Head & Neck Oncology

Poster presentation

Vascular mimicry in head and neck tumours

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Introduction

Angiogenesis has been extensively investigated in several tumour models; however, chemotherapeutic agents based upon these models have not been very effective. It is logical to assume this lack of efficacy is due to the host tumour interface. Furthermore, it is a reasonable hypothesis that the transition between the host vasculature and tumour is not binomial but a gradual transition from tumour and mosaic vessels to host capillaries. The existence of such pure tumour and mosaic vessels would suggest the possibility of tumour vascular mimicry in the connecting vessels.

Materials and methods

Primary and metastatic tumour cells lines were developed 'in-house' and checked to be free from mycoplasma infection. A positive control HUVEC (vascular endothelial cell line) was used. An anti-endothelial antibody was then used. The growth of the cell lines was assessed. Other tumour cell lines were then investigated for similar properties as were primary and metastatic cell lines.

Results

Certain head and neck tumours display the phenomena of vascular mimicry when grown on collagen substrate ($p < 0.001$). This is more so in cell lines derived from metastases than primary tumours. This was found in some other non head and neck tumour cell lines. The cell lines had a reduced capacity to undergo vascular mimicry when exposed to specific anti-endothelial growth factor antibodies.

Conclusion

The phenomenon of tumour vascular mimicry has important implications for future chemotherapeutic drug design.