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Perineal application of cosmetic talc and risk of invasive epithelial ovarian cancer: a meta-analysis of 11,933 subjects from sixteen observational studies.

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OBJECTIVE: Prior epidemiological studies suggest an association between perineal cosmetic talc use and increased risk of epithelial ovarian cancer. A meta-analysis was performed to evaluate this suspected association. **MATERIALS AND METHODS:** Using previously described methods, a protocol was developed for a meta-analysis examining the association between perineal talc use versus non-use and the development of invasive epithelial ovarian cancer. Literature search techniques, study inclusion criteria and statistical procedures were prospectively defined. Data from observational studies were pooled using a general variance based meta-analytic method employing confidence intervals previously described by Greenland. The outcome of interest was a summary relative risk (RRs) reflecting the risk of ovarian cancer development associated with perineal talc use versus non-use. Sensitivity analyses were performed when necessary to explain any observed statistical heterogeneity. **RESULTS:** Sixteen observational studies meeting protocol specified inclusion criteria were located via a comprehensive literature search. These studies enrolled a total of 11,933 subjects. Analysis for heterogeneity demonstrated that the data were homogenous ($p = 0.17$) and could be combined in a meta-analysis. Pooling all sixteen studies yielded a RRs of 1.33 (CI = 1.16-1.45), a statistically significant result suggesting a 33% increased risk of ovarian cancer with perineal talc use. Despite this finding, the data showed a lack of a clear dose-response relationship making the RRs of questionable validity. Further sensitivity analyses showed that hospital-based studies showed no relationship between talc use and ovarian cancer risk, i.e. RRs 1.19 (0.99-1.41) versus population-based studies (RRs = 1.38, CI = 1.25-1.52). This suggests that selection bias and/or uncontrolled confounding may result in a spurious positive association between talc use and ovarian cancer risk in population-based studies. **CONCLUSION:** The available observational data do not support the existence of a causal relationship between perineal talc exposure and an increased risk of epithelial ovarian cancer. Selection bias and uncontrolled confounding may account for the positive associations seen in prior epidemiological studies.