

# ENOXAPARIN DOSE ADJUSTMENT IN THE ELDERLY - THE INTERVENTION OF THE CLINICAL PHARMACIST

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## BACKGROUND

Enoxaparin dose adjustment in the elderly is essential since its bioaccumulation may cause bleeding events. The high number of elderly protamine administrations in our hospital raised our awareness. Evidence on pharmaceutical interventions (PI) supporting dose adjustment of enoxaparin is almost nonexistent.

## PURPOSE

Assessing the need, acceptance and results of PI in the adjustment of enoxaparin doses prescribed to elderly inpatients.

## METHODS

Protamine administration retrospective study (January to March 2018) followed by a 2-month prospective longitudinal study (May to June 2018).

Prospective study inclusion criteria: inpatients  $\geq 65$  years (internal medicine ward) on enoxaparin with acute kidney injury (AKI) or chronic kidney disease (CKD).

Data were collected from electronic patient records. Patients were continuously monitored by calculating creatinine clearance (CrCl) (Cockcroft Gault formula).

CrCl  $< 30$  ml/min or borderline (30-45 ml/min) led to verbal or electronic PI.

Weight adjustments were also considered.

All interventions and relevant clinical data were recorded and analysed.

## RESULTS

### Retrospective study

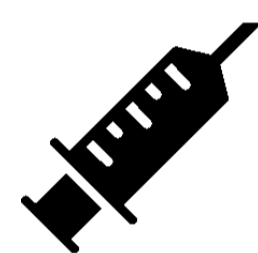


9 patients (77,9 $\pm$ 11,9 years) needed protamine for partial reversal of bleeding events due to enoxaparin

8 of them (88,9%) had CrCl  $< 45$  ml/min

### Prospective study

87 patients on enoxaparin



35 patients included

79,9  $\pm$  8,8 years

54,3% 45,7%

60,0% AKI; 38% CKD

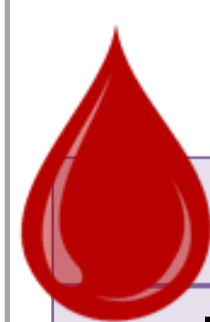
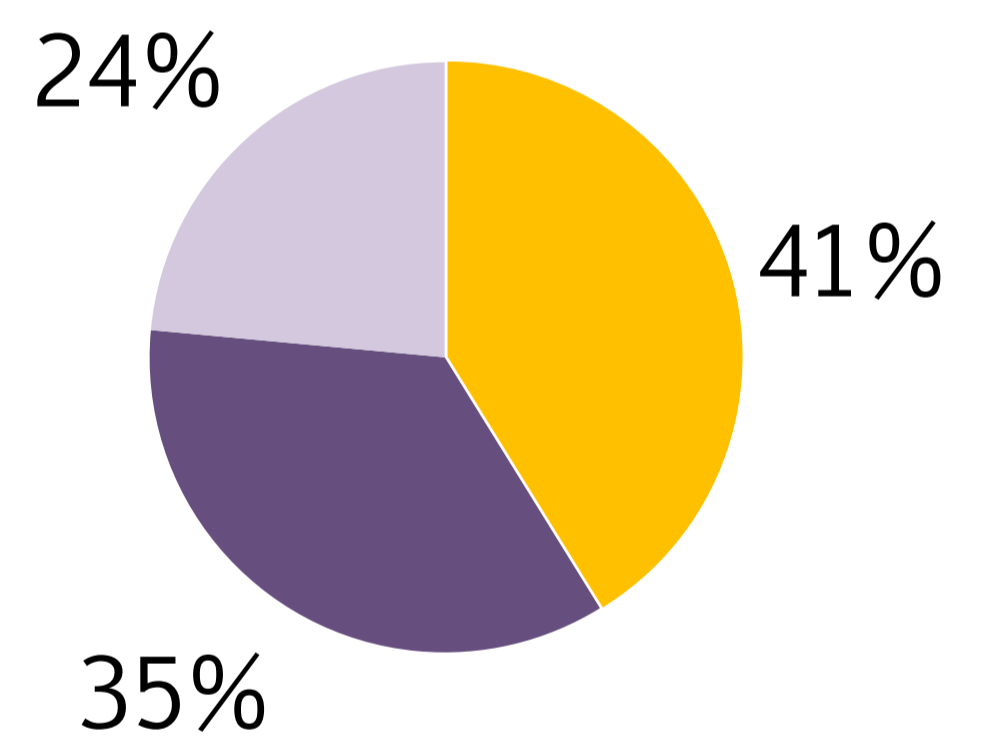
Pharmacists monitored CrCl during 7,4 days out of 9,2 days of treatment

17 PI in 12 patients (75% CKD)

Acceptance rate 70,6%

The physicians took 1,1 days to electronically adjust the prescribed dose

- 24% dose adjustments by CrCl  $< 30$  ml/min
- 35% dose adjustments to weight
- 41% alerts by borderline CrCl



No protamine was administered during this period

In patients whose PI were accepted, there weren't bleeding events

Major hematomas were observed in 2 patients whose PI weren't accepted. Patients with borderline CrCl presented minor hematomas

Although guidelines indicated dose adjustments only for CrCl  $< 30$  ml/min, there is a growing concern about the unadjusted doses safety in patients with CrCl 30-50 ml/min.

## CONCLUSION

Pharmaceutical interventions were relevant in avoiding bleeding events on a growing geriatric population. Collaboration between the clinical pharmacist and medical staff brings improvements in elderly pharmacotherapy.

## REFERENCES

Shaikh SA, Regal RE. Dosing of Enoxaparin in Renal Impairment. PT 2017; 42(4): 245-249.