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Cancer Surveys: Cancer, HIV and AIDS

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1 in 6 people with AIDS in the USA or Europe has cancer, albeit an unusual cancer such as Kaposi's sarcoma or non-Hodgkin lymphoma. This review, discussed elsewhere in detail [1], summarises current knowledge of the causes of cancer in people with AIDS, the epidemiology of these cancers and their clinical manifestations and treatment. Emphasis is on Kaposi's sarcoma and on non-Hodgkin lymphoma, since the risk of these two malignancies is substantially increased by HIV infection. The list of other cancers whose risk might also be increased by HIV infection is long, but for none, except perhaps Hodgkin's disease, is there more than anecdotal evidence of an association.

Before the AIDS epidemic, Kaposi's sarcoma in the USA and Europe was a rare, relatively benign condition of elderly men. Its unusual appearance in young and middle-aged homosexual men in New York and California heralded the AIDS epidemic. Although the pathology of the lesions in HIV infected individuals was similar to that in HIV uninfected individuals, the clinical manifestations were so different that AIDS-related Kaposi's sarcoma was initially thought to be a distinct condition, with an entirely different cause from other forms of Kaposi's sarcoma. There is now a growing consensus that Kaposi's sarcoma is caused by an as yet unidentified transmissible agent, and that the same agent causes all forms of Kaposi's sarcoma. Indeed some have gone so far as to suggest that Kaposi's sarcoma is not even a true malignancy. It now seems likely that there are symptom-free carriers of the Kaposi agent and that an individual's immune status determines the clinical manifestations of disease—the more intense the immunosuppression, the more disseminated and rapidly growing are the Kaposi lesions and the more aggressive is the disease.

The epidemiological pattern of Kaposi's sarcoma in patients with AIDS provides tantalising clues to the mode of transmission of the agent that causes Kaposi's sarcoma. The very high risk of Kaposi's sarcoma among homosexual men with AIDS, with around 1 in 5 affected, suggests that sexual transmission is likely to be common. Since oroanal contact may be part of the sexual activity of homosexual men, these findings are also consistent with faeco-oral spread of the agent. Transmission via blood and blood products, and perinatally, probably occurs as well but to a lesser extent than sexual transmission, since only 1 in 30 or fewer AIDS subjects who acquired HIV parenterally or perinatally also has Kaposi's sarcoma. The epidemiological evidence further suggests that the agent was not prevalent in northern Europe or the USA until recently and that it was relatively common in parts of central and eastern Africa, the Caribbean and the Mediterranean before then. Efforts are now underway to identify the specific causal agent, which is perhaps a new retrovirus, mycoplasma, enterovirus or other virus. With the current speed of laboratory research the agent might be identified soon.

Non-Hodgkin lymphoma affects about 1 in 30 people with AIDS in the USA or Europe. There is little doubt that the histological types of lymphomas that occur in association with HIV infection are atypical. The large majority of lymphomas are high-grade malignancies, and Burkitt's lymphoma is not uncommon. As yet there is no consensus on how to classify these lymphomas, and in the meantime some researchers have devised their own system. There is an obvious need for standard definitions and nomenclature here. The clinical manifestations of lymphomas in people with AIDS are unusual as well. Extranodal involvement is common, and primary lesions of the brain are highly characteristic of an association with HIV infection. Response to therapy is disappointing.

It is widely believed that infectious agents may also be responsible for the AIDS-associated lymphomas. As with Kaposi's sarcoma, the immunosuppression associated with HIV infection probably results in clinical disease appearing in otherwise symptom-free carriers. As yet there are few clues to the mode of transmission of the agent or agents that cause non-Hodgkin lymphoma in immunosuppressed people. The agents are probably not transmitted sexually or by blood or blood products, since the risk of developing a lymphoma is similar in those who acquired HIV by homosexual or heterosexual activity, or parenterally. The epidemiological evidence suggests that the same aetiological agent may cause certain lymphomas regardless of whether they are associated with HIV infection. The Epstein–Barr virus may well be involved in the pathogenesis of some lymphomas, but the evidence is conflicting. The role of other viruses, including HTLV-I, is currently being investigated.

It is probably not a coincidence that the two cancers that have been most strongly linked to HIV infection are both thought to have an infectious cause. The main conclusion to emerge from research into cancers associated with immunosuppressive therapy is that the cancers which appeared are the ones known to have or suspected of having an infectious cause, as reviewed earlier [2]. Relatively few patients have been treated with immunosuppressive therapy compared with the large numbers who are infected with HIV. Thus the AIDS epidemic is providing a natural experiment on a massive scale from which much can be learned about the role of immunosuppression in the development of cancer. In general the cancers associated with HIV infection are similar to those associated with immunosuppressive therapy; but there are fascinating differences as well. Perhaps the most curious is that Burkitt's lymphoma is commonly associated with HIV infection but rarely, if at all, with immunosuppressive therapy. Unravelling the reasons for this discrepancy may well enhance our understanding of the role of the immune system in the development and control of cancer.

Another challenge to researchers is to explain why Kaposi's sarcoma and Burkitt's lymphoma, which are both common in patients with HIV infection, were both endemic in certain parts of Africa—eastern Zaire and Uganda—before the AIDS

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epidemic. Clearly it is possible that the aetiological agents for these two cancers happened to be especially common in those areas, but what is particularly perplexing is that HIV is now believed to have originated from that very same part of Africa. The endemic form of Kaposi's sarcoma which was present in these areas before the AIDS epidemic has been shown to be not associated with HIV infection. As yet no adequate explanation exists for this unusual aggregation of such rare disorders.

With the spread of HIV and the pace of modern research we can expect many questions to be answered soon. For example, we should soon know whether the risk of other cancers known or suspected to be caused by infectious agents—Hodgkin's disease, hepatocellular cancer and cervical cancer—are also increased in association with HIV infection. Research workers may also have identified the specific agents that cause Kaposi's sarcoma and certain forms of non-Hodgkin lymphoma. This should aid our understanding of the causes of cancer not only in the HIV infected but also in the HIV uninfected. As disastrous as the spread of HIV is, the insights that the AIDS epidemic provides into the causes of cancer may ultimately lead to new and successful approaches to cancer prevention.

1. Beral V, Jaffe H, Weiss R, eds. Cancer, HIV and AIDS. *Cancer Surv* 1991, **10**.
2. Penn I, ed. Cancers induced by therapy. *Cancer Surv* 1982, *1*, 565–789.

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Book Review

Interventional Radiology
Robert F. Dondelinger, Jean Claude Kurdziel and Sydney Wallace, eds.
Stuttgart, Georg Thieme Verlag, 1990. 808 pp. ISBN 3-13-728901-7. DM 298.

THIS IS a comprehensive textbook that tries to cover all applications of interventional radiology, a new and rapidly expanding field. Almost 100 authors from the USA and Europe, most of whom are well-known authorities in their specific area, have collaborated under the guidance of the editors to produce over 800 pages of attractively laid-out text. There are an adequate number of illustrations, most of high quality.

The topics covered include percutaneous biopsy, venous blood sampling by percutaneous catheterisation, percutaneous management of fluid collections, endoscopic and percutaneous management of biliary and urinary diseases, therapeutic angiography, angiographic management of vascular obstruction, interventional procedures in the digestive tract and percutaneous lysis of the vertebral disc and neural structures. Despite the rapid changes in interventional radiological techniques and equipment, the editors have been able to include the latest technological developments in, for example, intravascular stents, vena cava filters and embolisation materials.

Although I had difficulty in finding important omissions in this book, some criticisms can be made. As would be expected in a book written by so many authors, the different sections are not equal in quality. Moreover, despite the efforts by the editors, there is some repetition and overlap, especially in the chapter on angiographic management of vascular obstruction. Indeed, the topics of the first two sections of this chapter are again dealt with more extensively and in depth in some of the following sections. Also, historical reviews and discussions in the pathophysiological mechanism of the angioplasty are not limited to the first introductory sections on percutaneous angioplasty, but are repeated in some of the subsequent sections on a specific anatomic area.

The chapter on embolisation techniques in the brain, in the head and neck and in the spinal canal offers a good overview of methods, but the interventional neuroradiologist looking for detailed information may find this chapter rather short and incomplete, which is probably due to the necessary restrictions on available space. I question the decision of the editors to include electrochemical cancer treatment, a controversial technique that is not supported by research or experience from workers other than the author of this section himself.

However, this book is a much needed update to existing handbooks in interventional radiology and offers substantial new information. I recommend it to those involved in this field.

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News

European School of Oncology

The European school of Oncology (ESO) published its eighth annual report in March 1991. 2314 individuals from 61 countries attended courses organised by the teaching division. Training courses for general practitioners, screening workers, industrial product managers and secretaries in oncology were held for the first time, as well as a seminar on scientific writing and editing. Within the framework of the "Europe Against Cancer" programme, the Commission of the European Communities asked the school to set up an advisory group on the role of dentists in early detection and diagnosis of oral cavity tumours. Other initiatives included 75 fellowships for doctors and nurses to attend ESO residential courses and textbooks on colon cancer for general practitioners. In 1990 the ESO contributed to the launch of the new-style *European Journal of Cancer*, with EORTC, EACR and FECS, and has adopted it as its official journal. The ESO, in collaboration with the Open University UK has also undertaken a programme of distance learning opportunities in oncology at European level. The first course will deal with cancer prevention. Since 1983, 7306 people have participated in ESO's activities; nearly half were from EC countries and over a quarter from South America.