

# Efficacy and safety of tinzaparin anticoagulation of the extracorporeal circuit with a single bolus administration in nocturnal home hemodialysis

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## INTRODUCTION

- Tinzaparine, a low molecular weight heparin, has shown practical benefits over unfractionated heparin for extracorporeal circuit anticoagulation during in-center hemodialysis treatment. However, efficacy and safety of anticoagulation with tinzaparin has not been substantiated in patients with extended dialysis sessions, as in nocturnal home hemodialysis ( NHD).
- The aim of the study was to evaluate the efficacy and safety of the use of tinzaparin as a single bolus injection into the arterial line of the extracorporeal circuit for patients requiring 8 hours of anticoagulation in nocturnal home hemodialysis

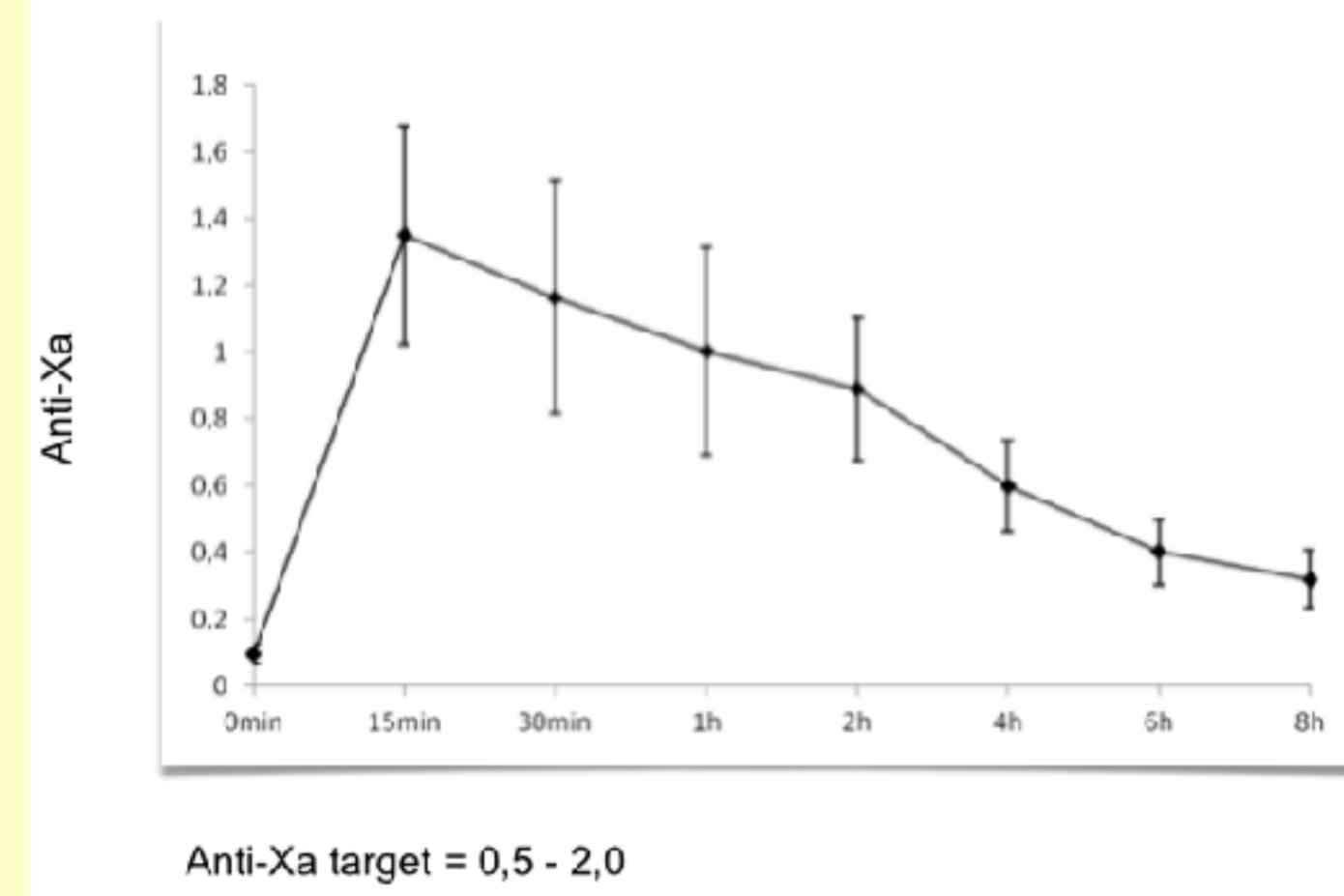
## METHODS

- Seventeen chronic dialysis patients ( group A) admitted to our NHD program between 2009 and 2012 had their first 8 hour in-center dialysis session receiving twice the tinzaparin dose that gave adequate anticoagulation for their usual 4 hour dialysis treatment
- This represented a mean tinzaparin dose of 54+/-12 and 110+/- 19 anti-Xa units /kg for a four and 8 hour dialysis session, respectively.
- Safety and dose/response were assessed by measuring anti-Xa levels at time 0 and at 15,30,60,120,240,360 and 480 min after administration of the tinzaparin bolus
- Anticoagulation efficacy was evaluated visually by assessing clot formation in both the dialyzer and the venous bubble trap through a simple scoring system
- Seven chronic dialysis patients ( group B) paired for weight, age and sex receiving 4 hours of dialysis also had serial anti-Xa measurements at time 0 and at 15,30,60, 120 and 240 min after administration of the tinzaparin bolus

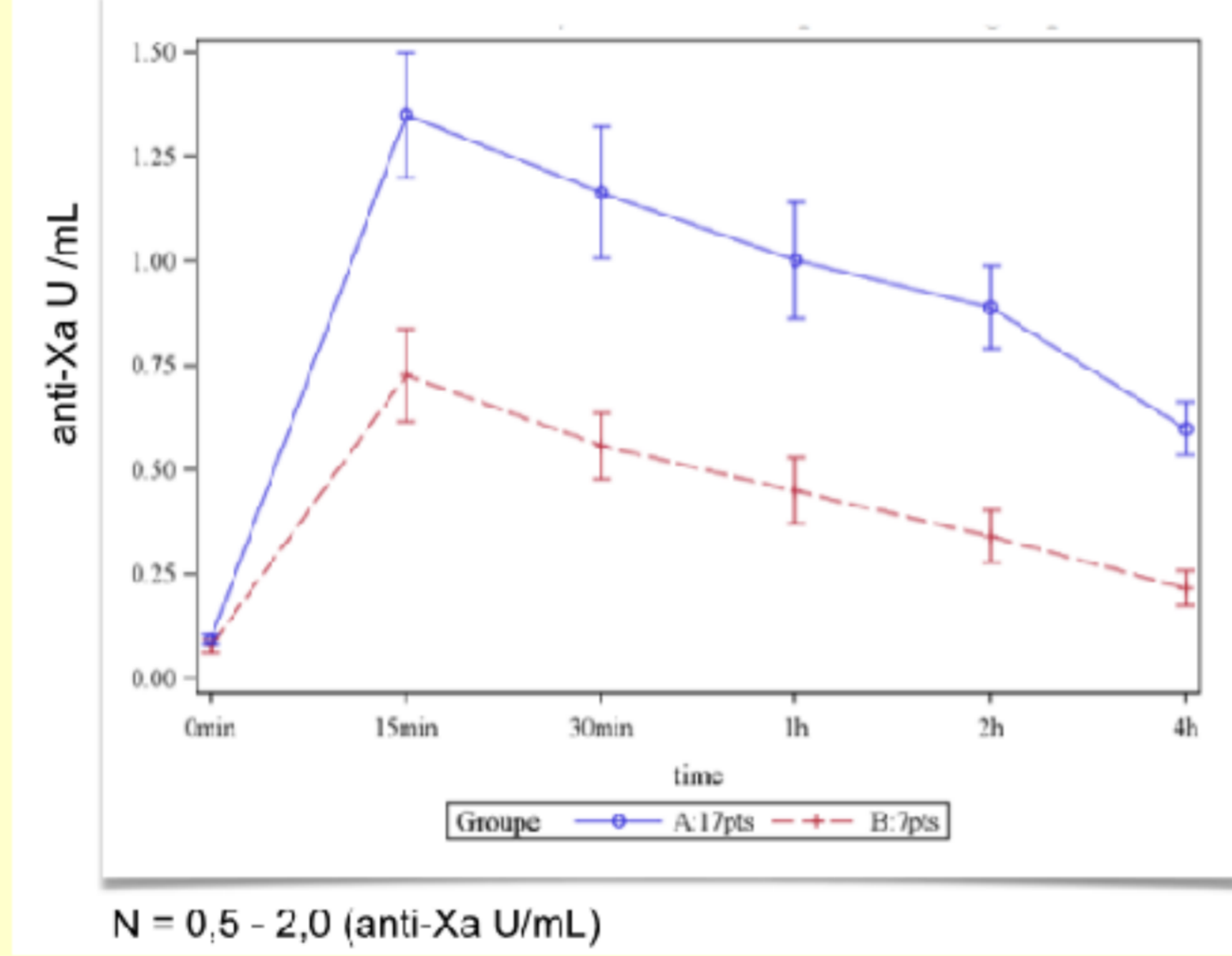
### Demographic characteristics

Group A ( 8h)	
Caractéristiques	Valeurs (n=17)
<b>Démographiques</b>	
Âge (ans ; moyenne ± DS)	37,3 ± 12,4
Sexe (n [%])	
- Femmes	5 (29,4%)
- Hommes	12 (70,6%)
BMC (Kg/m <sup>2</sup> ; moyenne ± DS)	25,3 ± 5,3
<b>Maladie rénale de base (n [%])</b>	
- Glomérulopathie primitive	7 (41,2%)
- Glomérulopathie secondaire à une maladie systémique	6 (35,3%)
- Autres	4 (23,5%)
<b>Comorbidités (n [%])</b>	
- Hypertension	17 (100%)
- Diabète	6 (35,3%)
- Dyslipidémie	4 (23,5%)
- Autres	1 (5,9%)
<b>Temps de suivi (jours; moyenne ± DS)</b>	
	455,9 ± 354,1
<b>Statut actuel (n [%])</b>	
Hémodialyse en cours	12 (70,5%)
Greffe rénale	5 (29,4%)
Group B ( 4 h)	
Caractéristiques	Valeurs (n=7)
<b>Démographiques</b>	
Âge (ans ; moyenne ± DS)	37,3 ± 12,4
Sexe (n [%])	
- Femmes	2 (28,6%)
- Hommes	5 (71,4%)
BMC (Kg/m <sup>2</sup> ; moyenne ± DS)	24,2 ± 1,9
<b>Maladie rénale de base (n [%])</b>	
- Glomérulopathie primitive	2 (28,6%)
- Glomérulopathie secondaire à une maladie générale	1 (14,3%)
- Autres	4 (57,1%)
<b>Comorbidités (n [%])</b>	
- Hypertension	6 (85,7%)
- Diabète	2 (28,6%)
- Dyslipidémie	1 (14,3%)
- Autres	1 (14,3%)

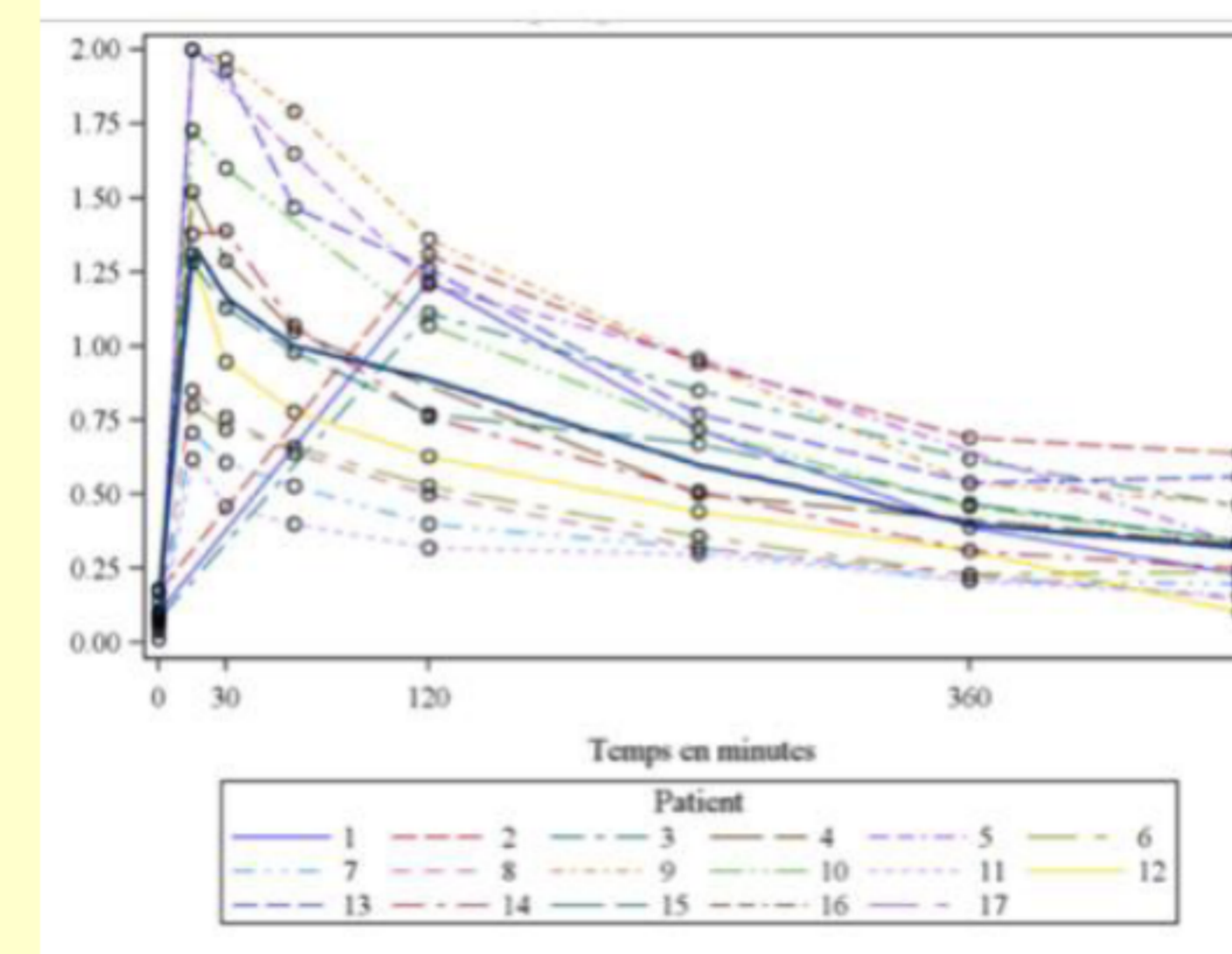
### Mean anti-Xa



### Mean anti-Xa for both groups



### Profile plot - anti-Xa



### Efficacy

- Evaluation of the dialyzer appearance
- Scale 1 to 4
    - 1= clear
    - 2= presence of fibrin
    - 3= presence of blood clots
    - 4= complet coagulation of the extracorporeal circuit
- Evaluation of the bubble trap appearance
- Scale 1 to 4
    - 1= clear
    - 2= presence of fibrin
    - 3= presence of blood clots
    - 4= severe coagulation

### Evaluation and appearance of the dialyzer and bubble trap

8h hemodialysis session		
Echelle de coagulation	Piège veineux	Dialyseur
Stade 1	7	12
Stade 2	1	1
Stade 3	6	1
Stade 4	0	0

4h hemodialysis session		
Echelle de coagulation	Piège veineux	Dialyseur
Stade 1	4	4
Stade 2	3	1
Stade 3	0	2
Stade 4	0	0

## RESULTS

The mean dose of tinzaparin for 8 hours of hemodialysis is 110 +/- 19 anti-Xa U/kg

### EFFICACY

The appearance of the dialyzer and the bubble trap are similar to those of a 4 h dialysis session

### SAFETY

There was no major nor minor bleeding event during the 8 hour hemodialysis simulation session

## CONCLUSIONS

Our experience is the first to demonstrate that a single weight-based bolus injection of tinzaparin into the arterial line of the extracorporeal circuit in nocturnal home hemodialysis is effective and safe.

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