"ACOUSTIC-BASED TISSUE RESUSCITATION" VCU #03-42

Applications

- Treatment and prevention of tissue ischemia
- Treatment of occlusion and ischemia related to hemorrhagic shock
- Cardiogenic shock
- Congestive heart failure, cardiac arrest,
- Septic shock

Advantages

- User-friendly
- Non-invasive
- Portable
- Can be turned on and off
- Low-frequency
- Rapid increase in tissue blood flow

Inventors

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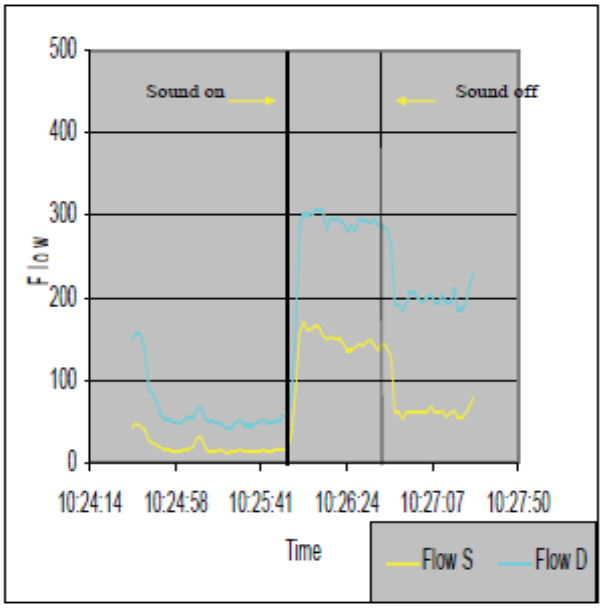
Market Need

Current methods used to treat and prevent ischemia consist of intravenously-delivered pharmaceutical agents and invasive devices, such as the intra-aortic balloon pump. The ability to modulate blood flow easily and noninvasively is necessary for adequate treatment and prevention of ischemia.



Acoustical Modulation of Blood Flow

Technology Summary

This is a device to treat or prevent ischemia by rapidly increasing blood flow and, thereby, oxygen to tissues. The device delivers a low-frequency sound to the entire body or selected areas, which results in an increase in blood flow. The device is non-invasive and the effect can essentially be turned on and off. Moreover, this device could allow on-the-fly programming and feedback when coupled with a method or technique which measures tissue oxygenation or blood flow. The apparatus is user-friendly and could be used by paramedics or in emergency departments, operating rooms, intensive care units, and in the home.

Technology Status

U.S. Patents issued: 8,197,427

Pilot animal studies are underway.

This technology is available for licensing to industry for further development and commercialization.