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Personal observations of the
Society for Neuro-Oncology 12th Annual Scientific Meeting
and
Education Day

(Dallas, Texas – 15 to 18 November 2007)

by Kathy Oliver, International Brain Tumour Alliance (IBTA)

TAYSHA

It was on the plane back to the UK from the recent Society for Neuro-Oncology conference in Texas that I realised the symbolism of this year's SNO meeting location.

Reading a short travel description I had downloaded from the Internet prior to my trip, I saw that the name "Texas" comes from a word in the Native American Indian Caddoan language. "Taysha" means "allies". And in the days when Spanish explorers first established their missions and settlements and came to inhabit the enormous territory we now know as Texas, they took the name of this new land from the Caddoan word "taysha". And so it was that Texas came to be named "land of the allies".

Tackling the challenges of brain tumours, literally head on, certainly requires an army of allies from within and also without the scientific community. Brain tumour patient and caregiver input is vital as well, as part of a successful working alliance to deal with the challenges of this devastating disease.

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So it was very fitting that, in Texas, “land of the allies”, SNO invited local patients, caregivers, families, brain tumour support groups and others interested in the field of brain tumours to attend a Public Summary held on the last night of the meeting. This was the first time SNO included such a session in its programme.

Introduced by **Dr Abhijit Guha** (Western Hospital, University of Toronto), and attended by about 50 people, this Public Summary session enabled sharing of the latest research and innovations in therapy in an informal atmosphere where questions were welcomed and answers were provided by some of the world’s leading neuro-oncology specialists.

SNO PUBLIC SUMMARY

Five clinicians summarised highlights of the previous days’ sessions. (For further details, abstract numbers referred to below can be accessed here: <http://neuro-oncology.dukejournals.org/cgi/reprint/9/4/467>)

Dr David James (University of California, San Francisco) spoke about some of the Basic Science presentations.

His talk started out with a slide of a cartoon bowl of alphabet soup with all the letters floating in a dish. He said that “basic research looks like an alphabet soup of various proteins and somewhere in that soup is the answer to our understanding of the biological behaviour of cells.”

He explained that a main characteristic of cancer is a “loss of normal growth control” and that a diffuse growth like a glioma brain tumour is very invasive. He also described other characteristics of cancer: **(1)** complex tumour vasculature with angiogenesis and **(2)** suppressed immune function.

Dr James then introduced Dr Michael Taylor (Hospital for Sick Children, Toronto) who reviewed some of the Basic Science paediatric and adult presentations which included mention of **(1)** a study of the developmental origins of medulloblastoma (David Rowitch, University of California, San Francisco, Abstract PB-38), **(2)** SNP array mapping – ie mapping of genes that are amplified or deleted and the identification of a group of genes that are mutated in brain tumours (Paul Northcott, Hospital for Sick Children, Toronto, Abstract PB-09); **(3)** a study of a new cancer oncogene, “OTX2” which is amplified in medulloblastoma (Hai Yan, Duke University, Abstract PB-12); **(4)** a presentation on cancer stem cells in a mouse model of medulloblastoma (Tracy-Ann Read, Duke University Medical Center, North Carolina); (5) a study of supratentorial PNETs, looking at their genetics and whether they are heterogeneous (Dr Annie Huang, Hospital for Sick Children, Toronto, Abstract PB-16) and **(6)** another novel mouse model of medulloblastoma (Xiaochong Wu, Hospital for Sick Children, Toronto, Abstract PB-22).

Dr Taylor commented that mouse models are becoming much more sophisticated and that currently there is a large focus on medulloblastoma. He said he is encouraged by the fact that new tools are coming along to deal with the study of brain tumours.

Also mentioned (and present at the SNO Public Summary), was Dr Rakesh Jalali of Tata Memorial Hospital, Mumbai and the Indian Brain Tumour Foundation (which has been extremely supportive of the IBTA's activities). Dr Jalali won the Sontag Foundation's Award for Excellence in Quality of Life Research at the 2007 SNO meeting. Dr Jalali's presentation was on "Neuropsychological profile in children with low grade brain tumors before starting treatment with focal radiotherapy; baseline data from an ongoing randomised trial" (see Abstract RT-30). The IBTA would like to take this opportunity to extend congratulations to Dr Jalali on his award.

Dr Frederick Lang of UT MD Anderson Cancer Center, Houston, talked about some of the neurosurgery presentations.

He said that one of the most noticeable changes in neurosurgery is that there has been a dramatic improvement in the safety of removing brain tumours surgically. Dr Lang said that use of image guided surgery is very important.

He mentioned the following studies: **(1)** "Endoport Neurosurgery: Fully endoscopic stereotactic guided resection of intra-axial tumours" (Abstract ST-08) which reviewed the University of Pittsburgh's experience of using a novel endoscopic technique to access intraparenchymal tumors via a minimally invasive resection; **(2)** "Frame based stereotaxy in a frameless era..." (Abstract ST-05) which suggested that "FB stereotaxy remains an important technique for the 20% with small or deep-seated lesions or when it is advantageous to avoid an incision, a burr hole, or general anaesthesia."; **(3)** "Economic analysis of awake craniotomy compared to general anaesthesia" (Abstract ST-07) which reported that "...awake craniotomy is associated with increased total mean hospital charges compared to resection under general anaesthesia"; **(4)** "The role of extent of resection in the long term outcome of low grade hemispheric gliomas" (Abstract ST-06) which recommended that "...when feasible, management of adult hemispheric LGG include maximal surgical resection, using mapping techniques as appropriate, to improve long term patient outcomes." **(5)** "Survival is increasing after craniotomy for patients with glioblastoma multiforme" (Abstract ST04) which concluded that "survival after craniotomy for GBM may be improving, but long term prognosis remains poor". **(6)** "The impact of multiple resections for glioblastoma multiforme" (Abstract ST-09), the data for which was reported to "support the impact of 3+ resections as statistically significant in increasing length of survival for a selected group"; **(7)** "Long term medical, psychological and educational issues in paediatric low grade gliomas treated with surgery only" (Abstract QL-31) which identified a number of post treatment medical and psychosocial issues in the study cohort.

Dr Lang also mentioned MA-39 – this was a paper from the NABTC Protocol 03-02 "Tumor tissue delivery of cilengitide after intravenous administration to patients with recurrent glioblastoma (GBM): preliminary data from NABTC Protocol 03-20" which deals with patients receiving intravenous cilengitide **prior** to surgery.

Additionally, Dr Lang mentioned two abstracts that dealt with issues surrounding surgery: **(1)** "Adjuvant radiotherapy after surgical resection of single brain metastases: an analysis of 358 patients by primary tumor site" (Abstract RT-29) and **(2)** "Prophylactic peri-operative anti-epileptic medications in malignant glioma patients" (Abstract MA-38).

Dr Susan Chang (University of California, San Francisco) gave the medical neuro-oncology roundup.

Dr Chang – who is President-Elect of SNO - stressed the importance of non therapeutic trials which looked at epidemiology, Quality Of Life (QOL), neuro-imaging and patient outcomes.

Neuro-imaging highlights of SNO included a number of studies using PET, DWI, Perfusion MRI and spectroscopy. Dr Chang mentioned the importance of looking at the EGFR pathway as a target. She mentioned bevacizumab (Avastin) as a promising VEGF pathway treatment. She said that there were currently ten clinical trials using bevacizumab which were featured at this year's SNO. She stressed the importance of QOL studies and said "teamwork is important" between all of a patient's clinicians.

In response to a question from the audience on the optimal MRI frequency for GBM, Dr Chang recommended that scans should be done every two months for the first year and then to review the frequency for the following period.

Dr Mark Kieran (Dana-Farber Cancer Institute, Boston) listed the following abstracts as being of note with regard to pediatric brain tumours:

(1) "The treatment of young children with malignant gliomas and diffuse intrinsic pontine gliomas (DIPG); results of an irradiation-avoiding strategy, the "Head Start" protocols 1991-2006" (Abstract MP-12) from Dr Jonathan Finlay et al which concluded that "The prognosis of children with malignant gliomas and DIPG remains poor. Children with DIPG do not benefit from this irradiation-avoiding intensive chemotherapy strategy. A proportion of young children with malignant gliomas may benefit provided they can achieve minimal tumor burden, through either induction chemotherapy, or surgical resection, prior to myeloablative chemotherapy with AuHPCR." **(2)** "Chemoradiotherapy with temozolomide in the treatment of diffuse intrinsic pontine gliomas of childhood: results of the Children's Oncology Group (COG), ACNS0126 Trial" (Abstract MP-14) which stated: "Chemoradiotherapy with temozolomide followed by adjuvant temozolomide does not improve the outcome for children with DIPG and alternate treatment approaches should be pursued."; **(3)** Abstract RT-30 from Jalali et al, already mentioned above. **(4)** Turner et al on "Long term medical, psychological and educational issues in pediatric low grade gliomas treated with surgery only" (Abstract QL-31).

Dr Kieran pointed out that two studies – MP-15 and MP-13 which both look at high-dose chemotherapy and autologous stem cell transplant in children with progressive/relapsed/recurrent medulloblastoma (or ST-PNET) – are similar, but come to opposite conclusions. Dr Kieran also mentioned MP-05 and MP-06 as being noteworthy studies. Both look at atypical teratoid/rhabdoid tumours ("AT/RT" tumours). He said that also of note is MP-09 by Dr Johannes Wolff et al regarding the very rare choroid plexus brain tumours.

Dr Paul Brown (Mayo Clinic, Rochester) spoke next on radiotherapy.

He said that this year at SNO there were 35 radiotherapy abstracts mostly relating to adult treatment. He said that significant delay of radiotherapy for GBM leads to poorer survival. He mentioned that at the Mayo Clinic they were seeing some 10/15 year survivals for low grade glioma which has been irradiated. He mentioned using bevacizumab to treat radiation necrosis and that lithium may protect neurocognitive abilities. He said that there had been a few papers on radiosensitisers.

Dr Abhijit Guha, SNO President (Western Hospital, University of Toronto) commented during the Public Summary session: “Brain tumours are not one single entity and it requires collective expertise to look at ways to improve prognosis and decrease toxicities.”

SNO EDUCATION DAY

Returning to the start of the conference, the **SNO Education Day**, held on Thursday, 15 November included an excellent **introduction** by **Dr Lois Lampson**, Associate Professor of Neurosurgery (Brigham and Women’s Hospital and Harvard Medical School, Boston).

Dr Lampson said that there are now different ways to attack brain tumours using targeted therapies. She added that immunotherapy is very promising because the immune response attacks abnormal targets with great specificity. There are two types of immunotherapy: active immunotherapy and passive immunotherapy and a number of ways of attacking targets – using an antibody or using a small molecule inhibitor are two examples. Modes of delivery can vary – for example, bound to a toxin, injected into the blood or CSF or directly into the tumour site.

She added that the optimal solution in treating brain tumours will likely be dependent on tumour type and site. One must also take into account microscopic tumour vs larger tumour – delivery will need to be different in each case. Suitable small animal models are vital in researching these different approaches.

Dr Janice M Reichert (Tufts University, Boston) spoke about “**Development trends for new targeted cancer therapeutics**”.

She said there has been a dramatic boom in the development of cancer treatments since the early 1990s. Between 1990 and 2006, the Tufts Center for the Study of Drug Development (CSDD) analyzed data regarding 1,111 cancer therapeutic and vaccine candidates.

Further, Dr Reichert said that going through the clinical phases and US approval phases takes, on average, seven years. As yet, no cancer vaccines have received US approval.

There are more than 400 cancer drugs in Phase I or Phase II trials. Over 70 small molecule PKIs (protein kinase inhibitors) are in clinical studies.

Dr Reichert said that new therapies are very much needed. Also the development process for innovative cancer treatments must be more efficient.

Tufts CSDD has a website at <http://csdd.tufts.edu> which contains a good range of free summaries of the work of the Tufts Center for the Study of Drug Development.

Dr Nancy U Lin (Dana-Farber Cancer Institute, Boston) spoke on the “**Clinical experience in targeted therapy for brain metastases**”

She said that between 100,000 to 170,000 cancer patients per year develop CNS metastases in the US. Half of these are primary lung cancer patients and 20% are breast cancer patients. Melanoma accounts for 10% of brain metastases cases.

Patients with cancer are now living longer so good salvage treatments after radiotherapy are needed. Brain metastases trials have included patients with all different types of primary tumours but this approach will need to change because of targeted therapies. Also, the blood brain barrier plays a very important role.

It is also important to take into account the status of the patient’s systemic disease when treating metastases.

Dr Lin explained that with breast cancer trastuzumab has improved median survival in women who are HER2-positive. But recently, there has been a “high observed incidence of CNS metastases in patients with HER2-positive, advanced breast cancer treated with trastuzumab, with estimates as high as 29-43%”. Even though systemic disease might be stable, CNS tumours may still occur.

Monoclonal Antibodies (not “orally bioavailable”, but must be given intravenously; long half life) have been used as follows:

Against HER2 – trastuzumab and pertuzumab

Against EGFR – cetuximab, panitumumab

Against VEGF – bevacizumab

Against CD20 - rituximab

Small molecule inhibitors (can be taken orally, short half life):

For HER2 – lapatinib, BIBW2992, HKI-272, CI-1033

For EGFR – gefitinib, erlotinib

For VEGFR – sunitinib, sorafenib, AZD2171, ZD6474, pazopanib, vandetinib and others

Monoclonal antibodies are bigger (molecular weight is approx 150,000 daltons) than small molecule inhibitors (molecular weight is approx 400 – 900 daltons). There are problems with penetration of monoclonal antibodies because of their size.

Targeting of the angiogenesis pathway is being examined too. Previously this approach has been rejected for patients with brain metastases because of risk of intracranial hemorrhage. But a recent Duke Phase 2 study reported bevacizumab and irinotecan in recurrent malignant glioma with no cases of intracranial hemorrhage. So there may be a role for cautious exploration of this approach.

Dr AG de Boer of the University of Leiden spoke on “**Local and systemic technologies for brain drug delivery**”

The big issue is getting past the blood brain barrier which takes up 20m² of surface area. He discussed small molecules versus large molecules and types of drug delivery – viral versus non viral and local versus global.

“**Why struggle with cancer vaccines?**” was the title of a presentation by **Dr A R Choudhury** (Karolinska Institute, Stockholm).

Dr Choudhury said that immunotherapy is set to be the fourth treatment modality along with surgery, radiation and chemotherapy. The use of monoclonal antibodies is increasing.

Passive immunotherapy involves “administration of therapeutic monoclonal antibodies”. Active specific immunotherapy (cancer vaccines) are used to stimulate the patient’s own immune system for an anti-tumour response. But vaccines are still very experimental at this stage. Already, however, there are good results which have been achieved with vaccines for prostate cancer, melanoma, colorectal and non small cell lung cancer.

He added vaccines can be combined with other therapies, they appear safe and have low toxicity (which can include low grade fever, local inflammation, myalgia).

Dr Chaudhury explained that quality of life can be good with vaccines, particularly for older patients. Vaccines have a protracted effect of stable disease.

But because vaccines don’t result in tumour reduction (objective response) or sustained reduction in tumour burden, approval by the FDA has been hindered. But supporters of vaccines for cancer say that on the plus side, there are “significant increases in survival, delay in disease progression”, and good QOL with no discernible toxicity.

Dr Chaudhury suggested that it is important to think of new ways of evaluating vaccine treatment for tumours. Maybe overall survival needs to be looked at as a measure of efficacy?

Another challenge is that generally patients come into a vaccine trial as a “last resort” so doctors can’t get a “fresh” patient to work on. He mentioned that vaccination can improve chemosensitivity for patients who have failed previous rounds of chemotherapy. Cancer vaccines work best in patients whose immune system has not been seriously compromised by previous chemoradiotherapy or advanced disease.

The team approach is very important when administering vaccines because of the desired multimodal approach involving vaccines, antiangiogenic therapy, chemotherapy, etc.

Dr I F Pollack (University of Pittsburgh Cancer Institute) gave a talk on “Targeted therapies for different CNS tumors; for different CNS tumor sites”

Relevant molecular targets are now being obtained through analysing the molecular features of a tumour. Robust preclinical modelling is required in order to choose the right therapeutic agents and targets. Further, he said, a single treatment approach is unlikely to work because of the complex and varied factors that drive tumour growth. Dr Pollack added that in order to achieve better responses, we need to combine strategies. Tumour type, location, genotype and phenotype must be considered in order to tailor therapies. This will result in refined treatment planning.

SNO SCIENTIFIC PROGRAMME

The **first day of the Scientific Programme at SNO (Friday, November 16)** included a varied programme of pediatric brain tumour presentations. A number of these have already been mentioned above (see Public Summary notes) but additional presentations in this session included, among others, “Dendritic Cell Vaccine Trials in Pediatric Malignant Gliomas” by **Dr Stefaan van Gool** (UZ Gasthuisberg, Leuven, Belgium) and “European Clinical Trials for Pediatric Malignant Gliomas” (**Dr Johannes Wolff** of UT MD Anderson Cancer Center, Houston).

A presentation by **Dr Maryam Fouladi** (St Jude Children’s Research Hospital, Memphis), entitled “New agents in the treatment of pediatric malignant gliomas” pointed out the need to identify and validate targets and conduct pre clinical studies, as well as the need to improve outcome and decrease toxicity. Dr Fouladi cautioned that one must be careful not to assume that pediatric patients and adult patients are the same and that there are many different challenges with paediatric brain tumours. Further, there is the need to target and identify roles in the disease process which are biologically relevant. Pre clinical testing needs to examine efficacy, mechanism of action, measure of biological activity. Rational Phase 2 and Phase 3 trials designs are needed. Currently, bevacizumab, CPT11, cilengitide, valproic acid and enzastaurin are being looked at in pediatric patients. Cancer stem cells are also being investigated. Dr Fouladi mentioned the “vascular niche” – a microenvironment which is like a stem cell repository.

Over 30 abstracts regarding immunology and immunotherapy appeared in this year’s SNO programme. A number of these studies focussed on the use of dendritic cell vaccines.

RADIOLOGY/IMAGING WORKING GROUP

A meeting of the Radiology/Imaging Working Group also took place on Friday at SNO, covering “Pitfalls in response assessment using imaging”, “Challenges in antiangiogenic agents” and “Challenges for surgically based studies”. Some brief notes from two of these presentations are below.

1. Pitfalls in response assessment using imaging

Dr Martin van den Bent (Rotterdam Cancer Center, Rotterdam)

Dr van den Bent said that a clear response criteria is vital in order to make correct assessments. It may be time to reinvestigate and re-design the criteria previously used to evaluate tumour response (Macdonald's Response Criteria). Further, it is important to be aware that seizure induced enhancement possibly mimics tumour progression. Also "post surgical artifacts" can do this too. Clinical signs and symptoms are very important. A scan might look okay but the patient is nevertheless exhibiting clinical signs and symptoms that are problematic. This situation can also work in the reverse – the patient has "problematic" imaging but is doing well clinically.

2. Challenges in antiangiogenic agents

Dr Patrick Wen (Dana-Farber Cancer Institute, Boston)

Dr Wen spoke of bevacizumab (Avastin) and that much work had been done on studying this therapy by Dr Virginia Stark-Vance (Presbyterian Hospital of Dallas, Fort Worth) and Dr James Vredenburgh (Duke University Medical Center, Durham). Dr Wen explained that bevacizumab works against VEGF and is generally used in heavily pre-treated patients. He said there is a prolongation in progression free survival (PFS) of 61% for AA3 with bevacizumab versus 46% for temozolomide only. Dr Wen said that bevacizumab has a real anti-tumour effect. He also mentioned Recentin and spoke of response rates similar to bevacizumab. He explained that with antiangiogenic drugs, the tumour shrinks but there may be more "satellites" arising and this might lead to gliomatosis. Dr Wen said that drugs which are cytotoxic and inhibit proliferation need to come alongside drugs like bevacizumab. The question also should be asked: "Do antiangiogenesis agents change the natural history of the tumour?" Better diagnostics are needed to measure response to antiangiogenic therapies. He mentioned that he believed there is also a "silver lining" to antiangiogenic drugs in that they normalise blood vessels and reduce interstitial pressure and oedema. Perhaps bevacizumab might also help radiation necrosis?

SNO NURSES' MEETING

The meeting was co-facilitated by Mary Lovely, PhD, RN and Mary Ellen Maher, MSN, APN, CNRN.

The purpose of this meeting was to encourage more and better networking amongst neuro nurses and allied healthcare professionals working with brain tumour patients. The meeting was also set up to provide collaborative support between specialist neuro-oncology nurses and to assist with the dissemination of information.

The IBTA now has in place a new secure online nurses and allied healthcare professionals discussion list. It was suggested that this discussion list could provide an international forum which could help support nurses in this aim. (Interested health professionals should contact the IBTA Chair to join the group: chair@theibta.org)

Other topics discussed at the SNO nurses' meeting included challenges of palliative care for brain tumour patients and nurses, quality of life tools, advocacy, cognitive challenges, navigating the brain tumour journey with patients and dealing with symptom management such as epilepsy.

Dr Sherry Fox, PhD, RN, CNRN, and Program Director of the Cullather Brain Tumor Quality of Life Center in Richmond, Virginia suggested that the neuro nurses put together a “Call to Action” as a result of this meeting in order to take stock of where they were at and what their goals were.

Another suggestion at the meeting was that it might be a good idea to have a mentorship programme for neuro nurses whereby they could be paired with others to improve their skills.

There was a discussion on the many stages of the brain tumour journey and all the professionals required to assist and help the patient. The point was brought up that the journey was extremely daunting to patients, caregivers and families because of this factor. It was suggested that what brain tumour patients, families and caregivers need is an expert “system navigator” who could tie all the disparate parts of the journey together, including not only medical care and rehabilitation for example, but aspects of social benefits and quality of life issues too. There was agreement that this role could provide very useful additional support during the brain tumour journey.

It was generally decided it would be a good idea if some “working parties” could come out of this meeting – for example, perhaps, one to deal with palliative care issues, one to look at how system navigators can be incorporated and who they should be, one to look at symptom management, one to look at QOL, one to look at advocacy, one to look at cognitive issues, etc.

SNO BUSINESS MEETING

The SNO Business Meeting took place during lunchtime on Saturday, November 17.

At the meeting, it was formally announced that Dr Abhijit Guha is retiring as SNO President and Dr Susan Chang (University of California, San Francisco) is President-Elect. (The normal length of term of SNO officers is two years.) Other incoming, new officers include: Dr Frederick Lang (UT MD Anderson Cancer Center, Houston) - Vice President; Dr Lauren Abrey (Memorial Sloan-Kettering Cancer Center, New York) - Secretary/Treasurer; Dr Ken Aldape (UT MD Anderson Cancer Center, Houston) - Pathology Representative and Dr Minesh Mehta (University of Wisconsin-Madison Medical School, Madison) - Radiation Oncology Representative.

Nine hundred “professionals” were in attendance at this year’s SNO conference in Dallas

There are now 923 active members of SNO, an increase of 16% from 2006.

SNO is now offering two new services: (1) a **SNO grant review initiative** and (2) a **SNO mentoring programme**.

The **SNO International Outreach** programme was also mentioned. The main mission of the Outreach programme is to “promote clinical and research activities in both pediatric and adult neuro-oncology in developing regions of the world”. Eight geographical areas have been identified and doctors have volunteered to represent each of these areas.

A SNO International Outreach fundraising brochure to pay for these projects has now been launched and was available at the conference. (For further information about the SNO International Outreach initiative, see below.)

The forthcoming conferences were mentioned:

ISPNO (International Symposium on Paediatric Neuro Oncology) - from 30 June to 2 July 2008 in Chicago with a “Pre-Symposium Education Day” on 29 June.

WFNO (World Federation of Neuro Oncology) May 2009 in Japan.

(**Note:** the IBTA now has an online list of brain tumour relevant scientific conferences and also brain tumour patient/caregiver events – see <http://www.theibta.org/index.php?page=conferences> We know that these lists are not yet exhaustive, and would welcome any additions to them, particularly patient group conferences. We are pleased to list these conferences with links back to the organiser’s website. Please let us know of any relevant events by emailing christse@internet.co.nz)

PRESENTATION ON “WORLD WIDE INCIDENCE OF PRIMARY MALIGNANT AND NON MALIGNANT BRAIN TUMORS – Abstract EP-12

In early 2007, and as part of its overall contribution to knowledge and advocacy about brain tumours, the International Brain Tumour Alliance (IBTA) commissioned the Central Brain Tumor Registry of the United States (CBTRUS) to investigate the global incidence (number) and prevalence (those living with a brain tumour) for malignant and non-malignant primary brain tumours.

This project was duly undertaken by Mrs Carol Kruchko (CBTRUS President), and analyses were performed by Ms Jennifer Propp, Ms Kate Schellinger and Dr Bridget McCarthy. Mrs Kruchko presented the findings at this year’s SNO.

She said that the project had been quite a daunting task, in particular with regards to statistics relating to non-malignant brain tumours and, as it turned out, was “more of a study of methodology”.

Mrs Kruchko announced that, based on GLOBOCAN 2002, the estimated worldwide incidence of primary malignant brain tumours was 189,582 and that this may climb to 220,568 in 2010. (The 2010 counts are based on anticipated changes in world population demographics and do not account for any changes in brain tumour incidence.)

She further announced that the estimated worldwide incidence of primary non-malignant brain tumours was 157,833.

With regard to the primary non-malignant figures, in countries with no data it was necessary to look at neighbouring countries or countries with similar demographics, and extrapolate their data on primary brain tumours into new statistical models to provide estimated incidence rates for these countries. Mrs Kruchko talked about the problems in classification and that some registries might misclassify, for example, metastatic brain tumours and include these in incidence rates. Cancer Registries are restricted to the collection of primary tumours.

She summarised incidence of primary malignant brain tumours at 3.7 per 100,000 for males and 2.6 per 100,000 for females. For non-malignant, the figures are 2.0 per 100,000 for males and 3.1 per 100,000 for females.

Mrs Kruchko made the points that non-malignant BTs can be just as devastating as malignant ones and that many cancer registries neglected to amass data on this group of brain tumours. All these statistics were probably conservative.

In summary Mrs Kruchko stressed the importance of cancer registries for malignant AND benign brain tumours and also the importance of international cooperation in collecting these data.

SNO International Outreach Meeting (Sunday, 18 November)

Dr Jonathan Finlay, Chair of the SNO International Outreach initiative, began the meeting by stating the goals of the SNO International Outreach program with regard to developing countries.

These include **(1)** educating doctors and allied healthcare workers by sharing educational materials via the SNO website or with links to other websites; **(2)** providing DVD sets of SNO 2006 (the 11th Annual Scientific Meeting); and **(3)** implementing a new online SNO Journal discounted subscription rate for individuals in developing countries.

The International Outreach programme's long term goals are **(1)** the offering of CME activities to clinicians in developing countries, **(2)** offering sponsored educational Fellowships, **(3)** translating sections of the SNO website into various languages.

The meeting included discussions on the challenge of communicating in countries where access to the Internet was limited and the challenge of training people outside of their developing country and the situations in their homelands which include shortages of equipment, supplies, technology, etc. The IBTA suggested that while it's important to have as a long-term objective the education of medical professionals and the transfer of skills, there are many thousands of brain tumour patients who will suffer before the situation changes. Therefore, there should also be a focus on campaigning for improvements in access to palliative care drugs for brain tumour patients such as anti-epilepsy medication, morphine for pain and dexamethasone for brain swelling. (At the previous night's SNO banquet, the IBTA addressed these issues in a short speech, the text of which can be found here:

<http://www.theibta.org/uploads/file/SNO07Words.pdf>)

FINAL SCIENTIFIC SESSION – GENERAL SESSION (Sunday, November 18)

1. Late breaking abstract on “A Phase II, Randomized Non-Comparative Clinical Trial of Bevacizumab Alone or in Combination with Irinotecan Prolongs 6-month PFS in Recurrent, Treatment-Refractory Glioblastoma (Cloughesy et al)

Bevacizumab (Avastin) is a VEGF inhibitor and interferes with the development of blood vessels (an antiangiogenesis therapy). A randomised, multi-centre Phase II trial of 167 patients with recurrent glioblastoma multiforme (GBM) showed that Avastin (on its own or in combination with the chemotherapy irinotecan, CPT11) extended the survival rate of these patients. All patients had received prior treatment with temozolomide.

36% of patients treated with Avastin alone had encouraging 6 month progression free survival (PFS). 51 % treated with Avastin and CPT 11 in combination also had encouraging 6 month PFS.

This study is ongoing and final safety and efficacy data will be available in 2008. It was suggested that these therapies should be evaluated for newly diagnosed GBM.

Presentations on additional therapies in this final session included studies on:

Temsirolimus (CCI-779) and Sorafenib for recurrent GBM (Abstract MA-14)

Cilengitide (EMD 121974) as a single agent therapy for recurrent GBM (Abstract MA-08)

Cilengitide (EMD 121974) added to standard concomitant and adjuvant temozolomide and radiotherapy for newly diagnosed GBM (Abstract MA-10)

Tarceva plus Temodar during and following radiotherapy for newly diagnosed GBM or gliosarcoma (Abstract MA-50)

Erlotinib versus temozolomide or BCNU in recurrent GBM (Abstract MA-27)

Cerepro with subsequent ganciclovir for operable high-grade glioma (Abstract ST-02)

AP12009 for recurrent or refractory high grade glioma (Abstract MA-22)

Imatinib plus hydroxyurea versus hydroxyurea monotherapy in progressive GBM (Abstract MA-17)

Cintredekin besudotox (IL13 – Precise Trial) via convection enhanced delivery (CED) versus Gliadel implants for first recurrent GBM (Abstract MA-61)

SNO BANQUET

The SNO banquet, held at the Gaylord Texan Conference Center on Saturday evening, 17 November, provided a chance for the conference delegates to relax after a packed schedule of presentations, meetings and seminars. A number of awards were presented after dinner (including one to Mike and Dianne Traynor of the Pediatric Brain Tumor Foundation in the US). Twins Danielle and Deanna spoke of the challenges for both brain tumour patient and caregiver. Poet and brain tumour survivor Richard A Harvey read examples of his work to the banquet attendees (see <http://www.lemons-to-lemonade.com/>). Singer/songwriter and brain tumour survivor David M Bailey gave a moving and inspirational concert, urging everyone to share hope (see www.davidmbailey.com) There was a presentation on the SNO International Outreach programme including a short talk from the IBTA (see link below).

IN CONCLUSION

One can clearly see from the varied presentations at SNO, the wide sweep of brain tumour therapies which are now being examined and, in some cases, combined for greater effect.

Dr Guha said: “Brain tumours are not one single entity and it requires collective expertise to look at ways to improve prognosis and decrease toxicities.”

One also saw at SNO how now, and in the future, it is necessary for all branches of specialists who deal with brain tumours – clinicians, neuro-surgeons, neuro-pathologists, scientists, researchers, specialist neuro-oncology nurses and allied healthcare professionals working in this field – to combine resources and know-how in order to improve outcomes for this devastating disease.

At the SNO conference in Texas - land of the “taysha”, land of the allies – not only did the collective expertise of the international scientific community come together during this four day meeting, but for the first time patients and caregivers were invited to share in this expertise first hand, hearing on-the-spot about new therapy combinations and approaches for the way forward.

LINKS TO FURTHER INFORMATION

Abstracts for the Twelfth Annual Meeting of the Society for Neuro-Oncology in Dallas, Texas (November 15 – 18, 2007): <http://neuro-oncology.dukejournals.org/cgi/reprint/9/4/467>

Video recording of the Public Summary Session at SNO:
<http://virtualtrials.com/video10.cfm>

IBTA international online discussion group for neuro-oncology nurses and allied healthcare professionals – contact chair@theibta.org

IBTA SNO 2007 speech: <http://www.theibta.org/uploads/file/SNO07Words.pdf>

Please email any brain tumour relevant conference details to christse@internet.co.nz

IMPORTANT NOTE: This collection of layman's personal observations made during presentations at the 2007 SNO conference in Dallas, Texas is based on notes taken during the various sessions. Readers are advised to verify the information and consult original published source material. The comments in these notes are not in any way meant to constitute medical or other advice or recommendations. These notes have been compiled in good faith. They are in no way intended to be a complete record of what took place and are based on personal notes taken without the backup of any recordings of speakers. No verification (research or otherwise) of matters included in these notes has been undertaken by or on behalf of the author. The author does not accept responsibility for any inaccuracies or mis-information, errors or omissions in or arising from these notes. Regardless of information appearing in notes such as these, medical professionals should always be consulted before any decision is even considered (let alone made) or any course of treatment is undertaken. This report is not intended for general circulation and/or publication and is intended only for the general information of the addressees.