ANTIMICROBIAL CATHETER LOCK SYSTEM
TO PROVIDE PATENCY AND INFECTION CONTROL
Prophylaxis against catheter related bloodstream infections:

Central venous catheters (CVC) are used as short or long term vascular access devices in hemodialysis, oncology, ICU and total parenteral nutrition. High risks for CVC malfunction are catheter related infections (CRI). These infections may be triggered by microbial colonization of the catheter and the microorganisms can spread from here to the bloodstream. CRI may develop septic symptoms which require the immediate removal of the catheter.

TauroLock™ catheter lock solutions do not contain antibiotics and were developed for prophylactic use. They reduce catheter related infections significantly (~ 90%).

The combination of citrate (4%) with (cyclo)-taurodilide and heparin/urokinase has excellent anticoagulative and anti-microbial properties also against resistant microorganisms like MRSA und VRE.

Therefore TauroLock™ is recommended in different guidelines such as the Hygiene Guidelines completing the German Dialysis Standard, the evidence-based recommendations of the German Society for Paediatric Oncology and Haematology (GPOH) and the hygiene guidelines of the University of Bonn (Germany).

Prophylaxis against biological occlusion in the catheter:

The TauroLock™ Catheter Lock System contains a threefold prophylaxis against occlusion in the catheter: All locking solutions contain 4% citrate as anticoagulant. This concentration removes calcium safely and effectively from the clotting cascade.

The optional use of low concentrated heparin supports an additional anticoagulative effect via binding to antithrombin. The prophylactic use of TauroLock™-HEP500 (which contains 25,000 IU of urokinase) achieves the best prophylaxis against occlusion by prevention of biological clotting.

The decision which locking solution is most adequate depends on the individual patient situation. The alternative use of different locking solutions in the same catheter (e.g. TauroLock™-HEP500, TauroLock™-U25.000) is possible.
TauroLock™ is bactericidal and fungicidal within 2 hours:

Clearly superior in comparison to the activity of Citrate and Heparin:

If used prophylactically, TauroLock™ prevents the development of a biofilm on the surface of the catheter lumen:

Heparin Lock – 7 months implanted – S. epidermidis biofilm covers surface completely

TauroLock™
5 months implanted – No colonization
TauroLock™ is safe:
The concentration of 4% citrate in TauroLock™ is safe and efficient - according to the recommendation of the FDA (ref.: FDA Warning Letter, April 2000).

No hypocalcaemic effects are observed in contrast to highly concentrated citrate solutions (30% resp. 46.7%) e.g. arrhythmia, cardiac arrest*, emboli**, tingling fingers and metallic taste***.

TauroLock™ is biocompatible and non toxic.

In contrast to highly concentrated citrate there is no protein precipitation if using TauroLock™****.


Instillation of TauroLock™

Follow the manufacturer’s instructions that accompany the particular vascular access product utilized. Specific catheter lock volumes are associated with each device.

1. Flush the device with 10 mL of saline.
2. Withdraw TauroLock™ from the container using an appropriate syringe.
3. Instill TauroLock™ slowly (not more than 1 mL per second, infants and children less than two years of age not more than 1 mL per 5 second) into the access device in a quantity sufficient to fill the lumen completely. Consult the manufacturer’s instructions for the specific fill volume or specify fill volume during implantation. The volume has to be strictly respected. TauroLock™ will remain inside the access device until the next treatment.
4. If aspiration of TauroLock™ is needed and possible, it should be withdrawn from the port/catheter and discarded prior to initiation of next treatment.
5. Flush the device with 10 mL of saline.

Product selection for application

<table>
<thead>
<tr>
<th>Product</th>
<th>TauroLock</th>
<th>TauroLock</th>
<th>TauroLock</th>
<th>TauroLock</th>
<th>TauroLock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialysis</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td>Oncology</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td>Parenteral Nutrition</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
</tr>
</tbody>
</table>
TauroLock™ catheter lock solutions are available in different containers:

<table>
<thead>
<tr>
<th>Product</th>
<th>TauroLock</th>
<th>TauroLock</th>
<th>TauroLock</th>
<th>TauroLock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampoule (5 x 3 mL)</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ampoule (10 x 3 mL)</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ampoule (10 x 5 mL)</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Vial (100 x 10 mL)</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Vial (5 x 5 mL)</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
</tbody>
</table>

Manufacturer:

TauroPharm GmbH
Jägerstraße 5a
D-97297 Waldbüttelbrunn
Tel.: +49 931 40480511

ISO 13485
6. ANTIBACTERIAL ACTIVITY OF TAUROLOCK/PREVENTION OF BIOFILM

5.3. Prophylactic Urokinase in the Management of Long-Term Venous Access Devices in Children: A Children's Oncology Group Study


5.1. German Guideline for Access Devices in Hemodialysis (extract) – Recommendation of German Expert Panel

4.8. First Report World-Wide of Clinical Use of Taurolidine – 4% Citrate Catheter Lock Solution To Treat an Intravascular Catheter Colonised With a Mycobacteria; With a Highly

4.7. Taurolidine is effective in the treatment of central venous catheter-related bloodstream infections in cancer patients


4.5. Effectiveness of TauroLock™ in preventing recurrent catheter-related bloodstream infections in patients on home parenteral nutrition


4.3. A Randomized Double-Blind Controlled Trial of Tauroline–Citrate Heparin Locks in Patients Treated with Tauroline–Citrate–Heparin (TCH) Tauroligine–Citrate (TC) and Heparin Catheter Locks in Patients Treated with Heparin


3.8. Preventing infections of central venous catheter with a taurolidine/citrate solution O. Kramenko, Western Galilee Hospital, Nahariya, Israel, Presentation at EDTNA/ERCA Congress 2006, Madrid.


3.4. A Randomized Double-Blind Controlled Trial of Tauroline–Citrate Heparin Locks in Patients Treated with Tauroline–Citrate–Heparin (TCH) Tauroligine–Citrate (TC) and Heparin Catheter Locks in Patients Treated with Heparin

3.3. A Randomized Double-Blind Controlled Trial of Tauroline–Citrate Heparin Locks in Patients Treated with Tauroline–Citrate–Heparin (TCH) Tauroligine–Citrate (TC) and Heparin Catheter Locks in Patients Treated with Heparin

3.2. Observational Study of Need for Thrombolytic Therapy and Incidence of Bacteremia using Tauroline–Citrate–Heparin (TCH) Tauroligine–Citrate (TC) and Heparin Catheter Locks in Patients Treated with Heparin


2.0. PROPHYLAXIS OF INFECTION


1.2. Vascular Access for Haemodialysis Renal Association (United Kingdom), R. Fluck, M. Kumwenda (2011)

1.1. German Guidelines Completing ‘GERMAN DIALYSIS STANDARD 2006′ German Workgroup for Clinical Nephrology in Cooperation with the Verband Deutsche Nierenzentren der DD nÄ e.V. and the Society for Pediatric Nephrology. German Guidelines 2008 completing the German Dialysis Standard 2006. Chapter 2.5.1 Central Venous Catheters

1.0. GUIDELINES AND RECOMMENDATIONS

WWW.TAUROLOCK.COM