Letter to the Editor

Reply: Koilocytes indicate a role for human papilloma virus in breast cancer

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Sir,

We reported the unambiguous presence of human papilloma virus (HPV) type 18 and HPV-associated koilocytes in breast cancers that had occurred in Australian women (Heng et al, 2009; Lawson et al, 2009). Koilocytes are epithelial cells characterised by perinuclear haloes surrounding condensed nuclei and are specifically associated with HPV infections and early oncogenic processes.

Sandstrom (2010) has made several interesting and important comments about these reports, namely: (i) he and his colleagues had previously made similar observations of HPV-associated koilocytes in breast cancer cases; (ii) Sarkola et al (2008) had identified HPV 16 in 4% of 223 human breast milk samples in Finland; and (iii) Cazzaniga et al (2009) had identified HPV of multiple types in 14% of 90 breast ductal lavages, HPV 16 in one of 10 breast colostrum samples, and HPV 5 and 23 in two of 25 breast milk samples in Italy.

We have also identified high-risk HPV (type 16) in human breast milk from normal unselected women. We used standard and in situ PCR techniques with identical primers and methods as reported in Heng et al (2009) to seek to identify HPV in breast milk. Using standard PCR, we screened DNA extracted from 24 samples of human breast milk from unselected normal (no history of breast cancer) women. Two (8.3%) were positive, both of whom were HPV type 16 as demonstrated by automated sequencing. In a different set of milk samples, using in situ PCR, we demonstrated HPV 16 in the nuclei of epithelial cells of one sample. This latter observation indicated that the outcomes based on standard PCR were unlikely to be due to contamination.

The implication of these various observations, including the identification of high-risk HPV in the Australian milk samples, is suggestive of a possible causal role of high-risk HPV in some breast cancers.

REFERENCES

Cazzaniga M, Gheit T, Casadio C, Kahn N, Macie D, Valenti F, Miller MJ, Sylla BS, Akiba S, Bonnani B, Decensi A, Veronesi V, Tommasino M (2009) Analysis of the presence of cutaneous and mucosal papilloma virus types in ductal lavage fluid, milk, and colostrum to evaluate its role in breast carcinogenesis. Breast Cancer Res Treat 114: 599–605
Heng B, Glenn WK, Ye Y, Tran D, Delprado W, Lutze-Mann L, Whitaker NJ, Lawson JS (2009) Human papilloma virus is associated with breast cancer. Br J Cancer 101: 1345–1350
Lawson JS, Glenn WK, Heng B, Ye Y, Tran B, Lutze-Mann L, Whitaker NJ (2009) Koilocytes indicate a role for human papilloma virus in breast cancer. Br J Cancer 101: 1351–1356
Sandstrom RE (2010) Koilocytes indicate a role for human papilloma virus in breast cancer. Br J Cancer 102: 786–787
Sarkola M, Funtala M, Grenman S, Syganen S (2008) Human papillomavirus DNA detected in breast milk. Ped Inf Dis J 27: 557–558

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