Tourniquet Use For Hemorrhage From Hemodialysis Access

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Background

- Population living with ESRD rises by 20,000/year
- 740,000 Americans were living with ESRD in 2017

Race/ethnicity	% of ESRD patients	% of pop. on HD	% of pop. post renal transplant
Black	30	74	20
Latino/Hispanic	18	66	27
White	61	58	34

- Black patients are 12% less likely to successfully utilize their AVF after placement
- Black patients are 22% less likely to maintain long term patency after successful use

- Vascular access hemorrhage is a potentially fatal complication
  - Can be due to aneurysm, infection or coagulation issues. Risks include arteriovenous graft use, prior on-fatal hemorrhage event, history of hypertension
- of 88 deaths from 2000-2007, 64 (72%) were black
- There is a paucity of protective measures beyond mechanical safeguards on hemodialysis machines
- Tourniquets are a protective tool that are used in extremity hemorrhage events and can be

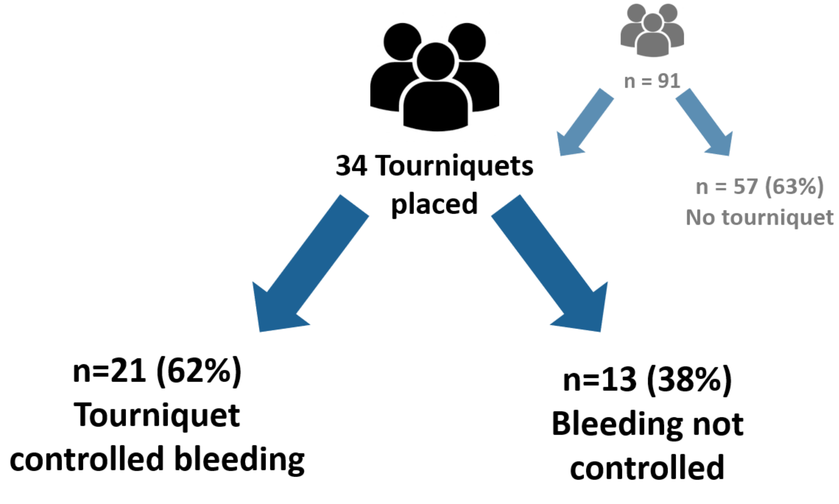
Objectives

- To compare mortality in patients who received a tourniquet vs. those who did not
- To compare loss of AV access in patients who received a tourniquet vs. those who did not

Results & Analysis

Variable	Tourniquet (n=34)	No Tourniquet (n=57)	P-Value
Age (mean, yrs)	65	66	--
Hypertension	25 (74%)	49 (86%)	0.14
Hypovolemic shock	11 (37%)	15 (28%)	0.71
Blood products transfused	9 (27%)	8 (14%)	0.12
Directly to OR	3 (9%)	2 (4%)	0.26
New fistula/graft placed	2 (7%)	5 (13%)	0.56
Mortality	0	1 (2%)	1.0
Loss of Vascular Access	8 (30%)	16 (40%)	0.77

CHARACTERISTIC	Overall (n=91)
Age (years)	65
Male	57 (63%)
Hypertension	74 (81%)
Diabetes mellitus	37 (41%)
Cardiovascular disease	27 (30%)
Location outside HD center	65 (71%)
Non-medical personnel assist	50 (55%)



Discussion & Conclusion

- Tourniquet application may be beneficial outside of the clinical setting
- There is a need for awareness campaigns in vascular access community
- Study limitations:
  - Small sample size (n=91)
  - Variability in tourniquet application in the field
  - Selection bias: variability in qualitative description of hemorrhage event in EMR
- Future goals:
  - Assess accuracy and efficacy of tourniquet application in the field
  - Develop public-facing education directed at HD patients, their family members & caretakers

Bibliography

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