aimed at providing patients with more knowledge. Armed with insight, personal behaviour patterns which influence treatment outcomes can be challenged. Our belief is that a well-informed patient will be less anxious and insecure. The information that we give is to repress misconception, reduce unrealistic fears and provide predictive information. The latter is to let the patient know what we do during the radiation and why, further to inform the patient what side effects the patient can develop after a period of time. We try to support the patient in different areas. We try to meet within the needs in the pyramid of Maslow. It states that a human being, among other things, is in need of safety and security, need for social contact and is in need of appreciation and recognition. In the conversation, we try to acknowledge their fears and recognize that these may exist and by giving information, we try to repress those fears. We try as much as possible to be really in contact with the patient and to connect with the experiences of the patient. To reassure them and to let them know what we do and why, we try to make them feel safer and more certain about the process they will be going through. To give the patient also some sense of control over the radiation, we hope to achieve that the patient feels he/she also affects the process and thus have the situation more under control. The information is given with the use of an PowerPoint presentation with support of the story, the radiation technician is giving. In this presentation, he shows pictures that support the story. The radiation technician uses the knowledge that a person remembers 20% of what they read, 35% of what they see and 55% when you combine these two.

**SP-0490** Interaction between patients and professionals: a psycho-oncologist’s view

E. Van Hoof

Vrije Universiteit Brussel, Department of Psychology, Brussels, Belgium

**Purpose or Objective:** Stress influences our communication: the way how we interpret the world, our communications style we use to interact with our environment and our internal communication. During the presentation, neuropsychological insights into communication will be presented. These insights will be used to introduce some pragmatic intervention to monitor and control communication.

**Materials and Methods:** a literature review of the impact of stress on our information processing system and hence, our communication and of possible intervention that can positively influence our information processing

**Results:** Several brain mechanisms can negatively influence our communication. Our knowledge of these mechanisms is key to understanding and identifying possible communication styles. In cancer, we see many patients and their relatives struggling with the information-processing. Coping strategies like avoiding and neglect, for instance, are effective in the short-term, but in the long run, flexibility in coping is required to ensure shared decision making in cancer care. Indeed, shared decision making is the priority in cancer care. Caregivers, specialists and the patients collaborate to ensure the best possible cancer care. Shared decision making requires an efficient information processing. However, stress has a strong impact on this shared decision making process. Results from cognitive behavioral interventions and intervention based on positive psychology positively influence information processing and stress levels. Including these strategies can facilitate emotion regulation and hence, shared decision making in cancer care.

**Conclusion:** Stress negatively impact our information processing and hence, our communication. On the other hand, communication is the central factor in shared decision making. Caregivers, specialists and patients should always be aware of these possible disruptive factors in order to ensure shared decision making in cancer care.

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**Symposium: Imaging biology**

**SP-0491** What do we really see?

D. Zips

University Hospital Tübingen Eberhard Karls University Tübingen, Tübingen, Germany

Successful implementation of functional imaging in radiation therapy requires understanding of images. This includes radiobiological interpretation, quantification as well as validation of the prognostic and predictive value. This talk will reflect on functional imaging and its link to radiobiological mechanisms of radiation response and discuss current knowledge as well as ongoing research in image validation.

**SP-0492** Genomics and imaging: a pas-de-deux in response prediction

H. Lys

Oslo University Hospital · Norwegian Radium Hospital, Department of Radiation Biology, Oslo, Norway

Medical imaging has a fundamental role in radiotherapy planning today, but is almost exclusively used for assessing anatomical features like tumor size, stage and spreading. Introduction of functional imaging provides an opportunity to also consider biological features of disease aggressiveness in the clinical decision making. Recent advances in genomic research have led to promising molecular biomarkers of treatment outcome, but it is not clear how to best translate these into clinical practice and face challenges related to tissue sampling and intratumor heterogeneity. Radiogenomics, which refers to the extraction of image features reflecting cancer genomics, allow visualization of molecular biomarkers within the entire tumor and have been proposed as a promising tool for this purpose. Such analyses provide a better understanding of the molecular background of the images and open the use of imaging in the planning of combination therapies with radiation. In this talk, I will present clinical data on associations between functional MR imaging and biopsy based genomic biomarkers and reflect on the challenge of intratumor heterogeneity for such investigations. I will further discuss the potential of combining functional MR imaging and genomic signatures in the prediction of radiotherapy outcome. Examples will be given from published data and from our ongoing studies on cervical cancer and prostate cancer.

**SP-0493** Molecular imaging for radiotherapy optimisation

R. Jeraj

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Molecular imaging adds value in each of the steps of the radiotherapy process: (1) Diagnosis and staging, (2) Target definition, and (3) Treatment response assessment. As such, it remains an important tool for optimization of radiation therapy. At the moment there is no general consensus how molecular imaging should be utilized in defining treatment target. A number of automatic and semi-automatic approaches exist, but their use in treatment planning is limited. Dose painting - biologically conformal radiotherapy - is an exciting concept, but it still needs further development. Its feasibility has been established in various tumor types, and early efficacy clinical trials are underway. Generally, post-RT molecular imaging, particularly FDG PET/CT has a high negative predictive value (NPV), but rather low/moderate positive predictive value (PPV) for predicting treatment outcome. Early RT molecular imaging response assessment is promising and provides potential for innovative adaptive approaches. High inter- and intra-tumor response heterogeneity remains challenging.