Data Back Familial Risk for Pelvic Organ Prolapse

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CHAMPIONSGATE, FLA. — First-degree relatives of a woman with pelvic organ prolapse have at least a fourfold increased risk of developing the condition, according to a large genetic database study presented at the annual meeting of the Society of Gynecologic Surgeons.

Investigators found a nonsignificant increased risk for second-degree relatives and a significantly higher risk among third-degree relatives of the 1,292 women with pelvic organ prolapse studied in the Utah Population Database.

"It could be a function of second-degree relatives being older and having no [diagnostic] codes because they have died, or they are young and have yet to develop these conditions," Dr. Peggy Norton said at the meeting, which was jointly sponsored by the American College of Surgeons.

"Little is known about the etiology or natural history of pelvic organ prolapse. Many complex diseases with unknown mechanisms have been found to have genetic etiologies, beginning with evidence of heritability and resulting in discovery of specific gene mutations," said Dr. Norton, chief of the division of urogynecology and pelvic reconstructive surgery at the University of Utah in Salt Lake City.

"Any standard gyn. textbook lists a genetic risk for prolapse, although with very little data," study discussant Dr. Anne K. Wiskind said.

Several studies published in 2006 proposed a familial pattern to pelvic organ prolapse. For example, investigators in one study identified 10 patients aged under 55 years with a family pattern of prolapse (Int. Urogynecol. J. Pelvic Floor Dysfunct. 2006;17:498-501).

The inheritance pattern of pelvic organ prolapse within the families revealed both maternal and paternal transmissions. Relative risk to siblings of affected patients was five times the risk for the general population.

The current study utilizes the Utah Population Database. Beginning in 1994, 2.2 million individuals with genealogic records of three generations or more were linked to ICD and CPT diagnosis codes at the University of Utah.

"My initial bias was, how can this be generalizable from a uniform, Caucasian, Mormon population? But Mormons have a large, heterogeneous gene pool," said Dr. Wiskind, an ob.gyn. in private practice in Atlanta.

Dr. Norton and her associates identified first-, second-, and third-degree female relatives of the 1,292 probands with prolapse. One aim was to see which relatives had a diagnostic and/or procedure code for the condition as well. Age- and parity-matched women from a general database were used as a control group.

"We found at least a fourfold increased risk in first-degree relatives, such as sisters and daughters, compared to the first-degree relatives of controls," Dr. Norton said. The difference was statistically significant (relative risk, 4.15). In contrast, second-degree relatives had a relative risk of 1.20 and third-degree relatives had a relative risk of 1.24.

"Some of those age- and parity-matched controls will have some degree of prolapse—so it will be underestimation," Dr. Norton said. In addition, "the relative risk in the database is not the same as the disease risk in the population."

Data have only been collected since 1994, which is a limitation of the study, Dr. Norton said. "It's easier in the cancer registries—there are 40 years of data in Utah."

The study findings have important clinical and research implications, Dr. Norton said. "Heritability is an important risk factor for pelvic organ prolapse that may be identified before major promoting events, such as childbirth." In addition, the identification of high-risk pedigrees may allow scientists to search for genetic mutations.

A meeting attendee commented that family analysis of women with pelvic organ prolapse also can reveal a higher incidence of umbilical and inguinal hernias in male relatives.

"We submitted an abstract to ACS on that topic," Dr. Norton said.

The current study was supported by a grant from the National Institutes of Child Health and Human Development.

"The NIH is now adding all Utah hospital data, not just from the University of Utah, to be completed in next year," Dr. Norton said. "It should be interesting to see what happens." ■