

Citrate-based Locking Solutions are more efficient than Taurolidine-based Locking Solutions to prevent Thrombotic Dysfunction of Tunnelled Hemodialysis Catheters: a Retrospective Cohort Study

F. Van Hulle¹, F. Bonkain², C. Tielemans², D. De Clerck², P. Janssens², L. Pipeleers², N. Van Paesschen², M. Roden², K.M. Wissing^{2,3}

¹ Department of Internal Medicine, UZ Brussel, Vrije Universiteit Brussel, Brussels, Belgium.

² Department of Nephrology, UZ Brussel, Vrije Universiteit Brussel, Brussels, Belgium.

³ Department of Nephrology, CHU Brugmann, Université Libre de Bruxelles, Brussels, Belgium.

INTRODUCTION AND OBJECTIVE

The optimal catheter lock to prevent thrombotic dysfunction of tunnelled cuffed hemodialysis catheters (TCC) remains controversial. The aim of the present study was to compare the incidence rate of thrombotic dysfunction and loss of TCC treated with citrate- or taurolidine-based locking solutions.

METHODS

Design:

Retrospective single-centre cohort study

Population:

All hemodialysis patients of UZ Brussel > 18 years old, receiving hemodialysis via TCC

Locking solutions:

Citra-Lock™ 30%:
01/05/2010 – 31/07/2012
TauroLock™- Hep500:
01/08/2012-31/10/2014

Statistical Analysis:

Chi square and Fisher's exact test for binary outcomes, t-test for continuous outcomes using STATA 12.0
Statistical significance <0.05

Thrombotic dysfunction = use of Urokinase (Actosolv®) instillation

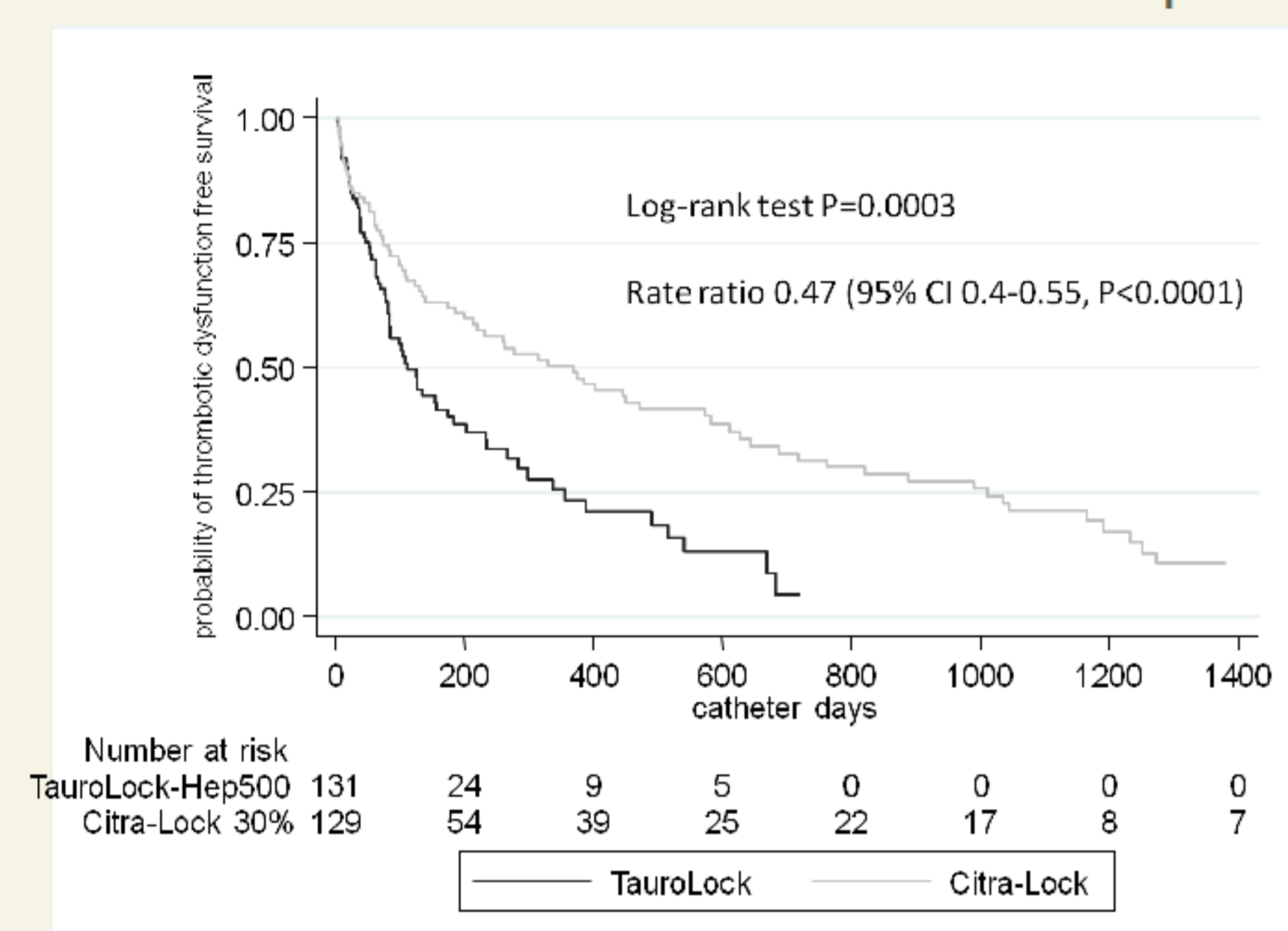
Catheter loss due to thrombosis = thrombotic dysfunction unresponsive to thrombolytic therapy, requiring TCC replacement

Censoring was conducted: only catheters placed after 1st August 2012 were considered at risk under TauroLock™

RESULTS

251 patients → 236 TCC in study period → 764 thrombotic dysfunctions

Kaplan-Meier curve: survival free of thrombotic dysfunction Citra-Lock™ 30% vs. TauroLock™- Hep500



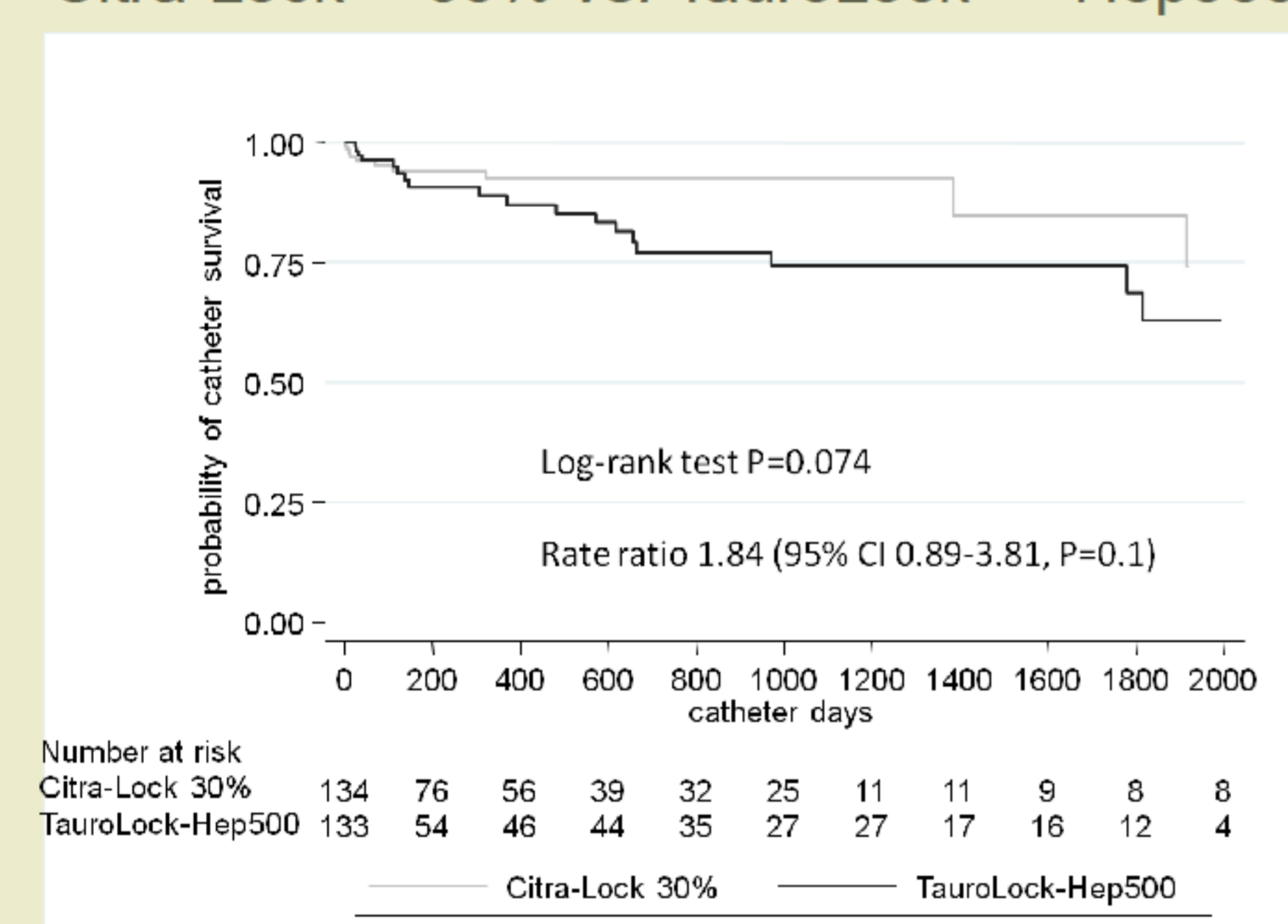
Rate of thrombotic dysfunction:

- **7.63/1000** catheter days under TauroLock™-Hep500 (95% CI 6.99-8.31)

- **3.58/1000** catheter days under Citra-Lock™ 30% (95% CI 3.17-4.05)

The use of Citra-Lock™ 30% is associated with a **53% reduction in the incidence rate of thrombotic dysfunction** of TCC compared to TauroLock™-Hep500.

Kaplan-Meier curve: loss of catheters due to thrombotic dysfunction Citra-Lock™ 30% vs. TauroLock™- Hep500



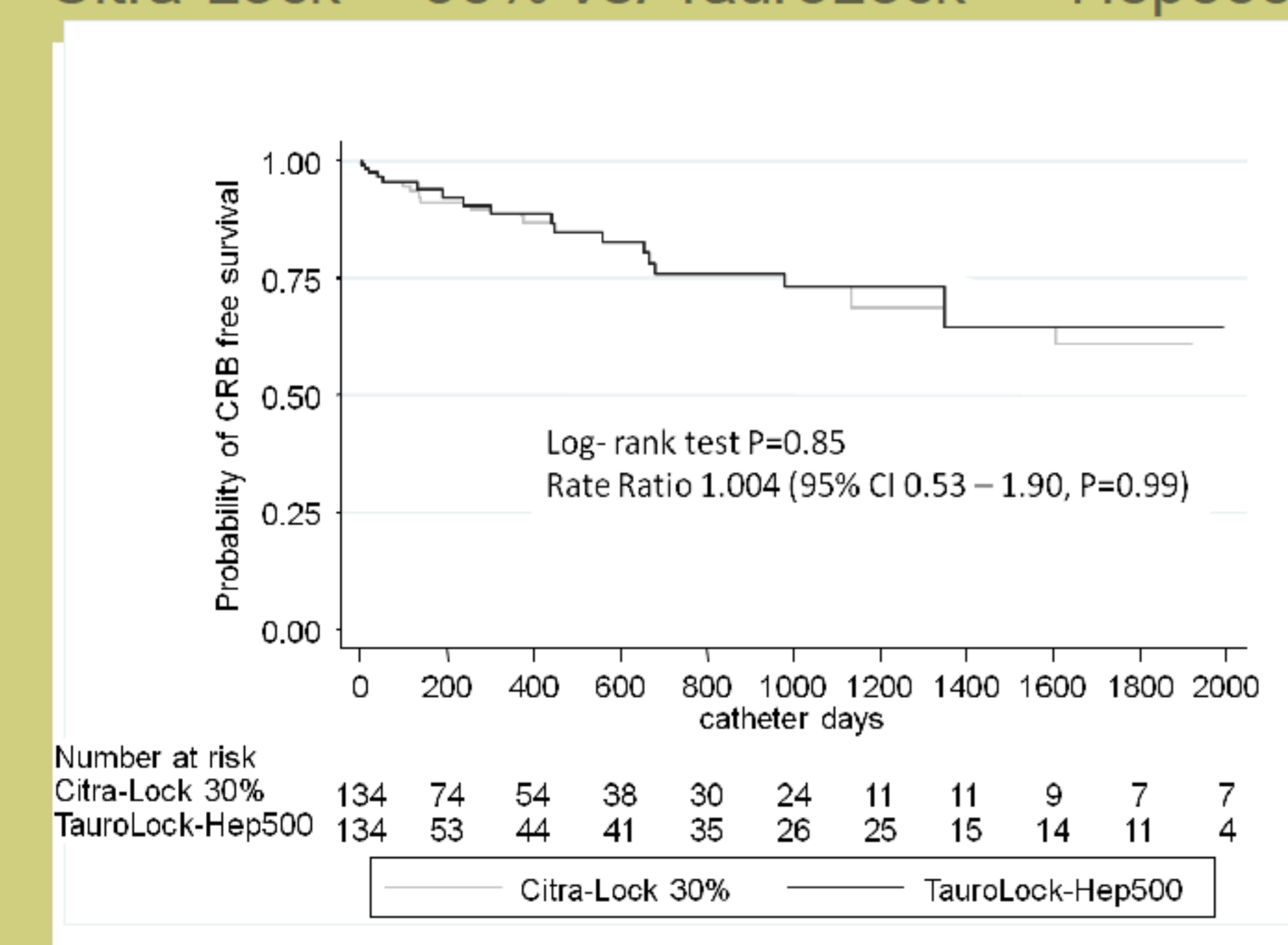
Rate of catheter loss due to thrombotic dysfunction:

- **0.28/1000** catheter days under TauroLock™-Hep500 (95% CI 0.18-0.43)

- **0.15/1000** catheter days under Citra-Lock™ 30% (95% CI 0.08-0.27)

There was **no significant difference in the incidence rate of catheter loss due to thrombotic dysfunction** between Citra-Lock™ 30% and TauroLock™-Hep500.

Kaplan-Meier curve: survival free of CRB Citra-Lock™ 30% vs. TauroLock™- Hep500



Rate of CRB:

- **0.29/1000** catheter days under TauroLock™-Hep500 (95% CI 0.18-0.45)

- **0.29/1000** catheter days under Citra-Lock™ 30% (95% CI 0.18-0.45)

There was **no significant difference in the incidence rate of catheter related bacteremia (CRB)** between Citra-Lock™ 30% and TauroLock™-Hep500.



Corresponding author: freya.van.hulle@vub.ac.be

