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LETTER TO THE EDITOR

Use of oral contraceptives and risk of pancreatic cancer in women: A recalculated meta-analysis of prospective cohort studies

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Abstract

In a recent systematic review and meta-analysis of observational studies, the author found potential errors in the selection and extraction processes. The recalculated summary relative risks and the results of a dose-response meta-analysis showed that oral contraceptive use may not be associated with the risk of pancreatic cancer in women.

Key Words: Pancreas neoplasms; Oral contraceptives; Risk factor; Meta-analysis; Risk assessment; Systematic review

Core Tip: A systematic review and meta-analysis of observational studies conducted recently concluded that oral contraceptive use was associated with a decreased risk of pancreatic cancer in women. However, the author found potential errors in the selection and extraction processes. The recalculated summary relative risks and the results of a dose-response meta-analysis showed that oral contraceptive use may not be associated with the risk of pancreatic cancer in women. As this conclusion contradicted that reported recently, it is necessary to re-evaluate the direction and statistical significance of this risk through an updated meta-analysis in the future.

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TO THE EDITOR

I recently read the systematic review and meta-analysis conducted by Ilic *et al*[1] comprising 10 case-control studies and 11 cohort studies, which concluded that the use of oral contraceptives (OCU) was associated with a decreased risk of pancreatic cancer in women (PCW) [summary relative risk (sRR) = 0.85; 95% confidence intervals (CI) = 0.73-0.98; P = 0.03]. Interestingly, the subgroup analysis according to the study design showed no statistical significance in case-control studies but showed borderline statistical significance in cohort studies (sRR = 0.84; 95%CI = 0.70-1.00; P = 0.05).

However, while reviewing the results of the 11 selected cohort studies, I found the following potential errors. First, among the 11 selected studies, the study by Teras *et al* [2] was a cohort study that analyzed the mortality of PCW; therefore, excluding this study would be valid based on the research hypothesis; second, it would be necessary to include the two cohort studies[3,4] that were considered in other studies on the risk of various cancers associated with OCU[5,6]; finally, in the two studies that did not provide an RR for the ever group[7,8], the RR's direction was opposite to that of the forest plot shown in the study by Ilic *et al*[1].

Considering these issues, I recalculated the sRR of the longest duration (LD) group as well as the ever group. The statistical significance disappeared in both groups, and the sRRs were 1 or higher (Figure 1). Egger's test was performed to evaluate publication bias, and no statistical significance was noted in either group (P = 0.439 and 0.817 in the ever group and LD group, respectively).

Eight of the 12 selected cohorts[3,7-13] provided the information necessary for performing a dose-response meta-analysis. A two-stage random-effects dose-response model was used with a dosing unit of 1 year (P of goodness-of-fit = 0.041). The results showed borderline statistical significance with a linear dose-response relationship between OCU duration and PCW risk (sRR = 1.015; 95%CI = 0.999-1.030; P = 0.057) (Figure 2).

Based on the results of the recalculated sRRs and DRMA, the OCU may not be associated with the risk of PCW. Because my conclusion contradicts that reported by Ilic *et al*[1], it is necessary to re-evaluate the direction and statistical significance of risk through an updated meta-analysis in the future.

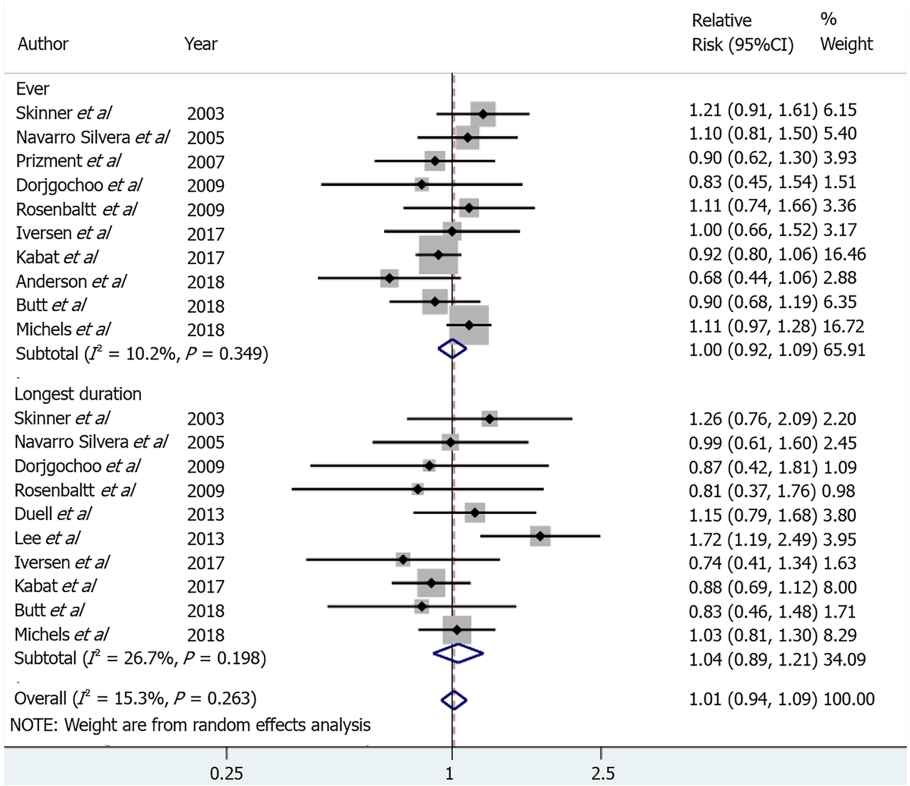

Figure 1 Forest plots in the ever and the longest duration group.

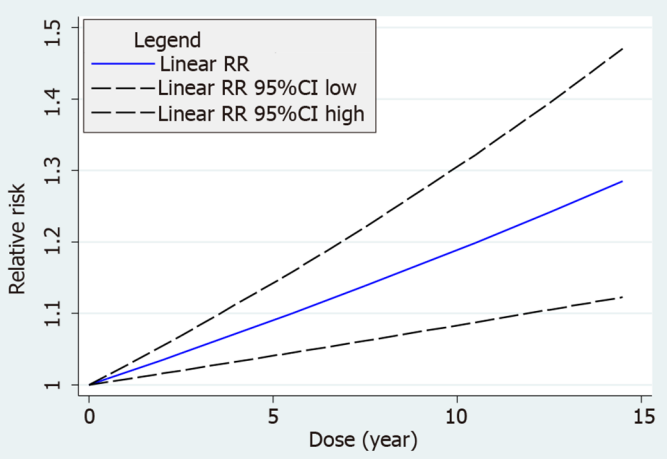

Figure 2 The linear dose-response relationship between duration (year) of oral contraceptive usage and risk of pancreatic cancer in women. RR: Relative risk.

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