Biomarkers of Gulf War Veterans’ Illnesses: Tissue Factor, Chronic Coagulopathy, and Inflammation

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PUBLIC ABSTRACT

Approximately 200,000 veterans of the Gulf War (Operations Desert Shield and Desert Storm) continue to suffer from unexplained serious illnesses. These chronic health problems profoundly reduce their quality of life. In a VA-funded pilot study we have found evidence of excessive blood clotting in veterans with Gulf War Veterans’ Illnesses (GWVI). The blood tests showed that the coagulation system is chronically activated. One potential result of this clotting abnormality would be the clogging of small blood vessels. Blood would not circulate freely and tissues would be starved of essential nutrients and oxygen. Many symptoms of GWVI, such as fatigue, pain, and memory problems, may be caused by reduced blood flow. Thus, the excessive blood clotting we have detected may be an underlying cause of GWVI. The research we are proposing will confirm and extend the results of the pilot study. Blood from Gulf War veterans with and without GWVI will be the focus of this new study. With an expanded panel of tests we will search for additional evidence of excessive blood clotting in volunteers with GWVI. Our goals are to develop effective ways to diagnose and to treat GWVI. In the VA pilot study we have already identified a blood test that may be useful for GWVI diagnosis. If those results can be confirmed and extended, then the first goal will be achieved. If one can test for an illness, then one can test the effects of drugs on it. Therefore, the information generated by this study may lead directly to clinical studies. The goal will be to identify drugs that correct the clotting system defects in individuals with GWVI. If our model of GWVI is correct, then effective treatments may already exist.