Pressure-Sensitive Tourniquet for Blood Draws and I.V. Insertion

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Technology description

tourniquet, venipuncture, medical device, IV insertion, blood draw, blood vessels

Summary of Invention

The inventor has developed a device to help clearly visualize blood vessels during venipuncture (blood draws and IV insertion). Veins are easy to see when engorged, which happens when they are fully occluded and the supplying arteries fully open. This device is a tourniquet that is able to apply the exact amount of pressure (between systolic and diastolic pressures) required to optimize engorgement of the veins.
Currently used tourniquets are elastic bands that have no means of measuring the pressure applied. Thus, very often, the pressure is either too much, so that the arteries are also occluded, or too little, so that the veins are not closed. Both scenarios result in suboptimal venous engorgement and significant discomfort. Alternative devices use HD imaging and infrared lights to illuminate blood vessels, however, these are much more expensive.
This device is constructed by connecting three primary components: 1) an inflatable cuff from which pressure can be both measured and regulated, 2) a pressure-regulating unit, and 3) a pulse-detecting unit (sensor). The cuff inflates automatically and feedback from the pulse sensor maintains the pressure between arterial systolic and diastolic.

Market Need

The target market size is all medical practitioners regularly performing venipuncture. According to the National Phlebotomy website, approximately 263 million vein-access procedures were conducted in the year 2008.

Application area

IV insertion, blood draws

Advantages

Four out of every 10 patients who require venipuncture get pricked more than once, causing unnecessary discomfort and bruising. This device will reduce unsuccessful attempts, while also costing less than the HD-imaging devices.

Institution

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