


Characteristics Of All The Commercial Systems For Mechanically Removing Clot To Treat ALI: What Are The Advantages And Disadvantages Of Each

Jos C. van den Berg MD PhD
Clinica Luganese Moncucco
Lugano, Switzerland




Disclosures

- Nothing to disclose in relation to this presentation



Increased use of devices for clot removal



- Less invasive as compared to open surgery
- Like surgery able to restore flow immediately (unlike catheter-directed thrombolysis)
- Thrombolysis: time-consuming, requires ICU stay, not in Rutherford category I and IIB (ESVS guidelines 2017)
- However lack of recent comparative data/RCT's



Explosion of devices on the market

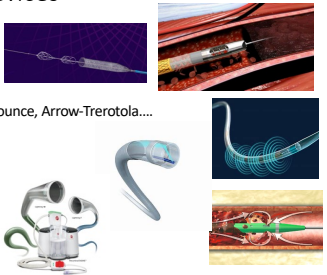

- EVToday European device guide
 - 9 manufacturers with > 15 different devices
- EVToday US device guide
 - 13 manufacturers with > 25 devices

Average of < 10 seconds per device

Classification of devices


- Aspiration
 - Indigo/Flash, Control...
- Mechanical/fragmentation
 - Aspirex/Rotarex, Cleaner, Pounce, Arrow-Trerotola...
- Rheolytic/hydrodynamic
 - JETI, Angiojet
- Ultrasonic thrombolysis
 - EKOS

Comparison of devices

Device	Speed	Acute kidney injury	Need for adjunct procedures	Distal embolization
Vacuum assisted thrombectomy	±	-	+	±
Hydrolytic thrombectomy	±	-	+	±
Rheolytic PMT	±	+	+	±
Aspiration thrombectomy	+	-	+	±
Mechanical thrombectomy	+	-	+	±
US enhanced lysis	-	-	+	±

Ascher E et al J Vasc Surg 2021;73:950-959
 Akrotis S et al Ann Vasc Surg 2023; 94: 233-262
 Maldonado TS et al J Vasc Surg 2024;79:584-92
 Chamseddin H et al J Vasc Surg 2024;80:1569-77
 Wilzotte C et al MedRxiv 2020;180:547-552
 Heller S, et al. Biomed Res Int 2017;2017:2362769
 De Donato G et al, EJVES 2021;61:820-828



How to choose?

- Clinical presentation
- Etiology
- Severity of ischemia
- (personal preference and availability)



Fresh thrombus



Ideal for all



Bilateral embolus in popliteal artery



Risk of fragmentation, aspiration and lytic-based therapies will not (always) work



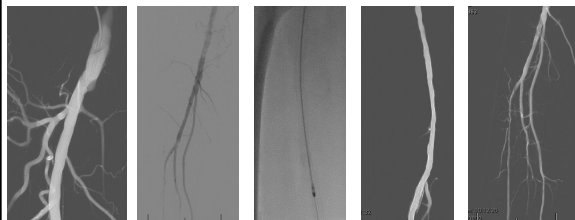
Acute bypass occlusion-RCC grade 1



After PMT After thrombolysis



Sub-acute in-stent occlusion



Advantages and limitations of modalities

- Vacuum-assisted thrombo-aspiration
 - Fast, fresh thrombus only, less efficient in emboli (fragmentation)
- Pharmaco-mechanical thrombectomy
 - Time-consuming, hemolysis (renal insufficiency), fresh thrombus only
- Rotational thrombectomy
 - Fast, also for more organized material, low embolic risk (no filter needed)



Conclusion

- Various options for treatment of acute limb ischemia exist
- Choice should be based on clinical presentation, grade of ischemia and etiology



Characteristics Of All The Commercial Systems For Mechanically Removing Clot To Treat ALI: What Are The Advantages And Disadvantages Of Each

Jos C. van den Berg MD PhD
Clinica Luganese Moncucco
Lugano, Switzerland

