

Letter to the Editor

Are some breast cancers sexually transmitted?

JS Lawson^{*,1}, C-Y Kan¹, BJ Iacopetta¹ and NJ Whitaker¹¹School of Biotechnology and Biomolecular Sciences, University of New South Wales, 36 The Point Road, Woolwich, NSW 2110, Australia

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Sir,

High-risk human papilloma viruses (HPVs) have been consistently identified in 13–86% of breast tumours in the 10 studies published since 1999 (Lawson *et al*, 2006). High-risk HPVs of the same type have been identified in both cervical and breast cancer that had occurred in the same women (Hennig *et al*, 1999; Widschwendter *et al*, 2004). This observation has led to the hypothesis that HPVs may be transmitted to the breast during sexual activities (Kan *et al*, 2005). If this hypothesis is correct, it is likely that HPV-positive breast cancers would occur in women younger than those with HPV-negative breast cancer. This is because HPV genital infections are much more common in young women who have had multiple sexual partners (IARC, 1995).

There are only two studies in which the age of women with HPV-positive and -negative breast cancer has been published. There were no differences in the average of age of women with either HPV-positive and -negative breast cancer in a study of Brazilian women (Damin *et al*, 2004). This is in contrast to a recent study of Greek women in which those with HPV-positive breast cancer were of average age 38 years as compared to average age 53 years for women with HPV-negative breast cancer (*P*-values for difference = 0.001) (Kroupis *et al*, 2006).

REFERENCES

- Damin APS, Karam R, Zettler CG, Caleffi M, Alexandre COP (2004) Evidence for an association of human papillomavirus and breast carcinomas. *Breast Cancer Res Treatment* 84: 131–137
- Hennig EM, Suo Z, Thoresen S, Holm R, Kvinnsland S, Nesland JM (1999) Human papillomavirus 16 in breast cancer of women treated for high grade cervical intraepithelial neoplasia (CIN III). *Breast Cancer Res Treatment* 53: 121–135
- International Agency for Research on Cancer (IARC) (1995) *Monographs on the Evaluation of Carcinogenic Risks to Humans: Human Papillomaviruses* Vol 64. France: Lyon
- Kan C-Y, Iacopetta BJ, Lawson JS, Whitaker NJ (2005) Identification of human papillomavirus DNA gene sequences in human breast cancer. *Br J Cancer* 93: 946–948
- Kroupis C, Markou A, Vourlidis N, Dionysiou-Asteriou A, Lianidou ES (2006) Presence of high-risk human papillomavirus sequences in breast cancer tissues and association with histopathological characteristics. *Clin Biochem* 39: 727–731
- Lawson JS, Guenzburg W, Whitaker NJ (2006) Viruses and breast cancer. *Future Microbiol* 1: 33–51
- Widschwendter A, Brunhuber T, Wiedemair A, Mueller-Holzner E, Marth C (2004) Detection of human papillomavirus DNA in breast cancer of patients with cervical cancer history. *J Clin Virol* 31: 292–297

Table 1 Age of Australian women with HPV-positive and -negative breast cancer

	HPV positive	HPV negative
Number of women	24	26
Average age (years)	55.6	63.8

HPV = human papilloma virus. *P*-value for difference in average ages = 0.049, which is significant at the 95% level.

We have reviewed the ages of Australian women with HPV-positive and -negative breast cancer in our study published in this Journal (Kan *et al*, 2005). These data are shown in Table 1. The average age of women with HPV-positive breast cancer was 55.6 years as compared to 63.8 years for women with HPV-negative breast cancer (*P*-values for difference = 0.049). These data are compatible with the hypothesis that HPV-positive breast cancers occur in younger women than those with HPV-negative breast cancers, and that high-risk HPVs may have been transmitted by sexual activity with HPV-positive sexual partners.

*Correspondence: Professor Emeritus JS Lawson;
E-mail: James.Lawson@unsw.edu.au
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