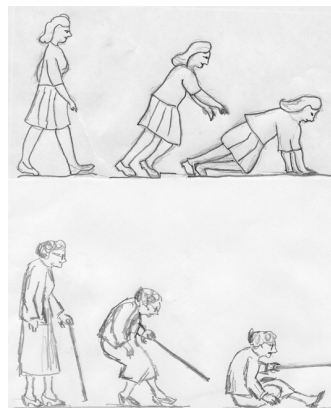


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Thromboprophylaxis for fractured neck of femur and relation with mortality and other outcomes

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How young and old people fall: drawn by Anja Partanen

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Objective of study

- To examine the relation between different thromboprophylaxis policies for fractured neck of femur (NOF) and patient outcomes such as mortality in public (NHS) hospitals in England

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Why?

Chemical thromboprophylaxis has been shown to reduce the incidence of venous thromboembolism (VTE) for patients with fractures of the hip – but does it reduce mortality?

Heparin has side-effects and many UK surgeons are unconvinced by 2007 NICE guidance

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What is the guidance?

- UK: patients with hip fractures (and hip replacements) should have mechanical and chemical thromboprophylaxis with LMWH or Fondaparinux (Arixtra) for 4-5 weeks after surgery
- American College of Chest Physicians: LMWH or Fondaparinux for 35 days post-op and considered DVT
- American Academy of Orthopaedic Surgeons: don't advocate prolonged rx and considered PE for hip and knee arthroplasty, not NOF

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Study design

- Postal questionnaire sent to chief pharmacist at acute hospitals in England on departmental prophylaxis policy
- Analysis of emergency admissions to public hospitals for NOF (ICD10 S720-2) for 2003/4 to 2007/8 using administrative data
- Endpoints: mortality (x3), unplanned readmission for VTE, bleeding

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Analysis

- Hierarchical logistic regression for each outcome
- Adjust for age, sex, deprivation, comorbidity (Charlson index), year
- Readmission outcomes used live discharges

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Basic results

- Responses on policy from 62 (41.3%) out of 150 hospital trusts
- This accounted for 113,037 (44.2%) out of the 255,841 NOF admissions during the five years
- Policies differed:
 1. Aspirin
 2. LMW heparin
 3. Low-dose LMW heparin (e.g. 20mg enoxaparin)
 4. No policy
 5. Not known

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Crude rates and adjusted ORs for death

Policy	Number of hospital trusts	Number of NOFs	in-hospital deaths (rate as %)	Adjusted odds ratio (95% CI)
Aspirin	6	12246	1744 (14.2%)	0.99 (0.80-1.23)
LMW heparin	28	47349	6079 (12.8%)	0.98 (0.86-1.13)
Low-dose LMW heparin*	5	10029	1118 (11.1%)	0.79 (0.69-0.90): P=0.001
No policy	23	43413	5679 (13.1%)	1 (reference)
Not known	88	142804	18946 (13.3%)	1.01 (0.91-1.12)
Total	150	255841	33566 (13.1%)	

* half the dose suggested in the British National Formulary, i.e. 20mg enoxaparin or equivalent

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Crude rates and adjusted ORs for VTE

Policy	Number of hospital trusts	Number of NOFs	VTEs (rate as %)	Adjusted odds ratio (95% CI)
Aspirin	6	12246	156 (1.3%)	0.86 (0.62-1.20)
LMW heparin	28	47349	625 (1.3%)	0.90 (0.71-1.16)
Low-dose LMW heparin*	5	10029	124 (1.2%)	0.83 (0.55-1.25)
No policy	23	43413	612 (1.4%)	1 (reference)
Not known	88	142804	2117 (1.5%)	1.05 (0.85-1.31)
Total	150	255841	3634 (1.4%)	

* half the dose suggested in the British National Formulary, i.e. 20mg enoxaparin or equivalent

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Other findings

- The pattern was similar when looking at total 30-day or total 365-day mortality, though the odds reduction for the latter outcome in the low-dose heparin group was reduced from 21% to 11% (P=0.05)
- As for VTE, readmissions for bleeding showed no differences
- We calculated the number of injections that would have been needed if LMWH was given for 30 days: >600,000 out of hospital per year in England

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Study limitations

- Non-responders: they *seemed* similar to the “no policy group”
- We studied policy rather than individual treatment: some “no-policy” patients would in fact have received heparin and vice versa (cf ITT)
- Coding of VTE and bleeding: will vary by hospital (death is more reliable)
- OPD treatment of VTE not available

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Summary

- Hospitals giving aspirin and full-dose heparin did NOT have lower mortality than those with no policy
- Small low-dose group of hospitals had lower mortality, perhaps due to better processes of care

Conclusions

- Either LMW heparin as a policy may not be cost-effective
- Or recommended dose (40mg) is too high in these mostly frail, lightweight patients