CSF Shunt Modular Redundancy

Technology #20170319

Increases CSF Shunt System Time to Failure

A new cerebrospinal fluid (CSF) shunt system design uses modular redundancy to increase time to failure. The system not only uses a redundant component, but keeps it in pristine, uncontaminated condition until the original fails. Only at that point does the redundant component come online, and it does so either automatically or manually. The redundancy principal can be applied to any of the three CSF shunt system components. In addition, the redundancy isn’t limited to merely doubling the components; adding more copies further increases the anticipated time to failure.

Valve, Proximal Catheter and Distal Catheter Modular Redundancy

Three elements comprise a CSF shunt: proximal catheter, valve and distal catheter. Failure of any of these individual elements leads to system failure. Modular redundancy, commonly used in industry to reduce risk, entails doubling up an individual component such that the redundant component will come online only if the original fails. Such modular redundancy in this new CSF shunt design doubles the system time to failure as compared to a non-redundant system.

BENEFITS AND FEATURES:

• Modular redundancy

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• Doubles system time to failure
• Redundant component kept in pristine, uncontaminated condition until the original fails
• Comes online only when original fails
• Automatic or manual

APPLICATIONS:

• CSF shunts

Phase of Development - Concept. CAD model and working physical prototype have been completed.

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