = 1.06, 95%CI = 1.00-1.13, p = 0.066). On the contrary, low-fat dairy products can protect the premenopausal population (HR = 0.94, 95%CI = 0.89-1.00, p = 0.048). Conclusion: The intake of dairy products can overall reduce BC risk in the female population, but different dairy products have varying effects on different BC subtypes and menopausal status.

The Gut Microbiome and Sex Hormone-Related Diseases

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The role of the gut microbiome has been a hot topic in recent years. One aim of this review is to shed light on the crosstalk between sex hormones and the gut microbiome. Researchers have observed a sex bias of the composition of the gut microbiome in mice and have proved that sex differences influence the composition of the gut microbiome, although the influence is usually obscured by genetic variations. Via cell studies, animal studies and some observational studies in humans, researchers have confirmed that the gut microbiome can be shaped by the hormonal environment. On other hand, some theories suggest that the gut microbiota regulates the levels of sex hormones via interactions among its metabolites, the immune system, chronic inflammation and some nerve-endocrine axes, such as the gut-brain axis. In addition, bidirectional interactions between the microbiome and the hormonal system have also

been observed, and the mechanisms of these interactions are being explored. We further describe the role of the gut microbiome in sex hormone-related diseases, such as ovarian cancer, postmenopausal osteoporosis (PMOP), polycystic ovary syndrome and type 1 diabetes. Among these diseases, PMOP is described in detail. Finally, we discuss the treatments of these diseases and the application prospects of microbial intervention.

Parathyroid Hormone Disturbances in Postmenopausal Women with Distal Forearm Fracture

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Background: Primary hyperparathyroidism (PHPT) is a common endocrine disorder with a wide range of adverse effects, such as osteoporosis. Many women are not diagnosed due to asymptomatic disease or vague symptoms but are still at risk of severe adverse effects. Early identification of patients with PHPT is therefore of importance. The aim of this study was to determine PHPT prevalence among postmenopausal women with a distal forearm fracture. Methods: Recruitment was conducted in conjunction with the occurrence of a distal forearm fracture at Karolinska University Hospital. In total, 161 postmenopausal women were included in a cross-sectional study with repeated evaluations. Analyzes of serum calcium, ionized calcium, phosphate, parathyroid hormone (PTH), and vitamin D were performed. Diagnosis of PHPT was based on clinical evaluations and biochemical definitions of serum calcium and PTH in coherence with previous population prevalence reports. Results: Mean age was 64.7 (9.5) years, serum calcium 2.33 (0.10) mmol/L, ionized calcium 1.25 (0.05) mmol/L and PTH 54 (26) ng/L. PTH was elevated in 32 (20%) women. In total, 11 (6.8%) women were diagnosed with PHPT; 6 with classical PHPT and 5 with mild PHPT. The prevalence of PHPT was significantly increased compared to the population prevalence of 3.4% (p = 0.022). Conclusion: Screening postmenopausal women in conjunction with low-energy distal forearm fracture revealed a large number of women with parathyroid disturbance. Evaluation of parathyroid hormone and calcium status in this group of patients seems beneficial.

Effects of early estradiol valerate administration on bone turnover markers in surgically induced menopausal women

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Background: Compared with a natural process, surgically induced menopausal women have a higher bone loss rate. This study aims to evaluate early treatment with estradiol valerate on bone turnover markers after surgically induced menopause. Methods: This prospective study included 41 pre and perimenopausal women who underwent hysterectomy with oophorectomy for benign gynecologic conditions. Two weeks after the operation, all participants were assessed for menopausal hormone therapy (MHT) indications. Estrogen therapy was prescribed for those who had indications and accepted treatment (hormone treatment group). The others who had no MHT indication were allocated to the no-treatment group. Serum CTX and P1NP levels at preoperative and 12 weeks postoperative were measured and set as the primary outcome. Within the same group, serum CTX and P1NP before and after surgical menopause were analyzed using Wilcoxon signed-rank test. ANCOVA was used to compare serum CTX and P1NP at 12 weeks after surgical menopause between the two groups. Spearman's rank correlation coefficient analysis analyzed the correlation between age and baseline bone turnover markers. A p-value of < 0.05 was considered statistically significant. Results: At 12 weeks after surgery, there were no significant differences in serum CTX and P1NP levels in the hormone treatment group compared to baseline. In contrast, serum CTX and P1NP levels were significantly elevated among women who did not receive hormone treatment (p-value < 0.001 and 0.002, respectively). Serum CTX and P1NP at 12 weeks were significantly different between the two groups (p-value < 0.001 and 0.004, respectively). Conclusion: Early estrogen administration with oral estradiol valerate could significantly suppress the high bone remodeling in surgically induced menopausal women.

Romosozumab versus Teriparatide for the Treatment of Postmenopausal Osteoporosis: A Systematic Review and Meta-analysis through a Grade Analysis of Evidence

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Objective: To provide a systematic review about the efficacy and safety of romosozumab and teriparatide for the treatment of postmenopausal osteoporosis. Method: Randomized controlled trials (RCTs) were searched from electronic databases, including PubMed (1996 to June 2019), Embase (1980 to June 2019), Cochrane Library (CENTRAL, June 2019), Web of Science (1998 to June 2019), and others. The primary outcomes included the following: the percentage change in bone mineral density of lumbar spine and total hip from baseline at month 6 and month 12 in each group. The secondary outcomes included the following: the percentage change in bone mineral density of femoral neck from baseline at month 6 and month 12 in each group and the incidence of adverse events at month 12 in each group. Results: Four studies containing 1304 patients met our selection criteria. The result of our analysis indicated that romosozumab showed better effects in improving BMD of lumbar spine (month 6: MD = 3.54, 95% CI [3.13, 3.94], P<0.001; month 12: MD = 4.93, 95% CI [4.21, 5.64], P<0.001), total hip (month 6: MD = 2.27, 95% CI [0.62, 3.91], P = 0.007; month 12: MD = 3.17, 95% CI [2.68, 3.65], P<0.001), and femoral neck (month 6: MD = 2.30, 95% CI [0.51, 4.08], P = 0.01; month 12: MD = 3.04, 95% CI [2.29, 3.78], P<0.001). Also, the injection-site reaction was less (month 12: RR = 2.84, 95% CI [1.22, 6.59], P = 0.02), but there were no significant difference in the incidence of serious adverse events (month 12: RR = 0.78, 95% CI [0.46, 1.33], P = 0.37) and death (month 12: RR = 0.61, 95% CI [0.08, 4.62], P = 0.63). Conclusion: Based on the available studies, our current results demonstrate that romosozumab was better than teriparatide both in terms of efficacy and side effects.

Effects of estradiol supplementation on the brain transcriptome of old rhesus macaques maintained on an obesogenic diet

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Obesity, the cessation of ovarian steroids with menopause, and age are risk factors for mood disorders, dementia, and Alzheimer's disease (AD). However, immediate hormone therapy (HT) after menopause may have beneficial effects in different brain regions involved in memory and cognition. To more closely replicate the age, endocrine, and metabolic environment of obese postmenopausal women, either on or off HT, middle-aged female rhesus macaques were ovariectomized/hysterectomized (OvH) and maintained on a high-fat, high-sugar, obesogenic Western-style diet (WSD) for 30 months; half of the animals received HT immediately after OvH and half served as placebo controls. RNAseq of the occipital (OC) and prefrontal cortex (PFC), hippocampus (HIP), and amygdala (AMG) identified 293, 379, 505, and 4993 differentially expressed genes (DEGs), respectively. Pathway enrichment analysis identified an activation of neuroinflammation in OC and HIP, but an inhibition in the AMG with HT. Synaptogenesis, circadian rhythm, mitochondrial dysfunction, mTOR, glutamate, serotonin, GABA, dopamine, epinephrine/norepinephrine, glucocorticoid receptor signaling, neuronal NOS, and amyloid processing were exclusively enriched in AMG. As compared to the placebo control group, most of these signaling pathways are downregulated after HT, suggesting a protective effect of HT in OvH females under a WSD. Overall, our results suggest that a chronic obesogenic diet may induce a wide range of alterations in multiple signaling pathways that are linked to age-associated brain pathology and dementia. In these individuals, HT seems to have a protective effect against neuroinflammation, amyloid beta depositions, and tau tangle formation.