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Risk of cancer in infertile women: analysis of US claims data

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Abstract

STUDY QUESTION

Is female infertility associated with higher risk of cancer?

SUMMARY ANSWER

Although absolute risks are low, infertility is associated with higher risk of cancer compared to a group of non-infertile women.

WHAT IS KNOWN ALREADY

Sk Infertile women are at higher risk of hormone-sensitive cancers. Information on risk of non-gynecologic cancers is rare and conflicting, and the effect of pregnancy on these risk associations is known for only a minority of cancer types.

STUDY DESIGN, SIZE, DURATION

Retrospective cohort analysis between 2003 and 2016 using an insurance claims database.

PARTICIPANTS/MATERIALS, SETTING, METHODS

In all, 64 345 infertile women identified by infertility diagnosis, testing or treatment were compared to 3 128 345 non-infertile patients seeking routine gynecologic care. Women with prior diagnosis of cancer or within 6 months of index event were excluded. Main outcomes were development of any malignancy and individual cancers as identified by ICD-9/ICD-10 codes. Results were adjusted for age at index date, index year, nulliparity, race, smoking, obesity, number of visits per year and highest level of education.

MAIN RESULTS AND THE ROLE OF CHANCE

Infertile women had an overall higher risk of developing cancer compared to non-infertile women (2.0 versus 1.7%, adjusted hazard ratio (aHR) = 1.18; CI: 1.12–1.24). In addition, the risk of uterine cancer (0.10 versus 0.06%, aHR = 1.78; CI: 1.39–2.28), ovarian cancer (0.14 versus 0.09%, aHR 1.64; CI: 1.33–2.01), lung cancer (0.21 versus 0.21%, aHR = 1.38; CI: 1.01–1.88), thyroid cancer (0.21 versus 0.16%, aHR = 1.29; CI: 1.09–1.53), leukemia (0.10 versus 0.06%, aHR = 1.55; CI: 1.21–1.98) and liver and gallbladder cancer (0.05 versus 0.03%, aHR = 1.59; CI: 1.11–2.30) were higher in infertile women compared to non-infertile women. In a subgroup analysis of women in each cohort who became pregnant and had a delivery during enrollment, the risk of uterine and ovarian cancer were similar between infertile and non-infertile women. In a subgroup analysis excluding women with PCOS and endometriosis from both cohorts, the risk of uterine cancer was similar between infertile and non-infertile women.

LIMITATIONS, REASONS FOR CAUTION

Absolute risk of cancer was low, average follow up for each individual was limited, and average age at index date was limited. Insurance databases have known limitations.

WIDER IMPLICATIONS OF THE FINDINGS

Using claims-based data, we report that infertile women may have a higher risk of certain cancers in the years after infertility evaluation; continued follow up should be considered after reproductive goals are achieved.

Sk STUDY FUNDING/COMPETING INTEREST(S)

None.

Keywords: [female infertility](#), [fertility treatment](#), [cancer](#), [assisted reproduction](#), [malignancy](#)

Topic: [cancer](#), [female infertility](#), [follow-up](#), [infertility](#), [diagnosis](#), [cancer risk](#)

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