Anti-Xa trough levels for therapeutic LMWH treatment monitoring, a pilot study

Published: 24-04-2020
Last updated: 10-04-2024

Primary objective: To evaluate anti-Xa trough levels in addition to anti-Xa peak levels in patients with renal insufficiency or obesity. Secondary objectives: To explore relations between patient characteristic such as creatinin clearance,...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Embolism and thrombosis
Study type	Observational invasive

Summary

ID

NL-OMON49087

Source
ToetsingOnline

Brief title
NXT level

Condition

- Embolism and thrombosis

Synonym
VTE venous tromboembolic events en Atriumfibrillation

Research involving
Human

Sponsors and support

Primary sponsor: Sint Antonius Ziekenhuis
Source(s) of monetary or material Support: Er is geen financiering voor dit onderzoek. De extra anti-Xa bepalingen worden betaald met een subsidie van het Antonius

onderszoeksfonds.

Intervention

Keyword: anti-xa trough level, LMWH, nadroparin, pharmacokinetics

Outcome measures

Primary outcome

The primary study parameter consists of mean anti-Xa trough- and peak levels per subgroup, presented as mean ± standard deviation (or as median and ranges if data is not normally distributed, which will be tested in IBM SPSS).

Secondary outcome

Anti-Xa trough and peak levels related to creatinine clearance and bodyweight presented per subgroup as mean ± standard deviation (or as median and ranges if data is not normally distributed, which will be tested in IBM SPSS).

Study description

Background summary

Low molecular weight heparins (LMWHs) are often used in therapeutic doses for prevention of cerebrovascular accidents in patients with atrial fibrillation or for treatment of venous thromboembolic events. In the hospital they are often used when oral anticoagulation is recently started or temporary discontinued (bridging). Since both over- and under dosage may be associated with important clinical outcomes (increased bleeding risk and ischemic event risk respectively), adequate dosing is highly important. While both bodyweight and renal function are known to contribute to variability in response and safety, according to several international guidelines, monitoring of indirect hemostatic parameters (i.e. anti-Xa concentrations) is currently advised in special populations, such as patient with renal insufficiency or obese patients. According to these guidelines, anti-Xa peak levels should be measured as safety and efficacy parameter for both special population patient groups. However, the evidence for the reported target peak values seems weak and a clear correlation with bleeding risks or effect in these patient populations is lacking. Also from a pharmacokinetic point of view, there seems to be no

rationale to measure the peak concentration as a proxy for drug accumulation in patients with renal dysfunction. As such, there is to date increasing awareness that anti-Xa trough levels should be evaluated, as it may better correlate with bleeding risk. In this pilot study we propose to evaluate trough concentrations in addition to peak concentrations as a potential marker for safety monitoring of LMWH in special patient populations.

Study objective

Primary objective: To evaluate anti-Xa trough levels in addition to anti-Xa peak levels in patients with renal insufficiency or obesity.

Secondary objectives: To explore relations between patient characteristic such as creatinin clearance, bodyweight (TBW or LBW) or age and anti-Xa peak and trough levels.

Other objectives: to report on anti-Xa pharmacokinetics such as AUC, clearance and halflife.

Study design

The current study is a prospective observational pilot study, including hospitalized users of nadroparin in therapeutic doses of 86 IE/kg twice daily according to standard of care. For each patient, an anti-Xa trough- and peak level are collected on the third and the fifth day of therapy (steady state). Renal function, bodyweight and body length are measured in standard care. Patients with varying renal functions and body weights are included to gain more insight in the influence of this parameters. Since this is a pilot study, six patients are included for each subgroup (see table), which is an accepted number for exploratory pharmacokinetic studies.

Study burden and risks

For this study, anti-Xa trough- and peak levels are collected through vena puncture on the third and the fifth day of nadroparin therapy, which patients receive as standard of care. Peak samples are considered standard of care for patients with renal insufficiency or obesity. The trough samples will be combined with routine blood collections if possible, otherwise will be obtained specifically for the study. We consider two (to four) additional vena punctures as negligible risk for participating patients.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Adult hospitalized patients receiving nadroparin in therapeutic doses for a period of *3days, written informed consent.

Exclusion criteria

Patients on CVVH, peritoneal dialysis, or ECMO. Patients with congenital coagulation disorders.

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	08-08-2020
Enrollment:	30
Type:	Actual

Ethics review

Approved WMO

Date:	24-04-2020
Application type:	First submission
Review commission:	MEC-U: Medical Research Ethics Committees United (Nieuwegein)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL71527.100.19