of conditions it cannot be expected to be managed by one approach. The cellular, metabolic and genetic factors as well as location, stage and extent all contribute to the characterisation of the disease as well as the therapeutic approach.
Radiation should be viewed as a very powerful therapeutic agent in the arsenal to combat cancer. New technological advances have given us tools to apply radiation in a variety of ways dependent on clinical situation. Increasing precision of the radiation therapy systems is creating a trend towards higher doses delivered over shorter time periods. The use of stereotactic techniques is becoming more common. This increased precision, facilitated by image guidance integrated with systems, is decreasing exposure to the healthy tissue and hence with reduced complications. From being viewed as palliative care, radiation therapy has transformed to being applied with a curative intention in many clinical situations. A case example is Leksell Gamma Knife that delivers high doses with pin-point accuracy to tumours in the brain. In Gamma Knife surgery the therapeutic dose is delivered in one session and image guidance relies on advanced MRI technologies. In brain metastase patients the treatment has the potential to significantly transform the outcome and management options for large patient groups, having breast and lung cancer as primary cancer disease.
Technologies applied in modern cancer care are continuously evolving and we have seen how radiation protocols are being combined with other methods in integrated management approaches. By combining radiation with other modalities such as surgery as well as biological agents and drugs further improvement can be achieved. Future more comprehensive care processes require collaboration between specialties and information and communication become important features to be able to utilize the most cost effective treatment. In this paper the global utilization of RT is further discussed with an overview of some national and global examples how the care practice of RT has been evolving. Trends and recent advancement will be discussed as well as cost-effectiveness aspects of radiation therapy. The need for strengthening partnership between industry and healthcare providers will be discussed as both are critical partners in the fight against cancer. Technological advancements and methods would not become available to health systems around the world without an Industry that develops solutions, secure that products meets regulatory demands and are properly tested prior to introduction.

Scientific Symposium (Sun, 25 Sep, 14:45−16:45)
Brain Tumours in Children and Adolescents

199 INVITED

Are Adult and Paediatric High Grade Gliomas the Same − Insight From Biology and Molecular Pathology

J. Grill[1], S. Puget[2], C. Philippe[3], G. Vassal[3]. [1]*Institut Gustave Roussy, Paediatric Department, Villejuif,* [2]*Necker Enfants Malades Hospital, Neurosurgery, Paris,* [3]*UMR CNRS 8203, Pharmacology and Anticancer Treatment, Villejuif, France*

High-grade glioma are relatively uncommon among the pediatric brain tumours. Most of the studies performed to date have followed the lines of treatment that were proven effective in adults, assuming their similarity (if not the identity) to adult type of malignant gliomas. Due to the rapid development of more targeted therapies in adult glioblastoma, there is now increasing concern about how these compounds should be evaluated in children. The first step is to compare and contrast the types of malignant gliomas occuring at different ages. Indeed, there is growing evidence that the biological knowledge and the histo-prognostic classifications used for the management of adult high grade gliomas (aHGG) may not fully apply to children. Interobserver variability and specificity of pediatric tumours with respect to the World Health Organization (WHO) classification have lead to a high rate of misclassification in multi-institutional studies. A wide range of molecular analysis performed in adults' malignant gliomas has helped to identify molecular pathways and signatures associated with prognosis. Conversely, very few molecular studies have been performed on pHGG and usually to track the alterations described in aHGG. These studies, have shown that they rarely share the same abnormalities than aHGG, suggesting different underlying biology. Recent microarray studies of pHGG tumours and cell lines have confirmed these earlier results and pointed towards molecular abnormalities more specific to the pediatric age, eg PDGFRA rather than EGFR amplifications or Ras pathway activation rather than PTEN deletions or mutations. However, the conclusions of most studies were limited by the small size and the absence of validation set. Despite, these biological differences, pHGG ressemble aHGG with respect to histology, radiology and the major biological processes involved, eg invasion or neoangiogenesis. It is therefore important to understand the role of the alternative pathways for oncogenesis identified in children, as well as their prognostic and therapeutic implications. We will propose a new classification scheme integrating both genomic and gene expression data with clinico-pathological features as an attempt to improve the molecular classification of pediatric. Some biological entities described here are unique to the pediatric age but some others, especially in older children and adolescents may share some of the characteristics of adult type of glioblastoma. We believe that a better insight in the specific biology of pediatric high-grade gliomas will help to decide which patients deserve to have the same treatment than adults and for which patients specific pediatric trials should be developped.

200 INVITED

The EU Research Strategy for High Grade Glioma in Children and Adolescents − Can We Extrapolate From Adult Data?

D. Hargrave[1]. [1]*UCL Institute of Child Health, Paediatric Oncology, London, United Kingdom*

High grade glioma (HGG), as defined by the WHO classification of tumours of the central nervous system, occurs at all age groups but emerging molecular data suggest significant differences in the underlying biology between children and adults. Historically both preclinical cell line and clinical trial patient data from adult HGG cell have informed the thinking and design of clinical interventions in childhood and adolescent HGG. However, comparison of the results of clinical studies of HGG between adults and children have shown differences in outcomes which may reflect actual differences; in the biology of age related sub-groups, differences in clinical end-points used or potential pharmacokinetic variables. Comparisons of HGG clinical data will be reviewed and possible reasons for variance in outcomes discussed.
The possibility and validity of extrapolating data from adult HGG into childhood and adolescent patients in the context of the EU research/ regulatory strategy will be presented, with suggested recommendations with regard non-clinical and clinical study design.

201 INVITED

Molecular Characterization of Medulloblastoma − the Route Towards Personalized Care

Abstract not received

202 INVITED

Functional Imaging in Adult and Paediatric Brain Tumours

Abstract not received

Special Session (Sun, 25 Sep, 14:45−16:45)
MIRACLE Workshop: Novel Technologies for the Isolation and Analysis of Circulating Tumour Cells

203 INVITED

Enumeration and Characterization of Circulating Tumour Cells

L.W.M.M. Terstappen[1], G. van Dalum[1], F.A.W. Coumans[1], A. Hoeppener[1], S. Ligthart[1], J. Swennenhuis[1]. [1]*University of Twente, Faculty of Science and Technology Medical Cell BioPhysics (MCBP), Enschede, The Netherlands*

Technologies that can detect and characterize Circulating Tumour Cells (CTC) hold great promise as they are expected to replace metastatic tissue biopsies and used to predict drug response and resistance, and monitor therapy response and cancer recurrence. The interest in CTC has increased in recent years driven in part by studies that have validated the early promise. A variety of technologies have emerged for CTC detection urging the need for standardization as the CTC frequencies reported with different technologies can deviate significantly from the one used in the CellSearch® system, the only system, that has been validated in multicenter prospective studies. Here we will review the definitions of a CTC and its relation with clinical outcome and will review the state of the art of detection of treatment targets in CTC.

204 INVITED

Microchip-based CTC Isolation

Abstract not received