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HT: pharmacology tailored to women's health

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Menopausal hormonal therapy (HT) has a multifaceted balance of benefits and risks. Contemporary findings from the Women's Health Initiative (WHI) and other studies suggest that a woman's clinical and biological characteristics may modify her health outcomes of HT. An emerging body of evidence suggests that it may be possible to identify women who are more likely to have favorable outcomes and less likely to have adverse events on HT, as well as to tailor the optimal dose, formulation, and route of delivery of treatment, by the use of individual risk stratification and a personalized approach. Pharmacogenomics is one aspect of precision medicine that has the potential to impact all areas of medicine, including HT. The goal of pharmacogenomics is to to predict how an individual will respond to a drug aiding clinicians in selecting the right formulation, in the right dose, at the right time, in order to ensure drug efficacy and to avoid adverse drug reactions. Estrogen is the most effective treatment for vasomotor and other symptoms related to menopause, and the current approach to individualizing HT includes consideration of the severity of the menopausal symptoms and a personalized risk assessment. There is significant variability in the doses required for symptom relief. For women experiencing primary ovarian insufficiency (POI) or early menopause, estrogen therapy is needed not only for symptom management, but also to protect against the potential long-term adverse health consequences. While the doses or serum levels of estradiol required for bone protection have been determined, the pharmacological dose or perhaps more importantly, the serum or tissue levels needed for brain and heart protection in women with POI or early menopause is yet to be determined. Several clinical characteristics that have been proposed for this purpose apart from menopausal age and including symptom severity, baseline clinical vascular health, risk for breast cancer, biomarker levels, and genetic predisposition. The underlying rationale behind personalized medicine, applies well to HT decision making and holds promise for improved treatment efficacy and safety. With focus on vascular health the current presentation, reviews the evidence of tailoring HT use, with the goal of developing such personalized risk:benefit prediction that takes into account clinical and genetic factors, “patient-centered” outcomes and pharmacological issues linked to the route of HT administration

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