

AAPM 2012 Highlights – Glia as the “Bad Guys”: Clinical Implications of Glial Dysregulation of Pain, Opioids, and Other Drugs of Abuse

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Hi, Dr. Jeff Gudín coming to you from the American Academy of Pain Medicine's 28th annual meeting symposium here in Palm Springs, California.

Following Dr. Perry Fine's presidential address and welcome, our opening lecture was given by Dr. Linda Watkins. Now Linda could not join us today but I did attend her lecture, and boy, let me tell you it is probably the best lecture I have seen in a number of years. The title of her lecture was called “Glia as the ‘Bad Guys’: Clinical Implications of Glial Dysregulation of Pain, Opioids, and Other Drugs of Abuse.” Dr. Watkins reminded the audience how glial cells in the central nervous system can be activated and contribute to things like neuropathic pain. They can actually modulate how the opioids work at the receptors. She discussed how glial activation might be an important component of drug abuse, might be an important component of neurologic disease. She showed an animal model of multiple sclerosis, basically being given to mice and then administered a glial cell inhibitor and it prevented the progression of the disease. So there is a lot of excitement around glial cell activation. Dr. Watkins says that therapeutics targeting glial activation, and specifically key glial activation receptors, are now approaching clinical trials aimed at relieving pain, increasing the efficacy of opioids, and treating drug abuse. Dr. Watkins is world renowned for her groundbreaking work in understanding the mechanisms and potential control of pain. She was awarded one of Spain's Prince of Asturias Awards for Technical and Scientific Research in 2010, and in addition to her research she has written or cowritten more than 250 book chapters, review articles, and journal articles.

I can tell you from sitting in on Dr. Watkins' lecture I certainly learned a lot about the pathological response of pain. We recognize that neuronal cells contribute to central sensitization, hyperexcitability in the nervous system, spinal cord wind-ups so that we have called it. But Linda has discussed with us how there are non-neuronal cells that contribute to the regulation of pain as well. She discussed how in the future our scientists can hopefully develop target compounds to prevent the activation of these non-neuronal cells, to prevent the activation of glial cells which appear to contribute to the excitability and the wind-up in the nervous system. Her research has shown that turning off these glial cells or inhibiting the activation of these glial cells actually turns off pain, and that glial cells can regulate or dysregulate the actions of opioids. So you

can actually improve the analgesia that you get when administering a drug like morphine by using some of these glial cell blockers. So it appears that there are chemicals in our body like excitatory cytokines and other neurotransmitters that we are just starting to break the surface and learn about, and Dr. Watkins has contributed significantly to the literature on glial cell activation and just how it interacts with the not just the immune system but pain regulatory system in the body. She introduced the receptor called TLR4, toll-like receptor 4, which is actually blocked by one of the stereo isomers of naloxone, so when they take the positive and the negative isomers of a molecule like naloxone, it turns out that the positive naloxone will not bind to the opioid receptor, will not block the opioid receptor, but can actually bind to and inhibit the glial cell receptor. So Dr. Watkins introduced some of these concepts which are just remarkable, giving us some hope that other than the limited classes of analgesics that we have today that on the future that there will be some new and exciting classes of pain regulating compounds.

This is Dr. Jeff Gudin. Please log on to *EmergingSolutionsinPain.com*, check out some of our other exciting interviews with presenters here at the 28th Annual American Academy of Pain Medicine meeting and please feel free to cruise around the website. You can find important tools that you can use in your practice. You can find highlights from other national meetings. *EmergingSolutionsinPain.com* will try to keep you on the cutting edge of pain management. Thank you.