Women who undergo bilateral oophorectomy before the onset of menopause experience a sudden and complete loss of estrogen and other ovarian hormones at an age when such hormones are normally present. This group of women offers a unique setting to study the effects of ovarian hormones on brain aging. However, the evidence that bilateral oophorectomy may be an important risk factor for cognitive decline or dementia remains limited. We first reported evidence of this association from the Mayo Clinic Cohort Study of Oophorectomy and Aging in 2007 (Rocca et al., 2007). The risk increased with younger age at oophorectomy, did not vary by indication for the oophorectomy, and was attenuated by estrogen treatment after the surgery. The findings from the Mayo Clinic study were replicated three years later by a Danish nationwide study (Phung et al., 2010; Rocca et al., 2012), four years later by a Chinese study (Zhou et al., 2011), and most recently by a second US study (Bove et al., 2013). Women who underwent early surgical menopause had faster cognitive decline, developed more neuritic plaques, and had worse global pathology scores. Bove and colleagues also reported a beneficial effect of estrogen treatment after the oophorectomy.