

Coagulometer for Comprehensive Assessment of Trauma-induced Coagulopathy

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Need

Traumatic hemorrhage and trauma-induced coagulopathy (TIC) are primary causes of mortality in the U.S. with more than 25% of severely injured patients have significant coagulopathy. TIC can develop immediately after injury, making early identification and treatment critical. TIC must be treated with hemorrhage control, transfusion, and resuscitative strategies as early as possible to improve survival probability. However, effective guidance and implementation of such strategies require a comprehensive assessment of coagulopathic status, including platelet dysfunctions, defects in thrombin and fibrin generation, as well as hyperfibrinolysis (and possible fibrinolysis shutdown), spanning the spectrum of TIC.

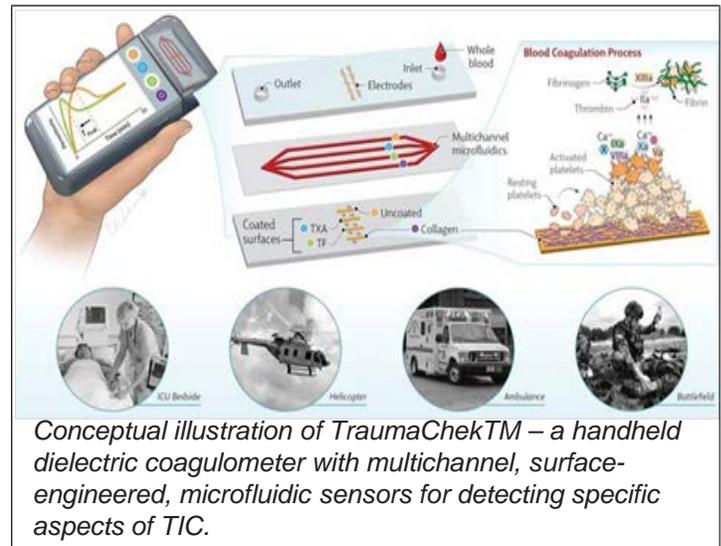
Clinically, coagulopathy assessment is mostly carried out via the utilization of plasma-based biochemical coagulation assays (e.g., prothrombin time/international normalized ratio (PT/INR), activated clotting time (ACT), and activated partial thromboplastin time (aPTT)), all of which are time-consuming methods and none of which by itself can provide comprehensive, sensitive assessment of TIC. Unfortunately, for trauma patients, access to such comprehensive assessment is not always possible in a timely manner to guide TIC management.

Solution

TraumaChek employs dielectric spectroscopy, the quantitative measurement of how an external electric field interacts with the electric dipole moment of a material sample (e.g., blood) to create a platform technology for electronic, label-free, and minimally invasive assessment of TIC in a multichannel, surface-engineered, sensing system.

A major emphasis of our research is in the establishment of TraumaChek™ as a portable

Device



Solution (con't)

medical device to guide early POI/POC intervention in life-threatening traumatic hemorrhage, thereby providing early transfusion guidance to improve survival probability. It is demonstrated that comprehensive POC assessment of coagulopathy using TEG/ROTEM and associated transfusion guidance enhances survival significantly more than guidance by standard coagulation assays.

Opportunity

We seek commercialization partners with commitment to and a leadership position in global health issues. Opportunities for collaboration may take a variety of forms, including: license of IP; participation directly or in conjunction with a private equity investor in a startup to develop and commercialize the technology; sponsored research.

Intellectual Property

Non-provisional patent applications were filed in April 2020.