The Effects of Lifetime Estrogen Exposure on Cognition in Post-Menopausal Women

In recent years there has been a growing body of research honing in on the effect of estrogen on cognitive function, especially after menopause. Throughout a typical life cycle women are exposed to a vast amount of biological events that can alter the amount of hormones in the body. A number of things can influence how much endogenous estrogen a woman is exposed to such as contraceptives, having children (when and how many), breast-feeding, surgically induced menopause, naturally occurring menopause, and hormone replacement therapy (Siiteri and MacDonald, 1966).

The current study examined the relationship between the amount of estrogen exposure throughout the lifetime and cognitive function in sixty-seven postmenopausal women. Participants were recruited for one 3-hour study visit at the Clinical Research Center (CRC) at the University of Vermont Medical Center. The women completed medical history forms, behavioral assessments, an estrogen exposure form, episodic memory, and working memory tasks. It was predicted that women who were exposed to more estrogen throughout the lifetime would have better scores on cognitive tasks than women who had less estrogen exposure.

The findings show that the overall measure of hormone exposure was not related to cognitive performance after menopause. However individual factors, such as whether or not women took post-menopausal therapy, did affect cognition. Women who did not use hormone therapy performed better on a measure of episodic memory. In addition, the length of time spent on hormonal contraceptives during the reproductive period affected the participant’s abilities on the episodic memory measure such that women using hormonal contraceptives for more than five years had better scores compared to their counterparts. These data have implications for understanding lifetime hormonal factors and cognition in older women.