Research news

Study reports on the development of quality of life tool for measuring cognitive function in cancer patients

The European Organisation for Research and Treatment of Cancer (EORTC) Quality of Life Group is developing computerised adaptive testing (CAT) versions of the EORTC Quality of Life Questionnaire (EORTC QLQ-C30) to be used in clinical practice. A study published in Neuro-Oncology Practice has detailed the first stages in developing this tool. A starting list of 439 items (generated from a search of the published literature) was refined into a preliminary list of 44 items that can be used to measure self-reported cognitive complaints. Using these items, the CAT version is now due to be ‘field-tested’. Read more (abstract).

Skin cells can be reprogrammed into tumour–homing stem cells that attack human glioblastoma, study shows

In work published in Science Translational Medicine, researchers have demonstrated that human skin cells can be reprogrammed into modified stem cells which target and destroy glioblastoma tumour cells. Using ‘skin flipping’ - a technology for creating neural stem cells from skin cells that won a Nobel Prize in 2012 - newly created neural stem cells (cells with the potential to grow into multiple different cell types) were genetically engineered to attach to and trigger the death of glioblastoma cells. This technique was last year shown to be effective in mice cells, but this study demonstrates that tumour-homing stem cells are also effective in human cells. Read more.

Two new trials for paediatric brain tumours open

Two new pilot clinical trials for paediatric brain tumours have begun at two sites in Houston, Texas, USA. The trials focus on treating tumours in the posterior fossa region at the back of the brain, a common site for paediatric brain tumours and one that is difficult to access surgically. Both trials look at delivering chemotherapy agents directly into the fourth ventricle (one of the fluid-filled spaces in the brain). One study (NCT02905110) will look at combining methotrexate with etoposide for several paediatric brain tumour types. The other is a study (NCT02940483) involving an infusion of 5-Azacytidine (5-AZA) for ependymoma. Both trials are open to patients age one to 21. Read more (above links to trial information at clinicaltrials.gov)

New intra–operative histology technique that analyses brain tumour tissue at the time of neurosurgery

According to a study published in Nature Biomedical Engineering, researchers have designed a new system to rapidly analyse brain tumour tissue during an operation using a technology called stimulated Raman scattering microscopy. In their experiments, the new technique,
called stimulated Raman histology (SRH), produced images within three minutes that were very similar to those from conventional staining techniques. The technique’s diagnosis accuracy was found to be over 90% in a sample of 30 patients’ tissue. Read more.

Emergence of specific brain cells marks the onset of seizures and brain tumour invasion, study finds
Research published in Nature Neuroscience has found that astrocytes – one of the structural brain cells – exist in various different forms, each having different molecular signatures on their surface. Contrary to conventional understanding that astrocytes are of one type, the study identified five subpopulations with different features and functions. Experiments in animals found that changes in astrocyte subpopulations near the site of brain tumours corresponded with the start of tumour-related epileptic seizures and tumour invasion. Read more.

Study shows that genetic analysis of paediatric brain tumours could offer patients personalised therapy
Results from a clinical study has shown that testing paediatric brain tumours for genetic abnormalities is feasible and could play a role in guiding patients’ treatment. Published in the journal Neuro-Oncology, more than half (56%) of the 203 brain tumour samples taken from paediatric patients had clinically relevant genetic alterations that could influence how the disease was diagnosed or treated. Read more.

Rabies virus inspires nanoparticles that target and destroy brain tumours say researchers
In work described in the journal Advanced Materials, researchers have developed minute rod-shaped gold nanoparticles that target brain tumour cells, mimicking the rabies virus’s ability to cross from the bloodstream into the brain. In experiments on mice, after nanoparticles had accumulated around brain tumour cells, they were heated with near-infrared laser beams to a temperature of nearly 50°C, destroying glioblastoma cells and shrinking the tumour size. Read more.

Study shows that immunotherapy–drug combination therapy more effective than immunotherapy alone
In a study of tumour cells and animals with glioblastoma, researchers have found that treatment with a DC (dendritic cell) vaccine immunotherapy was enhanced when combined with two drugs: an antibody that blocks PD-1 receptor (which enhanced immune cell activation inside the tumour) and an investigational drug called PLX3397 (which reduced immune suppression within the tumour). Neither drug therapy was effective when given alone. Read more.

‘Smart needle’ with tiny camera designed to help neurosurgeons avoid blood vessels
A team in Australia has developed a surgical probe that contains a fibre-optic camera the size of a human hair, which allows surgeons to ‘see’ important blood vessels while taking a brain biopsy. The system is designed to automatically alert the surgeon to blood vessels. It has been used in 12 patients over the past six months and a formal clinical trial is planned for
Study shows how glioblastoma stem cells evade body’s immune system
Published in the journal Cell Stem Cell, a lab-based study has uncovered that glioblastoma stem cells – those cells that are believed to drive tumour growth – have a reduced level of the immune toll-like receptor 4 (TLR4) protein, which allows them to disregard the body’s inflammatory signals that would otherwise slow their growth. Read more.

Annual eye examination is important for early diagnosis of paediatric optic gliomas in neurofibromatosis type 1, research finds
Children with neurofibromatosis type 1 (NF1) have an increased risk of developing glioma tumours of the optic nerve but many children with the inherited condition do not receive regular ophthalmic exams, according to research conducted in the United States and published in the Journal of Pediatric Ophthalmology and Strabismus. The study analysed the Southern California Kaiser Permanente electronic medical record database and found that of 708 children and young people under 21 who had NF1, 30 (4.2%) had an optic glioma diagnosis, yet screening by eye exams was inconsistent. Annual screening, starting at a young age, allows for earlier diagnosis and may provide an opportunity to improve outcomes in these children, the authors find. Read more.

Analysis shows that glioblastoma is less common and survival is longer in Latino Americans
Few studies have assessed the occurrence of brain tumours in the Latino population in the United States. Published in the Journal of Neuro-Oncology, an evaluation of patient data between 2001 and 2011 of 21,184 glioblastoma patients from the Surveillance, Epidemiology and End Results (SEER) Program of the National Cancer Institute (NCI) has found that, compared to non-Latino whites, glioblastoma tumours were less common, diagnosed earlier, and had better one and five year survival rates. Read more (abstract).

Ovarian cancer drug has effect on glioma cells, study finds.
A study published in the journal Science Translational Medicine has found that brain tumours may be treatable with an ovarian cancer drug called olaparib (Lynparza), which is a class of drug known as a PARP inhibitor. The researchers noted that faults in the genes IDH1 and IDH2 occur in a variety of cancers (including glioma) and found that PARP inhibitors exploit this genetic mutation. Lab-based experiments showed that olaparib had an effect on glioma cells, suggesting that the already-approved drug could have a role in brain tumour treatment. Read more.

Research identifies the genes that differentiate atypical and benign meningiomas
A genetic analysis of 775 meningioma tumours published in Nature Communications has identified several genetic features that distinguish atypical meningiomas, which often grow aggressively and recur after removal, that are not present in benign meningiomas. Discovery of these ‘driver mutations’ (which include the genes NF2, SMARCB1, TRAF7/PI3K, TRAF7/KLF4, POLR2A and Hedgehog) and the mechanisms by which they alter the cells’ internal messaging pathways may have clinical implications for future treatments, the authors conclude. Read more.
Growing tumour cells from a glioblastoma tumour could aid personalised therapy, study suggests

Glioblastoma tumours are known to have a variety of different cells within them. In work published in *Clinical Cancer Research*, a team of researchers harvested and grew 33 ‘subpopulations’ of these cells (from five glioblastoma tumours) and then tested each against a panel of widely available drugs. They found that there was a wide variability in sensitivity to the treatments, and the authors concluded that this kind of technique could be used in the clinical setting to help plan individualised therapy and predict progress. Read more.

Treatment news

Cannabis-derived drugs have a role in palliative brain tumour care, says review

An article in *Neuro-Oncology Practice* discusses the role that cannabinoids – drugs derived from chemicals in the cannabis plant – may have in brain tumour palliative care. The authors find that scientific results suggest that cannabinoids have the potential to act against nausea, vomiting, pain, anxiety, and sleep disturbances. Read more (subscription needed for full article).

Brain tumour community news

March is Brain Tumour Awareness Month in the UK

The start of March marks Brain Tumour Awareness Month in the UK. Charities, groups and individuals across the country will be using the opportunity to highlight the importance of brain tumour research, improved treatment and support to the general public and to fundraise. A wide variety of brain tumour and cancer-related charities are running awareness-raising activities, including the #WearItOut bandana-wearing initiative on 3rd March and Wear a Hat Day on 31st March. A one-minute silence will also be held at 11am on 1st March in memory of the countless loved ones who have been lost to a brain tumour. Search online for Brain Tumour Awareness Month UK to find activities and organisations and/or explore the IBTA’s Our Alliance page, which has an interactive international map of charities and organisations that are part of the IBTA global community.

Company news

FDA ‘Breakthrough Therapy Designation’ awarded to Tocagen’s Toca 511 & Toca FC for treatment of recurrent high grade glioma

Tocagen has announced that, in response to data from a phase 1 trial of Toca 511 & Toca FC, the United States Food and Drug Administration (FDA) has granted ‘Breakthrough Therapy Designation’ for the treatment in recurrent high grade glioma. The designation is designed to speed the process by which promising new therapies are subsequently evaluated and approved, and follows the 2015 FDA decision to grant the treatment a ‘Fast Track’ designation (a program designed to speed a treatment’s development when at an earlier stage). Read more (company press release).

Cannabinoid combination shows increased survival in recurrent
glioblastoma, GW Pharmaceuticals announces GW Pharmaceuticals has announced results from a phase 2 placebo-controlled study of a combination treatment of active cannabis ingredients tetrahydrocannabinol and cannabidiol (THC: CBD) in recurrent glioblastoma. All 21 patients who were in the exploratory trial received standard of care, while 12 patients were randomised to an arm of the study to receive THC:CBD as an add-on therapy. The THC:CBD group had an 83 percent one year survival rate compared with 53 percent for patients in the placebo cohort (p=0.042). Read more.

United States FDA lifts partial clinical hold on NW Bio’s phase 3 trial of DCVax Northwest Biotherapeutics (NW Bio) has announced that the US Food and Drug Administration (FDA) has lifted a partial clinical hold that has been in place since the summer of 2015 on the enrolment in an ongoing phase 3 trial of the immunotherapy DCVax-L. However, as previously announced by the company, NW Bio has closed enrolment and is not seeking to enrol the last 17 of the planned 348 patients. The trial continues and the company remains blinded until the required data “events” (i.e. tumour recurrences or deaths) are reached. Read more (company press release).

DelMar Pharmaceuticals announces first recurrent glioblastoma patient has started treatment in phase 2 trial of VAL-083 The first recurrent glioblastoma patient has received treatment in a phase 2 clinical trial of DelMar Pharmaceuticals’ drug VAL-083 (dianhydrogalactitol), the company has announced. The trial is to test safety, tolerability and clinical efficacy of VAL-083 in 48 adults with recurrent glioblastoma (that has unmethylated-MGMT molecular markers), who have not received bevacizumab (Avastin) and whose tumour has recurred following surgery and standard chemo-radiation with temozolomide. Read more (company press release). (Clinical trial information available here.)

Phase 2 trial of Agenus’s Prophage vaccine for recurrent glioblastoma closed due to ‘futility’ It has been reported that Agenus has halted a phase 2 trial of the Prophage vaccine, given in combination with bevacizumab (Avastin), in patients with surgically resectable recurrent glioblastoma. Interim data from the trial that started in 2013 showed that the trial was unlikely to demonstrate that the vaccine in combination with bevacizumab would lead to a better survival than bevacizumab alone. Agenus reports that the Prophage (an individualised vaccine derived from proteins extracted from the patient’s tumour) program is continuing and a new trial of the vaccine in combination with the PD-1 drug Keytruda is planned. Read more.

Upcoming patient conferences and events

March
ABTA Partners in Treatment and Care Meeting
4 March 2017
Atlanta, Georgia, USA
ABTA Partners in Treatment and Care Meeting
12 March 2017
Minneapolis, Minnesota, USA

17th Annual UCLA Brain Tumor Conference
10-11 March 2017
Los Angeles, California, USA

April
Together in Hope 2017
28-30 April 2017
Houston, Texas, USA

Conference news: call for abstracts
British Neuro-Oncology Society (BNOS) Edinburgh 2017 - Engaging Science, Enhancing Survival
21-23 June 2017
Edinburgh, UK - Abstract deadline 6th March 2017 - click here to submit
Registrations and Abstract submissions are now accepted for BNOS Edinburgh 2017 - click here to submit. Abstracts can cover any aspect of neuro-oncology from cancer cell to end of life.

Upcoming scientific conferences & events
March
23rd Annual Blood-Brain-Barrier Consortium Meeting
2-4 March 2017
Stevenson, Washington, USA

9th Annual Conference of the Indian Society of Neuro-Oncology (ISNOCON 2017)
10-12 March 2017
Bengaluru, India

The International Pediatric Neuro-Oncology Meeting / Florida Brain Tumor Summit
16-18 March 2017
Orlando, Florida, USA

April
AACR 108th Annual Meeting 2017
1-5 April 2017
Washington, DC, USA

EORTC 4th International Quality of Life Conference
20-21 April 2017
Brussels, Belgium

Neuroscience Update in Pediatric Neuro-Oncology - in memory of Dr Marnie Rose
22 April 2017
Houston, Texas, USA

**85th AANS Annual Scientific Meeting: “Neurosurgery - A World of Innovation”**
22-26 April 2017
Los Angeles, California, USA

Keep up to date with future scientific conferences and events on the IBTA website conferences page [here](#). If you are aware of a brain tumour-relevant conference, including any patient conferences, that we have not yet listed on the IBTA website then please let us know.