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Does race modify the association between CYP1B1 Val432Leu polymorphism and breast cancer risk? A critical appraisal of a recent meta-analysis.

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Dear Editor,

We read with great interest the recent meta-analysis by Yao et al.[1], which has reached important conclusions about the association CYP1B1 Val432Leu polymorphism and breast cancer risk. Yao et al.[1] did not demonstrate any significant associations between CYP1B1 Val432Leu polymorphism and breast cancer susceptibility, either at the overall or the race-specific analyses (Asian, Caucasian, African and Mixed).

Nevertheless, close inspection of the studies analyzed by the authors revealed some methodological issues that are worth mentioning and clarifying. Adopting the same search strategy and end-of-search date as Yao et al.[1], we have located three relevant case-control studies in MEDLINE with a total number of 685 breast cancer cases and 931 controls, which have not been included in the meta-analysis[2-4]. Of note, all three case-control studies were performed on Caucasian populations.

Moreover, a methodological issue seems worth commenting. Specifically, the study by Van Emburgh et al.[5] has provided separate data on Caucasian (381 cases and 412 controls) and African-American (52 cases and 77 controls) subpopulations; worthy of note Yao et al.[1] classified the study as a study on "mixed" populations and did not extract the reported separate data on Caucasian and African-American subgroups. Under the light of the above we have performed the overall meta-analysis, as well as the race-specific analyses in Caucasian, African and mixed populations; the analysis on Asian subjects has been spared, since the issues mentioned above did not pertain to Asian studies.

The overall meta-analysis, as well as the analyses on Caucasian and mixed populations replicated the results reported by Yao et al.[1]; on the other hand a statistically significant

finding emerged on African populations. Specifically, at the overall analysis the pooled Odds Ratios (ORs) (95% Confidence Intervals, CI) were 1.021 (0.941-1.109, random effects) for heterozygous and 1.034 (0.930-1.150, random effects) for homozygous Val subjects. Concerning Caucasian subjects, the pooled OR were 1.051 (0.939-1.176, random effects) for heterozygous carriers and 1.038 (0.912-1.180, random effects) for homozygous carriers. Subanalysis on African subjects demonstrated that heterozygous carriers were associated with increased breast cancer risk (pooled OR=1.918, 95% CI: 1.011-3.638, p=0.046, fixed effects), whereas the results concerning homozygous carriers remained at the level of borderline significance (pooled OR= 1.773, 95% CI: 0.947-3.318, p=0.073, fixed effects).

In conclusion, race-specific associations between CYP1B1 Val432Leu polymorphism and breast cancer risk may well exist; further studies on African populations are needed so as to validate the present results in larger sets of case-control studies.

References

1. Yao L, Fang F, Wu Q, Zhong Y, Yu L No association between CYP1B1 Val432Leu polymorphism and breast cancer risk: a meta-analysis involving 40,303 subjects. Breast Cancer Res Treat 122:237-242.
2. Listgarten J, Damaraju S, Poulin B, Cook L, Dufour J, Driga A, Mackey J, Wishart D, Greiner R, Zanke B (2004) Predictive models for breast cancer susceptibility from multiple single nucleotide polymorphisms. Clin Cancer Res 10:2725-2737.
3. Zimarina TC, Kristensen VN, Imianitov EN, Bershtein LM (2004) [Polymorphisms of CYP1B1 and COMT in breast and endometrial cancer]. Mol Biol (Mosk) 38:386-393.
4. Diergaarde B, Potter JD, Jupe ER, Manjeshwar S, Shimasaki CD, Pugh TW, Defreese DC, Gramling BA, Evans I, White E (2008) Polymorphisms in genes involved in sex hormone metabolism, estrogen plus progestin hormone therapy use, and risk of postmenopausal breast cancer. Cancer Epidemiol Biomarkers Prev 17:1751-1759.
5. Van Emburgh BO, Hu JJ, Levine EA, Mosley LJ, Perrier ND, Freimanis RI, Allen GO, Rubin P, Sherrill GB, Shaw CS et al (2008) Polymorphisms in CYP1B1, GSTM1, GSTT1 and GSTP1, and susceptibility to breast cancer. Oncol Rep 19:1311-1321.