

Preliminary Efficacy Assessment of an Auto-Transfusion Device in Severe Hemorrhagic Shock – First 5 Cases

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Background

Severe hemorrhagic shock remains the leading cause of preventable trauma-related mortality worldwide. Rapid restoration of central circulation is essential to maintain perfusion of vital organs until definitive hemorrhage control can be achieved. The HemaShock Auto-Transfusion Tourniquet (A-TT) is designed to redistribute blood from the lower extremities to the central circulation, potentially improving hemodynamic status during the critical pre-resuscitation period.

Aim

To evaluate the immediate hemodynamic effects and safety profile of the HemaShock Auto-Transfusion Tourniquet in patients presenting with severe hemorrhagic shock.

Methods

Prospective single-arm study,

Inclusion criteria: Severe traumatic hemorrhagic shock, Initial systolic blood pressure <80 mmHg

Exclusion criteria: Deep Vein Thrombosis (DVT)

Procedure: Application on both legs, Gradual removal upon hemodynamic stabilization, but not more than 2 hours.

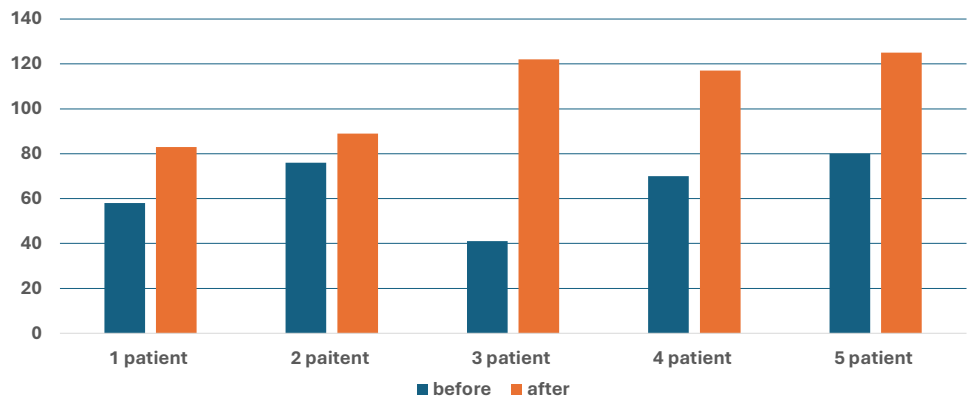
Primary outcome: Change in systolic blood pressure following HemaShock application

Secondary outcomes: Diastolic blood pressure changes, Application time, Safety assessment & Adverse events

Results of the first five patients

Pt.	Mechanism of Injury	Initial BP	BP After A-TT
1	Motor vehicle accident	58/43	83/64
2	Fall from Height Pelvic & Femur Fracture	76/42	89/48
3	Multiple Gunshot Wounds	41/32	122/71
4	Assault Penetrating Neck Injury	70/40	117/91
5	Multiple Gunshot Wounds	80/43	125/85

SBP Before and after Hemashock application



Key Findings

- ❖ **Less than 20 sec** for application of the device, on each leg (simultaneously)
- ❖ **Immediate increase of blood pressure** in all patients
- ❖ **Improved hemodynamic status** (per pre/post vital signs)
- ❖ **No device-related adverse events** reported

Conclusion

- The HemaShock Auto-Transfusion Tourniquet demonstrated rapid improvement in blood pressure among patients with severe hemorrhagic shock.
- These preliminary findings suggest that continued evaluation of HemaShock as a bridge-to-definitive-care in critically injured trauma patients is justified.
- Based on the above, the institute ethics board (Helsinki) approved continuation of this study.

Key Messages

HemaShock potentially provides rapid autotransfusion and immediate hemodynamic support in severe hemorrhagic shock, possibly expediting OR transfer.

