Frequency of symptomatic thromboembolic events with thrombo-prophylaxis only during hospitalisation in fast-track total hip and knee arthroplasty, a prospective follow-up study.

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Background and Goal of study: Total hip and knee arthroplasty are considered high risk procedures for venous thromboembolic events (VTE). Consequently, guidelines recommend chemical thromboprophylaxis for 10-35 days after surgery¹. However, reports of 90-days VTE rates of about 0.4% in fast-track THA and TKA with in-hospital prophylaxis only² have led to suggestions of in-hospital prophylaxis only in selected fast-track procedures³, despite a current lack of follow-up studies. We investigated 90-days symptomatic VTE and arterial thromboembolic events (ATE) in elective fast-track THA and TKA with only in-hospital prophylaxis when length of hospital stay (LOS) ≤5 days.

Methods: Prospective cohort study from 2012-2015. 90-days follow-up through the Danish National Patient Registry. Evaluation of discharge records, and in case of VTE, ATE or death the complete medical charts. Patients with preoperative use of anticoagulants were excluded.

Results: Of 18241 procedures, 96% had LOS ≤5 days with 6.8% and 0.2% 90-day readmission and mortality rate, respectively. Median age was 68 yrs., 59% were women and 52% had THA. There were 0.4% VTE and 0.3% ATE. In 767 (4%) patients with LOS >5 days, readmission and mortality rates were 15% and 1,7%. VTE and ATE occurred in 2.4% and 3.8%.

Table 1. Frequencies of thromboembolic events within 90-days of fast-track THA and TKA

	All patients (n:18241)	LOS ≤5 days (n:17474)	LOS >5 days (n:767)
Any TEE	165 (0.9; 0.8-1.1)	118 (0.7; 0.6-0.8)	47 (6.1; 4.6-8.1)
Any VTE	90 (0.5; 0.4-0.6)	72 (0.4; 0.3-0.5)	18 (2.4; 1.5-3.7)
– DVT	44 (0.3; 0.2-0.3)	39 (0.2; 0.2-0.3)	5 (0.7; 0.3-1.5)
– PE	41 (0.2; 0.2-0.3)	29 (0.2; 0.1-0.2)	12 (1.6; 0.9-2.7)
– Both	5 (0.0; 0.0-0.1)	4 (0.0; 0.0-0.1)	1 (0.1; 0.0-0.7)
Any ATE	75 (0.4; 0.3-0.5)	46 (0.3; 0.2-0.4)	29 (3.8; 2.6-5.4)
– MI	33 (0.2; 0.1-0.3)	23 (0.1; 0.1-0.2)	10 (1.3; 0.7-2.4)
– Stroke/TIA	42 (0.2; 0.2-0.3)	23 (0.1; 0.1-0.2)	19 (2.2; 1.4-3.5)
All-cause mortality	47 (0.3; 0.2-0.4)	34 (0.2; 0.1-0.3)	13 (1.7; 1.0-2.9)
– Fatal PE	3 (0.0; 0.0-0.1)	3 (0.0; 0.0-0.1)	0 (0.0; 0.0-0.0)
– Fatal MI	5 (0.0; 0.0-0.1)	5 (0.0; 0.0-0.1)	0 (0.0; 0.0-0.0)
– Fatal stroke/TIA	4 (0.0; 0.0-0.1)	1 (0.0; 0.0-0.0)	3 (0.4; 0.1-1.0)
– Unknown	17 (0.1; 0.1-0.2)	15 (0.1; 0.1-0.2)	2 (0.3; 0.1-0.9)

n (%; 95%CI) TEE: thromboembolic events DVT: deep venous thrombosis PE: pulmonary embolism MI: myocardial infarction TIA: transient ischemic attack

Discussion: Our study confirmed previous findings of 90-day VTE and ATE rates of about 0.4% and 0.2% with in-hospital prophylaxis only in THA and TKA patients with LOS ≤5 days.² The VTE incidence was even lower than an open label study comparing 30 days treatment with rivaroxaban (0.89% VTE) with “standard of care” (1,35% VTE).⁴ Further studies are needed to identify other fast-track procedures and patients in which only in-hospital prophylaxis may be an option, as suggested in the ESA guideline.³

CONCLUSION: Only in-hospital thromboprophylaxis is safe in fast-track elective THA and TKA when LOS is ≤5 days .

References:
¹ Falck-Ytter et al. Chest. 2012;141:e278S-e325S ² Jørgensen et al. BMJ Open. 2013;3:e003965 ³ Venclauskas et al. Eur J Anaesthesiol. 2017;35:134-138.
⁴ Turpie et al. Thromb Haemost 2014;111: 94-102