What is Brain Tumour North West?

Brain Tumour North West (BTNW), involves the Universities of Central Lancashire and Wolverhampton together with the Lancashire Teaching Hospitals NHS Trust, in a new strategic alliance designed to consolidate and exploit clinical and research-based brain tumour expertise which currently exists within the region.

BTNW brings academic staff, consultant neurosurgeons, neuropathologists and oncologists together with specialist nurses, biomedical scientists and other allied healthcare professionals to form a powerful critical mass dedicated to brain tumour research.

In this way, the North West will form the focus for the development and delivery of significant research programmes designed to increase our understanding of this devastating form of cancer. Ultimately, this will result in improved and faster methods of accurate diagnosis with effective treatment customised to the individual patient.

The Problem of Brain Tumour

Although around 7000 people per year in the UK are diagnosed with brain cancer, making it about the 10th most common site for cancer in men and the 13th in women, research in this area has not received the attention it merits.

Brain cancer deaths in children exceed those of leukaemia making it the second highest cause of death in this age group after accidents and tumours like glioblastoma multiforme are a significant cause of neurological morbidity and mortality in middle age.

Brain tumours differ from most other cancers by their diffusive infiltration of the surrounding normal brain tissue, thus making complete resection of the tumour by surgery rarely successful. Consequently, future developments in treatment strategies are likely to be systemic in nature. However, at the present time chemotherapy is very unpredictable with large variation in drug sensitivity demonstrated between individuals.

The figure above shows the results of some current work by BTNW. Cells from patients with brain cancer are cultured in vitro to test for their sensitivity to a variety of anti-cancer drugs. The vertical axis gives the concentration of the drugs at which 50% of the cells are killed (LD50). A marked individual difference of sensitivity to the different anti-cancer drugs is apparent. It is hoped that this form of research will supply valuable information to the clinicians as to which drug would be the most suitable for administration to a particular patient.
The Aim of BTNW

Significant advances in the diagnosis and treatment of this form of cancer will only be achieved through a coordinated and multi-disciplinary approach; being able to accurately profile an individual's tumour with respect to molecular expression, functional properties and chemosensitivity.

However, in contrast to many other types of cancer there are no large UK based research groups involving scientists and clinicians looking at brain tumours. The formation of an alliance in a relatively small geographical region optimises access to rare tumour material, enables sharing of laboratory facilities and techniques and combines scientific, medical, bioinformatics and statistical expertise. It also provides the multidisciplinary critical mass essential for developing research proposals and delivering them successfully in this area.

Communications are excellent in the region meaning that no centre is more than 75 minutes by road or rail from another thereby facilitating effective collaboration.

The ‘Brain Bank’

Access to high quality, clinically annotated, appropriately preserved human brain tissue samples is key to developing a molecular approach to the diagnosis and treatment of brain tumours.

The Preston Brain Tumour Bank is a collaborative effort between patients, neurosurgeons and neuropathologists to collect tissue excess to diagnostic requirements in an ethically acceptable manner and make this available to research groups within the Brain Tumour North West initiative. In this role it is central to the success of this regional collaboration.

Facilities

BTNW has excellent research facilities housed in the Biomedical Research Laboratories, UCLan and the Research Institute in Healthcare Science, University of Wolverhampton.

In addition, the Departments of Neurosurgery and Neuropathology at the Royal Preston Hospital are fully equipped for the collection, culture and storage of primary brain tumour tissue.

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