Aethlon CEO Sheds Light on Monitoring CTE

Tue, 03/15/2016 - 9:27am
Ryan Bushey, Digital Editor

Research regarding Chronic Traumatic Encephalopathy (CTE), the controversial neurodegenerative disorder affecting athletes with a repetitive brain trauma, is still in its early stages. Symptoms can include memory loss and confusion, according to Boston University's CTE Center, but these shifts in the brain can begin months or years after an athlete ends his or her career.

However, medical device maker Aethlon in collaboration with Exosome Sciences may have found an effective way to diagnose and monitor CTE as it progresses. R&D Magazine conducted a brief interview with Aethlon CEO Jim Joyce to discuss this discovery, which was published in the *Journal of Alzheimer's Disease.*

Please give a brief background regarding Aethlon's research into CTE. Why did the company decide to explore opportunities in this area?

"Our Chronic Traumatic Encephalopathy (CTE) research was inspired by the death of a friend and former teammate, Tom McHale, who was the second person to be diagnosed with CTE by our colleagues at the Boston University CTE Center. CTE is a neurodegenerative disease that can only be diagnosed post-mortem presently, and we saw a significant need to develop a non-invasive method to diagnose CTE in living individuals.

Our study examined exosomal tau levels in brain plasma as a potential CTE biomarker. The team first discovered the presence of circulating exosomal tau, which we refer to as a Tausome, and then developed a method that could quantify and monitor changes in Tausome levels. We believe this is the first potential blood test to detect CTE in living individuals."

Can you talk about anything that surprised your researchers throughout the experiment?

"The findings are preliminary, but the potential of having identified a CTE biomarker that we could use to diagnose CTE during life and monitor its progression is a huge step for the medical and patient community. The disparity in tausome levels between the 78 former NFL players and the 17 control subjects, a group of former athletes in non-contact sports, was significant, marking the first step in validating a potentially effective approach for diagnosing CTE patients. Additionally, we observed a remarkable correlation between high Tausome levels and cognitive decline."

What capacity do you see this blood test being used in the NFL?

"Presently, non-control participants in our studies have only been former NFL players who are high risk CTE candidates. Diversifying and enlarging our participant population is a key next step for future studies, specifically including at-risk populations, such as further testing in NFL players as well as athletes playing other high-impact sports and veterans. Regardless, the final validation of our Tausome as a CTE biomarker could be quite beneficial to the NFL as teams could measure baseline Tausome levels of a player prior to entering the NFL and then monitor changes in Tausome levels over time. As repetitive sub-concussive blows to the head are the underlying hallmark of CTE, it would seem possible that prior to entering the NFL, that many players may have suffered such injury through participation in football at the Pop Warner, high school and college levels."

Also, please provide your thoughts on your projections for the medical device market: where you see things moving towards, challenges/opportunities etc.

"In terms of medical devices to diagnose and monitor disease conditions, we believe that exosomal biomarkers, such as our Tausome for CTE, will be the basis for a new generation of tests and liquid biopsies that will improve the early diagnosis and monitoring of a wide range of disease conditions beyond CTE. This includes cancer and infectious disease. As many exosomal biomarkers are also being discovered to play a pivotal role in disease progression, these next generation diagnostic advances could serve as companions to identify when to treat with medical devices such as our Hemopurifier, which targets the rapid elimination of circulating disease promoting exosomes for therapeutic benefit. Response to therapy could then be monitored by changes in exosome levels, much like changes in viral load is today's gold standard for measuring the response to current antiviral drug treatments."