U of M Neurosurgery This Week

February 27, 2019

Congrats to Karen Ellis, the 2018 Angie Balkcum Award recipient!

Nurse Care Coordinator Karen Ellis received the annual Angie Balkcum Award during the recent Employee Appreciation Event. “I was pleasantly surprised and felt really flattered that my colleagues would nominate me for the award,” she said. “It makes me feel like I’m making a difference in the lives of my patients and that the work I do is valued.”

One of her award nominators noted that, “Karen is an invaluable resource to the rest of the Neuroscience nursing team. Her depth of knowledge is far broader than 'brain surgery.' Her responses to the numerous bounce-pass questions are thoughtful, to-the-point, and accurate.”

An Ohio native, Karen wasn’t always a nurse. She earned her undergraduate degree in Russian and East European Studies from the University of Michigan. She then attended law school at Indiana University in Bloomington. “I practiced for 13 years and decided I needed to transition into something I felt would be more rewarding personally,” Karen explained. She attended St. Catherine University in St. Paul, MN, evenings and weekends to get her nursing degree – and a more rewarding career.

Karen and Dr. Park at the appreciation event

Convergence of technology, immunotherapy and courage help patient rise above life-threatening brain tumor

In May 2018, 29-year-old Adam Donahue was diagnosed with glioblastoma and had failed the standard treatment. “It was disheartening when we saw that the treatment wasn’t doing what they thought it would do,” said Adam.

He seemed to be out of options – until he was referred to Dr. Chen. When Dr. Chen reviewed the case, he thought Adam would be a good candidate for a clinical trial that he is leading. Known as DNAtrix, the study is exploring an innovative two-step treatment for glioblastoma: 1) administering a genetically engineered virus called DNX-2401 into the tumor, and 2) intravenous infusions of an immunotherapy known commercially as KEYTRUDA®.

DNX-2401 is a modified adenovirus – the virus that causes the common cold. It is engineered to specifically infect and replicate in brain cancer cells. As DNX-2401 replicates, it kills tumor cells in ways that trigger the patient’s immune response against the tumor. The problem, according to Dr. Chen, is that glioblastomas have the ability to evade and “turn off” the patient’s immune system.

This is where KEYTRUDA comes in. The drug acts by preventing the immune-suppressive capacity of glioblastoma. “DNX-2401 recruits immune cells to attack cancer cells, while KEYTRUDA shuts down glioblastoma’s ability to escape these immune attacks,” said Dr. Chen.

To precisely deliver the virus into Adam’s tumor, Dr. Chen used a catheter designed using nanotechnology that “employs a series of gradually narrowing step-offs to prevent the liquid virus from back flushing,” he explained. “And because the procedure is done inside the MRI, we can see precisely where the virus is deposited.” The U of M is the first and only institution in Minnesota offering this technology.

The convergence of genetic engineering, immunotherapy, nanotechnology, and cutting-edge neurosurgery led to Adam’s tumor shrinking to a quarter of its original size and the continual lessening of his symptoms.

“When we work together … the engineers who developed the nanotechnology cannula, the scientists who developed the drug and the virus, and the clinicians who did the surgery … when we put all that together with a courageous patient who believes in himself, we give birth to tomorrow’s neurosurgery,” said Dr. Chen.

Want to improve patient safety? Wear a different hat!

Dr. Hamade modeling the specially designed hat

Second-year resident Dr. Youssef Hamade, recommended something recently that could result in improved communication – and enhanced patient safety – in neurosurgical operating rooms at UMMC. And it's as simple as wearing a specially designed hat (under a transparent bouffant cover when in the OR).

"I got the idea from having worked at the University of Iowa," he said. "Residents there are given customized scrub hats with a different theme and color each year." It made the residents stand out in the operating room, so it was easy to identify neurosurgical team members.

"It is important to be able to identify people for many reasons," Dr. Hamade explained. "For example, identifying people and staff in the OR facilitates communication. After all, good communication prevents errors and maximizes patient safety." It also helps avoid confusion over roles in the operating room.

"In addition, I think patients and their families appreciate knowing what teams are involved in their care," said Dr. Hamade. "It would give them a way to remember us, because I'm sure they'll be talking to many care team members and they may forget who they had conversations with."

Dr. Hamade took his idea to Residency Program Director Dr. Hunt, who suggested writing names on the hats, so everyone could be easily identified.

The hats should be ready for all Neurosurgery Department faculty, residents, and OR staff soon.

Department's E-STAND study getting lots of attention for its results

Doctors David Darrow, Ann Parr and Uzma Samadani received recent media attention after publishing results in the *Journal of Neurotrauma* from their E-STAND study. The results showed that spinal cord stimulation can immediately restore some voluntary movement and autonomic functions, such as cardiovascular, bowel, and bladder, years after a paralyzing injury without any significant rehabilitation.

"This was an opportunity to use epidural stimulation combined with my background in mathematics, to collaborate with people from multiple disciplines, including biomedical engineering, and set up a truly innovative trial," said Dr. Darrow, a lead investigator for the clinical trial.

The E-STAND team implanted two female patients who suffered devastating traumatic spinal cord injury. Neither patient had lower body function and MRIs showed very little residual spinal cord at the level of injury. "Enabling someone to move her legs more than 10 years after being paralyzed from spinal cord injury has been one of the greatest moments of my career," said Dr. Samadani.

"While we are excited for all this could mean for patients, there is still a lot of research to be done, both with this therapy and through other avenues, many of which we are studying at the University of Minnesota," said Dr. Parr, who has an active translational spinal cord injury research laboratory at the U's Stem Cell Institute.

New Operations Director overseeing major change in several clinics, including Neurosurgery

Kelly Schechter, RN, a seasoned veteran of UMP's Cardiology Division, recently took over leadership of the Neuroscience Clinics, in addition to the Cardiology, Endocrine and Pulmonary Clinics. That might seem a bit overwhelming, but Kelly is up to the challenge.

She admits that it's comfortable working with the same people for so long, but there is also, "fun and excitement in working with new people and learning new diseases."

A Minnesota native, Schechter earned her nursing degree from the College of St. Catherine in Minneapolis. She enjoys listening to books on Audible during her commute and loves to travel. "My fiancé is a part-time cruise ship physician," she said. "Sometimes, I go with him. It's fun!"