Neurocognitive and Psychological Health Treatment Strategies

Vision Research Oversight

In FY16, the Vision Center of Excellence (VCE) authored or provided expertise and technical oversight on multiple projects designed to assist in diagnosis and treatment of blast-induced ocular trauma as well as improve training in skills necessary for handling complex ocular injuries caused by blast. VCE continues to provide oversight of the Phase II Small Business Innovation Research (SBIR) award for the topic titled "Adapting SmartPhones for Ocular Diagnosis".[1] The anticipated outcome of this topic is the development of a fully functional yet easily portable slitlamp designed on a smartphone platform that will enable more sophisticated diagnosis of eye injuries and conditions under all levels of communication capability. In addition, VCE provides oversight of the Phase I SBIR award to Neuroctix Corp. titled "Novel Intraocular Visualization Tool".[2] The anticipated outcome is a novel surgical tool that will allow retinal surgeons to perform sophisticated retinal surgery despite not having a clear view through the cornea. This is anticipated to improve surgical successes and reduce complications in treating complex ocular trauma such as that consequent to blast. VCE also provided technical oversight and input for a project being directed by the US Army Medical Research and Materiel Command (USAMRMC) titled "Development of Enhanced Biocompatible Materials for the Repair of Ocular Injuries" that aims to create an ocular patch that can help stabilize an ocular wound for transport to the theater ophthalmologist and beyond.

Additionally, researchers at VCE continued to provide technical requirements and directions for the ongoing development of a high-fidelity ocular trauma mannequin simulator by Massachusetts General Hospital funded by the Defense Medical Research and Development Program (DMRDP) managed by the Congressionally Directed Medical Research Program (CDMRP). The simulator is intended to provide ophthalmologists with high-fidelity models on which to train, regain, and maintain critical surgical skills necessary to treat complex ocular polytrauma, such as that seen in blast injuries. VCE continues to collaborate intellectually with civilian academic institutions such as Johns Hopkins University (JHU) and Vanderbilt University, as well as the Army Research Lab (ARL) in order to provide input into the development of advanced and sophisticated trauma modeling and simulation paradigms. These collaborations serve as a mechanism of directing research in the areas where there are gaps in knowledge and allow for development of more effective treatments and diagnostic tools, enhance readiness, and support better care for Service Member and Veteran populations, including blast-related research projects.

1 Adapting SmartPhones for Ocular Diagnosis. https://www.sbir.gov/sbirsearch/detail/374127

2 Novel Intraocular Visualization Tool. https://www.sbir/gov/sbirsearch/detail/981531