

News

Psychosocial Oncology

The European Society for Psychosocial Oncology (ESPO) will hold its fifth conference on 25–26 October 1991, in Florence. For further details, contact Emanuela Barghini, Via di Salvi 12, 50136 Firenze, Italy. Fax (39) 55 578955.

Tumour-directed Therapy in Neuro-oncology

The 2nd International Neuro-oncology Conference was held on 25–26 March 1991 at the Royal Marsden Hospital, London, in memory of Professor H.J.G. Bloom.

The new techniques for localised treatment of intracranial tumours with surgery and radiotherapy assume circumscribed tumour with little extension outside the putative margin as seen on current imaging. This assumption, although correct for benign and some low-grade astrocytic tumours, has been challenged for the majority of glial neoplasms. Experience from biopsies guided by computed tomography (CT) and magnetic resonance imaging (MRI) suggests tumour spread beyond the assumed margin. Dr Kelly (Rochester, Minnesota) reported a study of 40 patients with previously untreated glial neoplasms who underwent CT and MRI-based stereotactic serial biopsy and 319 patients with CT-guided stereotactic biopsy. The area of contrast enhancement on CT corresponded with tumour tissue, neovascularisation and breakdown of the blood–brain barrier. The hypodense surrounding zone in high-grade neoplasms was usually brain parenchyma with oedema permeated by isolated tumour cells. T2 weighted MRI images showed regions that defined tumour cell invasion better than CT. Biopsies of areas normal on CT and MRI beyond the obvious tumour frequently disclosed isolated tumour cells. Dr Burger (Durham, North Carolina), who delivered the 1991 Bloom memorial lecture, reviewed detailed post mortem studies of glial tumours compared with CT and MRI images. In elegant three-dimensional maps of tumour extension, he demonstrated the infiltrative properties of high-grade gliomas. The explanation offered for the variable direction of spread was tracking along fibre pathways. Glioblastomas therefore appeared as locally infiltrative neoplasms asymmetric in three-dimensional profile and the spread depended on the proximity of pre-existing local fibre pathways. Similar extension of tumour cells was reported by Dr Schiffer (Turin). The inescapable conclusion is that current imaging techniques do not define the precise extent of tumour.

Dr Ott (Sutton, UK) reviewed the current role of positron emission tomography (PET) in neuro-oncology which has the potential not only for metabolic studies but also for clearer definition of tumour margin. The most promising studies were with ^{11}C -methionine, which accumulates in tumours in preference to normal brain tissue and the uptake of which relates to the increased metabolic needs of tumour cells, as reported by Professor Ericson (Stockholm). Although of value in high-grade tumours, 20% of neoplasms exhibited normal or decreased accumulation of methionine and these were usually low grade.

The role of PET imaging with aminoacids in the definition of tumour margin is not yet fully defined.

Despite the clinicopathological data which would argue against localised forms of therapy, techniques such as stereotactically guided surgery, interstitial radiotherapy and stereotactic external beam radiotherapy (SRT)/radiosurgery have been and continue to be extensively used. Stereotactic localisation of brain lesions has been initially developed for the purpose of precise biopsy of intracranial lesions. Mr Thomas (London) reported a series of 290 stereotactic biopsies with a high diagnostic yield and 10% diagnosis of non-neoplastic lesions, 1% mortality, and 5% morbidity. Tumour excision guided by stereotactic localisation was reported by Dr Kelly. He performed 374 CT and/or MRI-based computer assisted volumetric stereotactic resections of glial and non-glial tumours. This elegant neurosurgical approach allows for neurosurgery with less postoperative neurological deficit than expected for standard technique, despite the radical attempts at tumour excision. However, a survival advantage for this treatment approach has not been demonstrated.

A number of groups reported their experience of interstitial radiotherapy in the treatment of gliomas. The techniques varied from the insertion of a single iodine source to precise volumetric implants with multiple iodine or iridium sources using after-loading technology. Professor Ostertag (Freiburg) and Dr Frank (Bologna) reported a series of selected patients with small low-grade gliomas and Mr Afshar (London) and Mr Sofat (London) largely treated recurrent high-grade tumours. Dr Kumar (Omaha) reported the use of ^{125}I seeds in the management of skull-based tumours, particularly meningiomas. The results, although encouraging in terms of initial tumour control and early survival, are difficult to interpret because of patient selection. They also do not allow for comparison of individual series and the influence of different technologies, such as high-precision dosimetry described by Dr Lulu (Arizona). Interstitial therapy, although technically feasible, will have to be evaluated in a randomised setting to define fully its role in both low-grade and high-grade tumours.

Stereotactic external beam radiotherapy (SRT) is an alternative to interstitial radiotherapy and achieves a similar dose distribution (as described by Dr Thomson, London). Professor Sturm (Cologne), who with his colleagues at Heidelberg developed SRT using a linear accelerator, reviewed this technique from gamma-knife radiosurgery to more recent treatment advances. The current and future technological improvements are aimed at achieving a conformal type therapy of irregularly shaped intracranial lesions and the use of multileaf collimators is a possible option. The optimisation of SRT with 3–4 non-coplanar arcs and possible use of multiple shaped fixed fields was discussed by Dr Graham (London). Other technological improvements, such as high-dose rate radiosurgery (Dr Davey, Toronto) and simplified treatment planning using a personal computer (Dr Lulu, Arizona), were also discussed. Despite the increasing availability of stereotactic treatment technology, Dr Lutz (Arizona) pointed out the possible pitfalls and inaccuracies of the technique and the need for constant vigilance. This was reiterated by Dr Warrington (London) who defined the necessary quality assurance programme and the recognised inaccuracies of the treatment system.

Dr Flickinger (Pittsburgh) and Mr Forster (Sheffield, UK) reported the results of gamma-knife radiosurgery in 115 patients with acoustic neuroma (85 in Pittsburgh and 30 in Sheffield). Because of a high complication rate with single doses of 20–25 Gy