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Mitigating Human Error While Utilizing Vacuum Assist

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Purpose:

To improve the safety and ease of vacuum assist venous drainage (VAVD), we trialed a novel suction device (NSD). The circuit-design both eases and streamlines the human factors of the vacuum setup. Special consideration was focused on the Y-Connector typically employed between the vacuum source and the reservoir, pressure relief and pressure monitoring.

Materials & Methods:

Two hundred consecutive cardiopulmonary bypass procedures (CPB) requiring VAVD were reviewed. Prior to incorporating the NSD, perfusionists were in-serviced and competency reviewed. Our prior setup consisted of a traditional vacuum regulator and VAVD disposable kit. The VAVD disposable kit contained tubing with a Y-Connector, vacuum relief valve, positive pressure relief-valve, and a moisture trap. Additionally a pump clamp was alternately used between the suction source and the atmospheric leg of the Y-Connector. For this trial, the NSD controller had all of these design aspects incorporated into a single device.

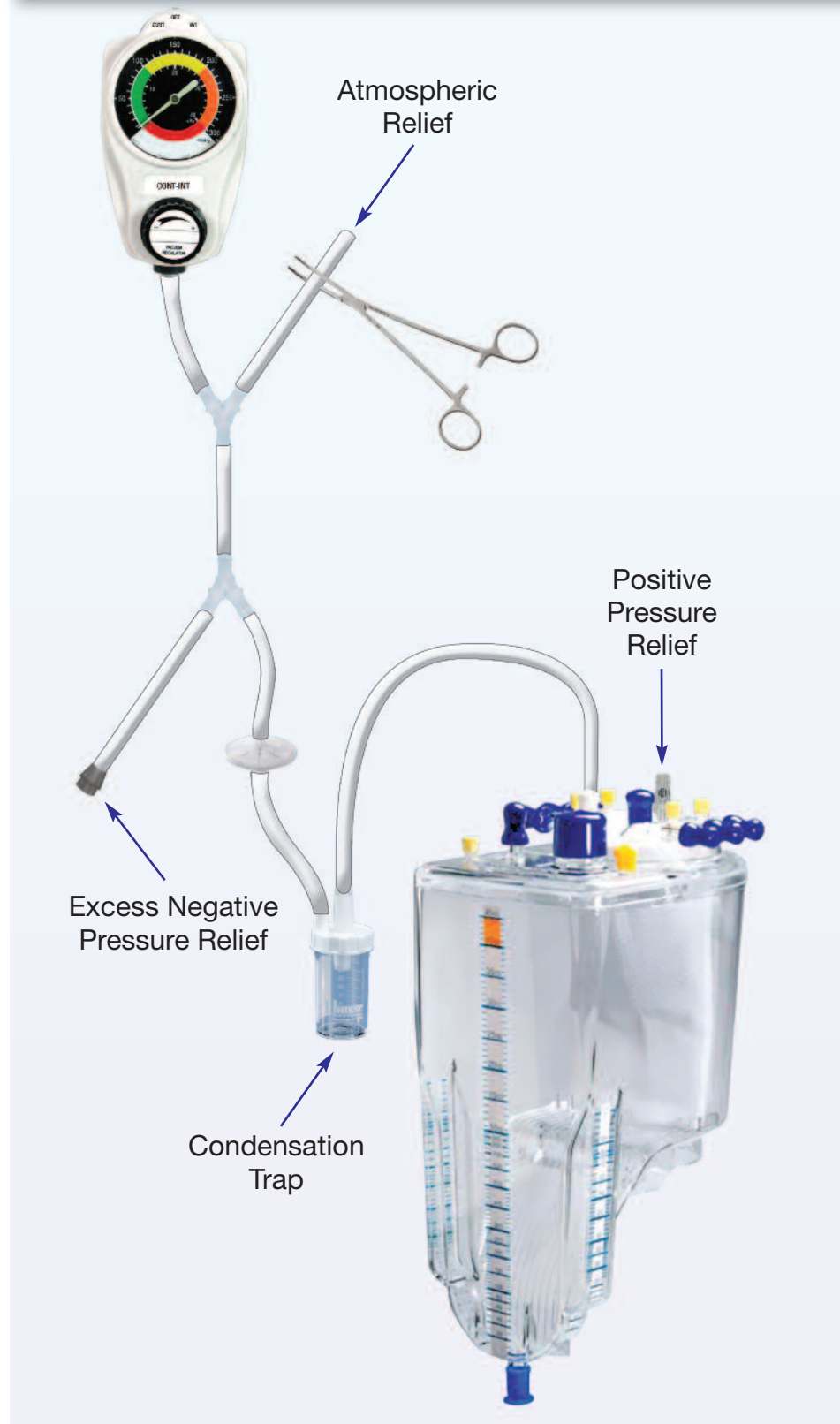
Results:

The NSD was safely used in 200 procedures requiring VAVD. Both setup times and costs were less.

Conclusions:

With the evolution of minimally invasive surgery and other procedures involving VAVD, the NSD described here offers advantages to the perfusionist that warrant further investigation. This device provides an elegant solution to complex surgery by avoiding the additional maneuvers, required disposables and increased costs of traditional VAVD. The integrated redundant safeties of the NSD allow for a simpler circuit connection while providing for increased patient safety during vacuum application with no noted complication on more than 200 CPB cases.

Traditional



Novel Suction Device (NSD)

