Continuous-flow left ventricular assist devices induce left ventricular reverse remodeling

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Left ventricular assist device (LVAD)-induced reverse remodeling was originally studied in hearts of patients supported with pulsatile devices. 1 The mechanical unload-

References


There was an average 76-ml reduction in V30. This degree of reverse remodeling is slightly lower than that reported previously for the HeartMate I pulsatile device (average decrease for V30: 98 ml). In contrast, patients receiving partial support had an average heart size in between the full-support and no-support patients (V30: 173.1 ± 42.7 ml).

A potential limitation is the shorter duration of support for the partial-support device. Therefore, only hearts supported for >45 days were included. An earlier study has shown that reverse remodeling process is complete by this point.

Despite the fact that pulsatile devices are more effective at unloading the ventricle than continuous-flow devices, clinical effectiveness in terms of hemodynamic support, recovery of exercise tolerance, and improvement in quality of life are comparable. This suggests that choosing the mode of assist becomes relevant only if the goal of providing support is aimed at myocardial recovery. In this regard, it is critical to note that, although reverse remodeling is very common, recovery is very rare.

Despite these findings, improved understanding of the determinants of reverse remodeling remains a priority because this is what will ultimately contribute to development of strategies to enhance recovery.

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References

