An interview with Dr Santosh Kesari

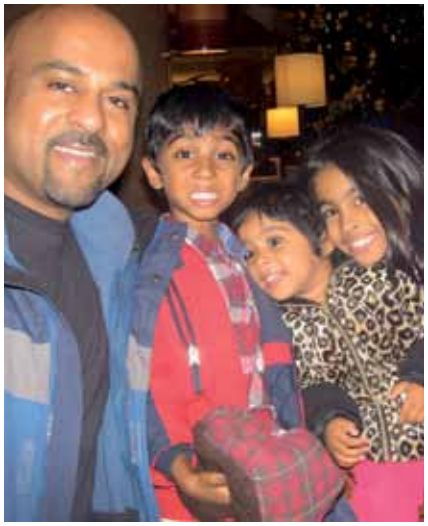
Dr Santosh Kesari is the Director of the Neuro-Oncology Program at Moores Cancer Center, UC San Diego Health System. He is also the Director of the Translational Neuro-Oncology Laboratories and the Neurotoxicity Treatment Center and Professor in the Department of Neurosciences at UC San Diego. Here he talks to 'Brain Tumour' magazine about his work and his five-to-ten-year goal.

IBTA: Where did you spend your childhood?
SK: I was born in Hyderabad, India and moved to the USA when I was seven and grew up in the state of West Virginia.

IBTA: Did you come from a family environment that had a connection with medicine or research?
SK: My father was a family practitioner in rural West Virginia so I was exposed to medicine at an early age. Interest in research developed overtime as I understood that we did not really fully understand the human body and, in particular, the brain

IBTA: What attracted you to medicine and later to the brain tumour area?
SK: I have always had an interest in how the brain works, in the nature of the mind, and thinking about who we are. Over time I was attracted to the neurosciences in college and medical school. My PhD was actually in using the herpes viruses for oncolytic therapy of brain tumors with neuroscientists Drs John Trojanowski and Virginia Lee at Penn and Dr Nigel Fraser at Wistar. I also worked with Dr. Amy Pruitt at the University of Pennsylvania on clinical research on brainstem tumors which solidified my interest in neuro-oncology.

IBTA: How do you cope with the emotional and psychological challenges to you personally arising from your work?
SK: It is always difficult to lose a patient and in the beginning I had a hard time dealing with it. But over time I have refocused those emotions into working harder to find better drugs in the lab



Above: Dr Santosh Kesari with his three children

and also in developing better, more innovative clinical trials for my patients. I have also experienced losing an aunt to glioblastoma in 2011 so have further personal motivation to do better than the current standard treatments.

IBTA: Do you anticipate any significant breakthrough in brain tumour therapies in the next ten years? If so, in what areas?
SK: Absolutely. There are many new drugs in clinical trials and more in the developmental pipeline. Also, in our lab at UCSD we are working on what we hope might develop into the first glioblastoma stem-cell specific drug which we hope will be able to reach the stage of testing for human use in the next three years.

As well, we have developed a novel nanoparticle method which may allow available drugs to penetrate into brain tumors better and this is also being further developed for human trials in the next two years. Finally, we have developed a computerized approach to predicting which patients will benefit from which drugs so we can better personalize treatments. My five to ten-year goal is to work hard to help get at least one new drug approved for brain tumors and help to develop better clinical predictors (biomarkers) of response to current drugs.

IBTA: Do you think it is necessary for clinicians to "think outside of the box" when it comes to treating brain tumours, due to their devastating nature? What kind of "thinking outside of the box" might that entail?
SK: Yes, we all have to think outside the box creatively if we are going to make the big gains needed in this disease. New brain tumor-specific drugs need to be developed and developing more effective combinations of existing drugs will be important even though brain tumors represent a relatively small market.

IBTA: We have read that you are particularly interested in personalised treatments for brain tumour patients. In your view, what are the advantages of personalised medicine? What are the disadvantages?
SK: Personalized medicine means that we can maximize an individual's response to a medication while minimizing toxicity or preventing treatment failures from ineffective drugs. The main difficulty is figuring out how to do this and incorporating this into our clinical work flow in our currently burgeoning health care economy. Using biomarkers to select treatments already occurs in other cancers, such as Herceptin for Her2+ breast cancer, EGFR inhibitors in EGFR mutated lung cancers, and BRAF inhibitors in BRAF mutant melanomas. It will take time and upfront investment in biomarker studies to show their value over time.

IBTA: How do you relax? Do you play music, go for walks, sail a boat? Do you have a hobby? might that entail?
SK: There is much work to be done to cure brain cancers and so I have not been relaxing much until recently! My wife and I have three kids and they are getting older and more demanding so I am trying to spend more time with them going to parks, the beach and museums. I do love to travel and experience different cultures and wish I could do more of that with my family. ■