



KDIGO Controversies Conference

Novel techniques and innovation in blood purification:
How can we improve clinical outcomes in hemodialysis?

14-15 October, 2011
Paris, France

CONFERENCE OVERVIEW

The recent interest in novel techniques and innovation in blood purification was born out of the impasse in an effort to improve survival and quality of life of patients with end-stage renal disease (ESRD). Although there have been medical and technical advances, mortality rate of patients with ESRD remains inappropriately elevated at about 10 - 20% per year. Several potential solutions have been proposed to improve the clinical outcome of ESRD patients which will be the theme of the present KDIGO controversy conference focusing on: (1) dialysis technique, (2) process of care, and (3) technical innovation in blood purification and bio-engineering.

It was suggested that the high mortality rate in ESRD was related to poor clearance of uremic toxins within the three times a week paradigm. This hypothesis was tested in the HEMO study [1], a prospective randomized controlled study which did not demonstrate a positive effect on patient survival when dialysis dose was increased from a per-treatment Kt/V of 1.32 to 1.71. Equally important, the HEMO study [1] did not demonstrate any substantial benefit related to the use of high flux versus low flux dialyzers. Recently, another randomized prospective trial in Europe, the MPO study [2] was able to show improved survival in patients with plasma albumin levels ≤ 4 g/dL treated with high flux membranes, although the effect was not evident in the population as a whole. While providing more intensive conventional hemodialysis has not reduced mortality, intensive hemodialysis has demonstrated improvements in several clinical surrogate outcomes. Recently, the Frequent Hemodialysis Network Daily Dialysis Trial has reported regression of left ventricular hypertrophy, improved blood pressure control, and better quality of life [3]. Other observational studies have suggested better survival (compared to conventional hemodialysis) with more frequent hemodialysis [4, 5]. The use of convective technique is common in Europe and in other parts of the world. Survival advantage [6], hemodynamic stability [7] and enhanced clearance of small and middle molecules [8] were reported with the use of hemodiafiltration. Several large randomized controlled trials in intensive modes of hemodialysis and hemofiltration are being conducted. The optimal form of blood purification remains unknown and will be discussed during our plenary and breakout sessions.

Although intensive blood purification may show promise in changing the clinical outcomes of ESRD patients, advances in technology are required to facilitate the widespread clinical application of these forms of renal replacement therapy in patients with ESRD. Presently, most dialysis machines are not engineered to be used by patients. The flexibility of a dialysis platform for users of different level of training and skills will likely transform the clinical landscape of ESRD care. Other novel technical advances in blood purification include application of nanotechnology [9, 10], the use of sorbents [11], “wearable kidneys” [12, 13] and the incorporation of renal cells as part of a bioartificial kidney [9, 14, 15]. Finally, clinical applications of novel bio-materials [16] and therapeutic use of endothelial [17] or endothelial progenitor cells [18] may provide the much needed innovation in vascular access.

The number, age and co-morbidities of incident patients with ESRD have increased significantly over the last several decades. Given the increasing workload, complexity and co-morbidities associated with the contemporary ESRD patient population, it is reasonable to re-address pragmatically issues revolving process of care in patients with ESRD.

Therefore, KDIGO is sponsoring this conference on “Novel techniques and innovation in blood purification: How can we improve clinical outcomes in hemodialysis?” The conference will be held on 14-15 October 2011 in Paris, France. Drs. Christopher Chan, Nathan Levin and Francesco Locatelli will co-chair this conference, which will focus on three themes: (1) dialysis technique, (2) process of care and (3) technical innovation in blood purification and bio-engineering. Invited participants and speakers will include the leading worldwide experts in these topic areas, including nephrologists and representatives of other disciplines to give the broadest views possible on the subject. Their task will be to summarize the existing knowledge, develop recommendations on what can be done to optimize outcomes in ESRD patients based on this knowledge, and to formulate and prioritize research questions. The conference output will include publication of a position statement that will help guide KDIGO and others on additional research and development of clinical practice guidelines.

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CONFERENCE AGENDA

Thursday, 13 October
20:00 – 22:00 hrs

LOCATION

20:00 – 22:00 hrs **Welcome Reception**

Giacometti

Day 1 – Friday, 14 October
08:00 – 18:30 hr

07:30 – 08:00 hrs **Continental Breakfast**

Soutine Utrillo

Introduction: Meeting Overview

Soutine Utrillo

08:00 – 08:20 hrs **Welcome and Introductions**

Presenters: Bertram Kasiske, KDIGO Co-Chair

08:20 – 08:40 hrs **Conference Overview and Objectives**

Presenters: Christopher Chan, Nathan Levin, & Francesco Locatelli
Conference Co-Chairs

Plenary Sessions: Dialysis Techniques

Session Moderators: Christopher Chan, Nathan Levin, & Francesco Locatelli

08:40 – 09:00 hrs **Hemodialysis Modality – Frequency, Duration, Location**

Presenter: Jonathan Craig

09:00 – 09:20 hrs **Hemodiafiltration**

Presenter: Bernard Canaud

09:20 – 09:40 hrs **Uremic Toxins and Molecules of Choice**

Presenter: Raymond Vanholder

09:40 – 10:00 hrs **Monitoring of Dosing Regimen**

Presenter: Thomas Depner

10:00 – 10:20 hrs **Break**

Plenary Sessions: Innovation in Process of Care

Session Moderators: Christopher Chan, Nathan Levin, & Francesco Locatelli

- 10:20 – 10:40 hrs **Calcium Load – Dialysate Concentration, Vit D and Phosphate Binders**
Presenter: Frank Gotch
- 10:40 – 11:20 hrs **Differences in Survival – Lessons learned from Registries**
- **USRDS**
Presenter: Allan Collins
 - **DOPPS**
Presenter: Bruce Robinson
- 11:20 – 11:40 hrs **Technical and clinical barriers to implementing an optimal case mix of vascular access**
Presenter: Louise Moist
- 11:40– 12:00 hrs **Models of chronic kidney disease care and initiation of dialysis**
Presenter: Paul Stevens
- 12:00 – 12:20 hrs **International variation in the use of intensive renal replacement therapy – barriers versus incentives (DOPPS)**
Presenter: Ronald Pisoni
- 12:20 – 12:40 hrs **Supportive Care versus Dialysis in the Aged**
Invited Presenter: Vanita Jassal
- 12:40 – 13:10 hrs **Lunch**
- 13:10 – 13:50 hrs **Prevention of cardiovascular morbidity in HD patients: the role of therapeutics versus dialysis technique**
- **Therapeutics/Pharmacology**
Presenter: Christoph Wanner
 - **Dialysis Techniques**
Presenter: Ercan Ok

Plenary Sessions: Technical Advances in Blood Purification and Bio-engineering

Session Moderators: Christopher Chan, Nathan Levin, & Francesco Locatelli

- 13:50 – 14:30 hrs **Debate: Do advances in hemodialysis technology (e.g. the use of biofeedback, blood volume and clearance monitoring) offer better outcomes?**
- **Pro:** Antonio Santoro
 - **Con:** Peter Kerr

- 14:30 – 15:20 hrs **Alternate Dialysis Platforms:**
- **Sorbents**
Presenter: Norma Ofsthun
 - **Nanotechnology**
Presenter: William Fissell
 - **Microfluidics**
Presenter: Edward Leonard
 - **Wearable kidney system**
Presenter: Victor Gura
 - **Bioartificial kidney system**
Presenter: H. David Humes
- 15:20 – 15:40 hrs **Use of cell therapy and biomedical engineering in vascular access**
Presenter: Prabir Roy-Chaudhury
- 15:40 – 16:00 hrs **Break**
- 16:00 – 18:30 hrs **Breakout Sessions:**
- Breakout Group #1: Dialysis Technique: Frequency and Duration**
Invited Discussion Leaders: Adrian Covic and Michael Rocco
(Room: Stay in Main Meeting Room)
- Breakout Group #2: Dialysate Composition and Toxins**
Discussion Leaders: Philip Li and Jonathan Craig
(Room: Jacob Room)
- Breakout Group #3: Technical Advances in Dialysis**
Discussion Leaders: Andrew Davenport and Martin Kuhlmann
(Room: Ibanez Room)
- 20:00 – 22:00 hrs **Group Dinner (Meet in hotel Lobby at 19:30 hrs)**
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Day Two – Saturday, 15 October
8:00 to 14:30 hrs

LOCATION

07:30 - 8:00 hrs **Continental Breakfast**

08:00 – 9:30 hrs **Breakout Sessions Continue:**

Breakout Group #1: Dialysis Technique: Frequency and Duration

Invited Discussion Leaders: Adrian Covic and Michael Rocco

(Room: Main Meeting Room)

Breakout Group #2: Dialysate Composition and Toxins

Discussion Leaders: Philip Li and Jonathan Craig

(Room: Jacob Room)

Breakout Group #3: Technical Advances in Dialysis

Discussion Leaders: Andrew Davenport and Martin Kuhlmann

(Room: Ibanez Room)

09:30 – 10:00 hrs **Break/Check Out**

Breakout Group Reports and Discussion

Soutine Utrillo

10:00 – 10:30 hrs **Breakout Group #1: Dialysis Technique: Frequency and Duration**

Invited Discussion Leaders: Adrian Covic and Michael Rocco

10:30 – 11:00 hrs **Breakout Group #2: Dialysate Composition and Toxins**

Discussion Leaders: Philip Li and Jonathan Craig

11:00 – 11:30 hrs **Breakout Group #3: Technical Advances in Dialysis**

Discussion Leaders: Andrew Davenport and Martin Kuhlmann

11:30 – 12:30 hrs **Lunch**

12:30 – 14:15 hrs **Discussion and Consensus on Recommendations**

14:15 – 14:30 hrs **Wrap up and next steps**

14:30 hrs **Adjourn (Departures)**