Acute Therapy Systems

multiFiltratePRO
Supporting your clinical practice

Ci-Ca® multiIntenseCare

FRESENIUS MEDICAL CARE

Clear focus on key needs in the ICU

In discussions with CRRT users we often hear about increasing workload compression in the intensive care unit (ICU) and we hear about their demand for error-free and efficient use of resources. With the multi**Filtrate**PRO Fresenius Medical Care aims to fulfil these requirements in the best way possible:

- **Treatment safety based on long-standing experience**
  Ci-Ca® as regional citrate anticoagulation contributes to overall treatment safety by minimizing bleeding risk.[1–3] A multitude of sensors continuously monitors the therapy. When the multi**Filtrate**PRO cannot correct a situation itself, alarms display probable reasons to ease identification of the root cause.

- **Focus on truly continuous CRRT and haemodynamic stability**
  Gentle fluid removal and thus haemodynamic stability is aimed at by means of truly continuous CRRT through citrate anticoagulation.[4] Economically this also means longer filter patency and thus less consumption of filters and less workload for nurses.

- **Comprehensively integrated Ci-Ca® anticoagulation**
  Intelligent therapy support via the screen is enabled by integrating all pumps in the multi**Filtrate**PRO. So any ICU may use this anticoagulation method with its proven clear reduction of bleeding complications for the vast majority of their patients.[1–5]

multi**Filtrate**PRO

multi**Filtrate**PRO

Focus on simple and effective therapy application

- Large screen enables display of comprehensive information, e.g. therapy information or potential reasons in case of alarms
- The touch screen monitor has enhanced read-ability from various angles
- Intuitive step-by-step instructions for relevant handling situations
- To ease handling in the ICU, fluid heaters are fully integrated into the device
- Regional Ci-Ca® citrate anticoagulation to minimise the risk of bleeding complications[1–3]
- Long effective treatment times allow for efficient fluid removal via low hourly fluid removal rates; this supports haemodynamic stability[4]
- Ci-Ca® avoids downtime, thus the delivered CRRT-dose is in accordance with the prescription[4]
- “Care-Mode” to prevent unnecessary alarms and to save time: temporarily decreased blood flow, stopped balancing system and extended pressure limits during patient care
- High capacity scales reduce the number of bag changes and thus user interactions
- 4-wheel chassis with 2-stage locking system allows turning on the spot

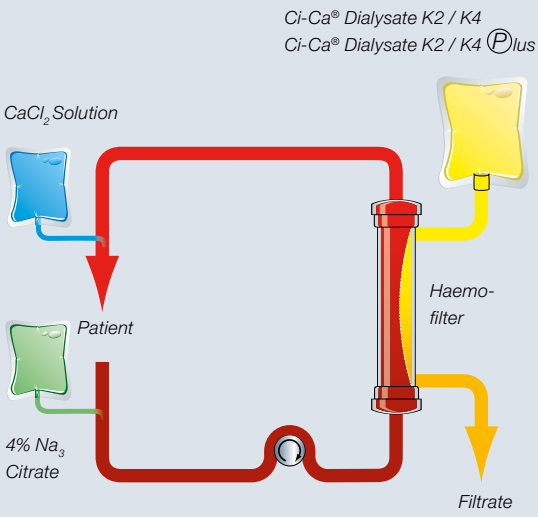
Long-standing experience with Ci-Ca® anticoagulation

Healthcare personnel in more than 30 countries have gained experience and benefited from Ci-Ca® citrate anticoagulation during more than 500,000 treatment runs.

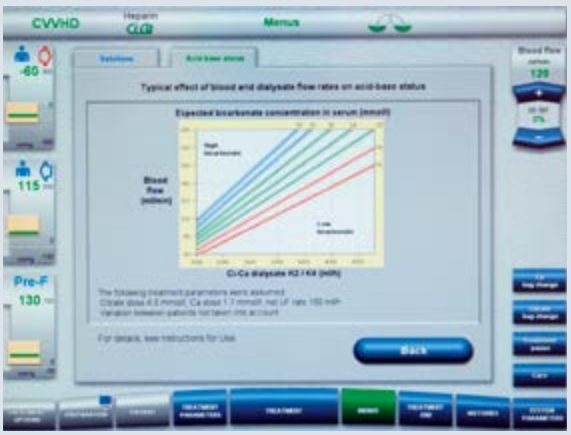
- Ci-Ca® Dialysate compositions well-concerted with the established 4% sodium citrate solution[2, 6]
- Long-term proven Ci-Ca® protocol, building on experience since 2004[2–10]
- Ci-Ca® module as integral part of multi**Filtrate**PRO
- All involved pumps controlled via a single user interface
- With Ci-Ca® CVVHD the released filter lifetime of 72 hours is reached in most cases; making filter changes a projectable activity[2, 4, 7]
- Three Ci-Ca® therapy options: Ci-Ca CVVHD, Ci-Ca® postCVVHDF and Ci-Ca® EMiC®2
- Ci-Ca® EMiC®2 uses an optimised haemofilter enabling diffusive middle molecule clearance partly exceeding the level achieved with CVVH[11]

Statement on the Ci-Ca® protocol:

"[It] enabled an effective treatment of acute renal failure and excellent control on the acid–base status as well on the systemic ionised calcium in combination with negligible clotting issues."[2]



Ci-Ca® CVVHD / Ci-Ca® EMiC®2:
Extracorporeal circuit with citrate anticoagulation



Screen during Ci-Ca® CVVHD application
provides key info from the Ci-Ca® protocol

The integrated Ci-Ca® anticoagulation with the multi**Filtrate**PRO carries forward intelligent links between the CRRT-pumps, for which the user does not have to look up values manually in tables:

- Infused volumes of the citrate and calcium solutions are automatically balanced with the filtrate pump
- If the blood flow is changed, the device automatically adjusts the citrate pump
- If the filtrate flow is changed, the calcium pump is adjusted accordingly

In addition, the multi**Filtrate**PRO supports the user with expert information:

- For routine adjustments of the Ci-Ca® therapy, information from the protocol can easily be retrieved on the screen (see fig. left)
- In case of certain values set outside the standard range, the multi**Filtrate**PRO makes the user aware of potentially risky clinical situations

Further advantages of the multi**Filtrate**PRO with Ci-Ca®:

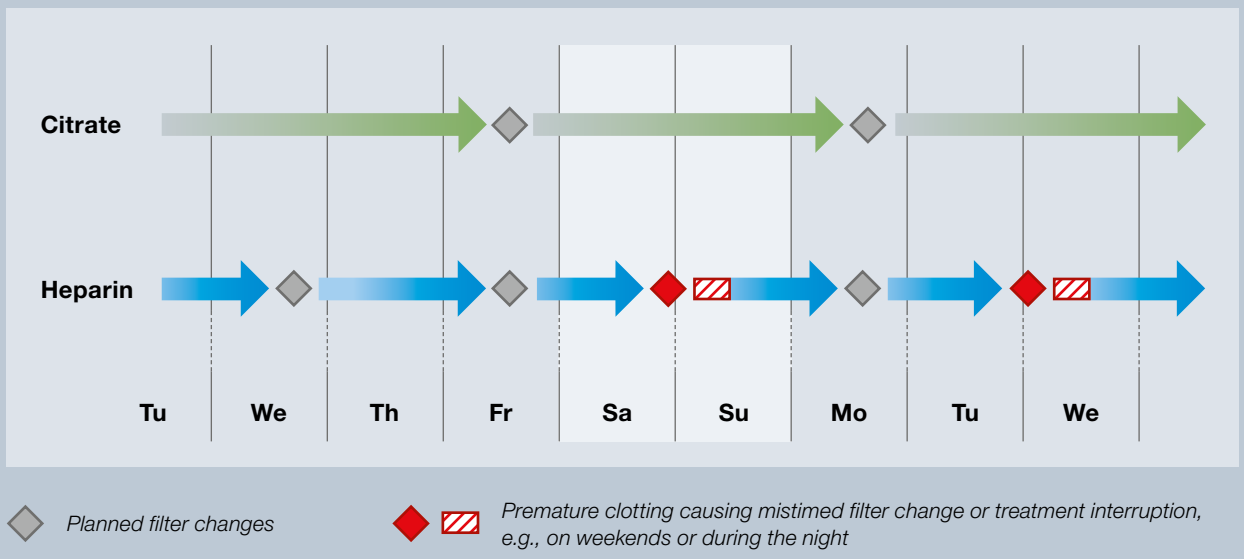
- During bag changes (dialysate, substituate, filtrate) the citrate infusion continues for a reliable period of time. This helps to avoid early coagulation of the system

Practical and economic advantages

Due to reduced healthcare budgets, cost pressure is increasing. From this perspective the cost factors for the device (incl. service and repairs), disposables (filters, solutions) and staff (nurses, physicians) are decisive.

The practical and economic advantages of the Ci-Ca® therapy can be summarized as follows:

- Long filter patency, predominantly reaching 72 h, reduces the number of kits required[2, 4, 7]
- Process optimization enabled: filter changes are possible at convenient times, e.g. on Friday afternoon for low workload during the weekend (see fig. below)
- Up to 20 L fresh CRRT-fluid can be connected at a time resulting in long time intervals between bag changes
- Lack of significant predilution results in efficient use of the CRRT-fluids. Approx. 30% more replacement fluid can be required in predilution compared with to postdilution[12]
- Taking all this together, minimised workload for the staff allows an efficient patient-nurse relation



Schematic depiction of filter changes during CRRT treatment: heparin vs Ci-Ca® citrate anticoagulation

Reliable technology, reliable service

Clinical service

Striving to be your professional partner, we offer a wide range of clinical support by our professional sales teams and experienced application specialists, both backed up by contacts with experienced physicians.

CRRT expert meetings, workshops for physicians and regular education courses for nurses teach the knowledge to apply efficient CRRT.

Fresenius Medical Care supports you from the initial implementation of your CRRT program to the point of daily questions. If you need any help setting up a treatment on the multi**Filtrate**PRO, face a question during an ongoing CRRT treatment or have any questions in general, just call your local support hotline or Fresenius Medical Care representative.

Technical service

The multi**Filtrate**PRO is as easy to maintain as it is to use. The system is backed by tried-and-tested technologies and experienced people with expertise gained in clinical reality.

Diagnostic programs specific to the device as well as our well-trained technicians are a basis for excellent device availability. This translates into cost savings and allows you to focus on your daily work.

Logistical service

In case of order transactions or logistical management, the customer support is there to assist you.

multiIntenseCare

Fresenius Medical Care

With several decades of experience in dialysis and the continuous improvement of our therapy options, Fresenius Medical Care is the global leader in dialysis services and products. The highest medical standards are our benchmark.

multi**Intense**Care by Fresenius Medical Care is a comprehensive concept for the supply of your ICU patients. It is our goal to constantly improve the work of physicians and hospital staff in order to save lives.

Ci-Ca®

Fresenius Medical Care was the first to offer a complete Ci-Ca® regional citrate anticoagulation. Ci-Ca® improves anticoagulation in CRRT and reduces the risk of bleeding complications.[1–3]

The therapy circle symbolizes the complete therapy range, combining products, therapy assistance, training and education, and service support.

Products & Disposables
Our product design follows a holistic approach. CRRT monitors, haemofilters, tubing systems and fluids are designed for a well-concerted clinical application.

Therapy Assistance
Bearing the clinical application in mind, Fresenius Medical Care goes beyond standard service and assists staff by providing complementary therapy information.

Training & Education
Besides direct training on products and their application, Fresenius Medical Care participates in numerous events for physicians and nurses each year. A number of these events are certified by regional medical associations, some of them qualifying for Continuing Medical Education credits (CME).

Service Support
Intensive care units work 24/7 and CRRT can be required at any time. Through accurate device maintenance and quick repairs when needed, multi**Filtrate**PRO is kept available to serve its purpose: delivering CRRT upon demand.

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