BESTA NEUROSIM CENTER CRANIAL NEUROSURGERY SIMULATION SESSION: EANS VILNIUS TRAINING SESSION 2017

The Besta NeuroSim Center’s team proudly participated within the EANS Training Course that took place from January 21st to 25th, 2017 in Vilnius, Lithuania, focusing on the second edition of the Cranial Neurosurgery Simulation Session and participating in various faculty meetings and presentations.

The aim of this five day simulation session, was to gather and record some primary data necessary for the continuation of the ongoing research project, regarding the importance and availability of simulators within the field of educating new-coming neurosurgeons, and discovering the best way to introduce these into the education system. After arduous and delicate packing and packaging we managed to bring to this event most of the center’s simulators.

Starting with two Surgical Theater simulators, that reconstruct a three dimensional interactive skull of the patient through images obtained from CT and MRI examinations - in this task the
participants had the opportunity to virtually “walk” inside the patient’s head and identify key anatomical landmarks through the Oculus device.

Then, once the case was sufficiently examined and understood, the resident neurosurgeon was asked to complete an aneurysm clipping task in the 3D virtual reality provided, always in accordance to the case study taken into consideration, thus deciding which clip was necessary to complete the task and the correct positioning of it. This was positively reviewed, and as advice residents suggested some improvements could be made to make this virtual reality more “real.”
Secondly the participants had the chance to explore the USIM device, used for the intraoperative Brain Ultrasound Navigation task. The Neurosim Center itself created an Application in order to have a more hands on and approachable method to the basics of intraoperative brain US semiotics, making the virtual US correspond to your own phone. This task challenged the participant’s ability to handle the probe itself and learn how to interpret the visual information obtained. The large majority of participants thoroughly enjoyed this task as found to be extremely useful and incredibly real in its performance.
Then the participant would move on to the tumour debulking task, thus reaching the Neurotouch Simulation simulator. This allows through haptic feedback and sensitivity to remove a tumour from the patient’s brain in a virtual reality. Aimed at ameliorating ones skills, most participants in Vilnius appreciated the opportunity to practice the essential ability of using both hands, thus refining their coordination and practicing on their force applied within this virtual reality.
Finally, they moved on to the EVD placement task, and thus the Immersive Touch simulator. Trainees in Vilnius were extremely impressed by the sensory and visual realism of this task as the feeling of the patient’s tissue is extremely realistic. Furthermore, when drilling, the doctors could feel the skull, the bone and once the appropriate entry point was drilled and ready to use, they would move on to the catheter placement. Again residents were impressed about the sensory realism of the feeling when entering the ventricle. We gathered some useful recommendations and ideas regarded the possibility of increasing this reality by giving the opportunity to use both hands for the task, as many like to put their other hand on the patient’s head in order to determine their landmarks and better mark the patient.

Overall this simulation session was extremely successful as all students enjoyed the experience and contributed eagerly to this research project. Their collaboration was essential to our studies and their desire to participate was duly noted and appreciated. It is a tremendously exciting project and a decisive moment for these studies and projects, which is why we are keen to achieve and participate in various events of this type in the forthcoming time.