Extreme Hemodialysis Access: a Transhepatic HeRO

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Disclosure

Dr. Lucas Marcelo Dias Freire

I have the following potential conflicts of interest to report:

- Proctor for Merit Medical®
The Problem
Use of tunnelled long term dialysis catheters

Central vein stenosis

Access failure (AVF or graft)

Inadequate Dialysis

Infection

If it were only this easy . . .
What is a HeRO?
Hemodialysis Reliable Outflow
WHO NEEDS A HeRO?
WHO NEEDS A Hero?
# Why Use a HeRO? Clinical Outcomes

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<tbody>
<tr>
<td><strong>Bacteremia Rates</strong></td>
<td>0.14</td>
<td>0.13</td>
<td>0.70</td>
<td>2.31¹,³,⁴</td>
<td>0.11²,⁴</td>
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<td>(Infections/1,000 days)</td>
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<td><strong>Adequacy of Dialysis</strong></td>
<td>NA</td>
<td>1.6</td>
<td>1.7</td>
<td>1.29 - 1.46⁴</td>
<td>1.37 - 1.62²-⁴</td>
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<td>(mean Kt/V)</td>
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<td><strong>Cumulative Patency</strong></td>
<td>91%</td>
<td>68%</td>
<td>72%^(^)</td>
<td>37%¹,³,⁴</td>
<td>65%¹-⁴</td>
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<td>at 1 Year</td>
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<td><strong>Intervention Rate</strong></td>
<td>1.5</td>
<td>2.2</td>
<td>2.5</td>
<td>5.8¹,³</td>
<td>1.6 - 2.4¹,³</td>
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<td>(per year)</td>
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Note: Every 0.1 decrease in Kt/V increases the mortality rate by 7%⁵ and is significantly (P<0.05) associated with 11% more hospitalizations, 12% more hospital days, and a $940 increase in Medicare inpatient expenditures.⁶

^(^)8.6months

36 patients
Follow-up: 8.6 months
Bacteremia: 0.7/1000 days (all in the transition period, with catheter)
Bacteremia: 69% reduction versus tunneled catheters (2.3/1000 days)
Kt/V: 1.7
Primary patency: 38.9%, Secondary patency: 72.2%
Multi-center Experience of 164 Consecutive Hemodialysis Reliable Outflow [HeRO] Graft Implants for Hemodialysis Treatment

S.M. Gage\textsuperscript{a,*}, H.E. Katzman\textsuperscript{b}, J.R. Ross\textsuperscript{c}, S.E. Hohmann\textsuperscript{d}, C.A. Sharpe\textsuperscript{e}, D.W. Butterly\textsuperscript{f}, J.H. Lawson\textsuperscript{a,g}

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- Post-market trial
- 4 centers
- 164 patients
- 6 months: primary patency: 60%, secondary patency: 90.8%
- 12 months: primary patency: 48.8%, secondary patency: 90.8%
- **24 months**: primary patency: 42.9%, secondary patency: **86.7%**

Reinterventions to maintain patency: 1.5/year
Infection: 0.14/1000 days
5 explantations
Steal: 1.4%
- 74 years, ESRD
- Multiple access failures in arms
- Tunneled catheter left CFV
- SVC occlusion
Challenge case*

- DVT LLE
- Occluded central venous system
- R CFV Perm cath
- DM II
- Hypercoagulable
- Multiple failed accesses

*Dr. Stephen Homann
Baylor University Medical Center
Dallas - Texas
Catheter laterally – early access graft soaked in rifampin
SUCCESSFUL DIALYSIS THE NEXT DAY
• 75 years man, HBP, DM, ESRD
• Multiple failed dialysis access in the arms
• Central venous occlusion, occluded stents, occluded SVC
• Occluded IVC with previous implanted filter
• Unsuccessful attempts to cross the IVC and SVC occlusions
• Transhepatic catheter for 2 months, with inadequate flow
First described in 1994
Alternative access por patients with exhausted venous access sites
High rates of thrombosis and infection
Low long term functionality
22 patients
2.2 sepsis/1000 days
Primary patency: 141 catheter-days
1st procedure: exchange the catheter through guide-wire
1st procedure: tunnelize the arterial component and wait 2 weeks for incorporation
2nd procedure: exchange the catheter through guide-wire for a peel away sheath
2\textsuperscript{nd} procedure: ballooning the transhepatic tract
2nd procedure: advancing the HeRO venous outflow component
2\textsuperscript{nd} procedure: advancing the HeRO venous outflow component
2nd procedure: anastomose of the arterial component on the right SFA
2nd procedure: connection to the outflow venous component
2\textsuperscript{nd} procedure: connection to the outflow venous component
2\textsuperscript{nd} procedure: control angiogram showing good flow to the RA
Successful hemodialysis next day
CONCLUSION

• HeRO graft is a versatile dialysis central venous tool
• Can be used even in complex/unusual access sites to free up patients from catheter dependency
• Just because someone else said it could not be done – does not mean it is true
Obrigado!

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