CHU Hôpitaux de Bordeaux

université de BORDEAUX

Thromboprophylaxie : recommandations européennes (ESA 2018)

François Sztark

francois.sztark@u-bordeaux.fr

Biarritz, RASA 2018

Pr François Sztark

Rencontres d'Anesthésie SANOFI 2018
Biarritz,17 juin 2018

Pas de lien d'intérêts avec le contenu de cette présentation qui repose sur les recommandations européennes de l'ESA

Sanofi ne recommande en aucun cas l'usage des produits en dehors de leurs indications approuvées. Merci de consulter le résumé des caractéristiques du(es) produit(s) avant de le(s) prescrire.
Les informations ci-après sont fournies pour un usage médical et scientifique uniquement, et sont destinées exclusivement aux participants de cette manifestation scientifique.

EJA

Eur J Anaesthesiol 2018; **35:**73–76

EDITORIAL

European guidelines on perioperative venous thromboembolism prophylaxis

Charles Marc Samama and Arash Afshari, for the ESA VTE Guidelines Task Force*

Annales Françaises d'Anesthésie et de Réanimation 24 (2005) 952–976

PRATIQUE CLINIQUE

Prévention de la maladie thromboembolique veineuse périopératoire et obstétricale

Recommandations pour la pratique clinique. Texte court 2005

Société française d'anesthésie et de réanimation

Annales Françaises d'Anesthésie et de Réanimation 30 (2011) 947–951

RECOMMANDATIONS FORMALISÉES D'EXPERTS

Prévention de la maladie thromboembolique veineuse postopératoire. Actualisation 2011. Texte court

French Society of Anaesthesia and Intensive Care. Guidelines on perioperative venous thromboembolism prophylaxis. Update 2011. Short text

C.-M. Samama [a,*], B. Gafsou [b], T. Jeandel [a], S. Laporte [c], A. Steib [d], E. Marret [e], P. Albaladejo [f], P. Mismetti [c], N. Rosencher [a]

EJA

Eur J Anaesthesiol 2018; **35:**73–76

EDITORIAL

European guidelines on perioperative venous thromboembolism prophylaxis

Charles Marc Samama and Arash Afshari, for the ESA VTE Guidelines Task Force*

Justifications for the development of these new European Guidelines:

1. The steadily decreasing global postoperative VTE risk
2. The ongoing debate about the indications of VTE prophylaxis for **fast-track procedures and day surgery**
3. The questioned **efficacy of elastic compression stockings** in **obese** and **elderly patients**.
4. The continued recommendation of **aspirin** despite the availability of new agents
5. The increasing need for objective definitions for major/massive bleeding.
6. The American College of Chest Physicians (ACCP) guidelines 2008 and 2012 are still considered by many to be the 'Holy Bible', despite conflicting statements, different scope of topics, lack of incorporation of recently published important articles and last but not least lack of coverage of several topics of interest to anaesthesiologists

EJA

Eur J Anaesthesiol 2018; **35:**73–76

EDITORIAL

European guidelines on perioperative venous thromboembolism prophylaxis

The guidelines are presented in 12 chapters. VTE prophylaxis is discussed in nine clinical settings. Controversial treatments are discussed in three additional chapters.

(1) Surgery in the obese patient
(2) Surgery during pregnancy and the immediate post- partum period
(3) Surgery in the elderly
(4) Day surgery and fast-track surgery
(5) Intensive care
(6) Cardiovascular and thoracic surgery
(7) Neurosurgery
(8) Chronic treatments with anti-platelet agents
(9) Patients with pre-existing coagulation disorders, and after severe perioperative bleeding.
(10) Mechanical prophylaxis
(11) Aspirin
(12) Inferior vena cava filters

EJA

Eur J Anaesthesiol 2017; **34:**1–7

GUIDELINES

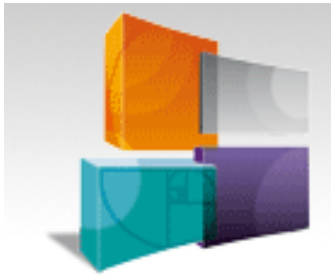
European Guidelines on perioperative venous thromboembolism prophylaxis

Executive summary

Arash Afshari, Walter Ageno, Aamer Ahmed, Jacques Duranteau, David Faraoni, Sibylle Kozek-Langenecker, Juan Llau, Jacky Nizard, Maurizio Solca, Jakob Stensballe, Emmanuel Thienpont, Eleftherios Tsiridis, Linas Venclauskas and Charles Marc Samama, for the ESA VTE Guidelines Task Force

The current Executive Summary includes all the recommendations from the 12 chapters of the European guidelines on perioperative venous thromboembolism (VTE) prophylaxis. The objective is to allow the reader to examine the guidelines rapidly and globally.

SFAR



Méthode GRADE

- **Grade 1+ =** Recommandation forte positive :
  il est recommandé de prescrire

“we recommend…”

- **Grade 2 + =** Recommandation optionnelle positive
  il faut probablement prescrire

“we suggest…”

- **Grade 1 - =** Recommandation forte négative
  il est recommandé de ne pas prescrire

- **Grade 2 - =** Recommandation optionnelle négative
  il faut probablement ne pas prescrire

Table 2—*Grading Recommendations*

Grade of Recommendation/ Description	Benefit vs Risk and Burdens	Methodological Quality of Supporting Evidence	Implications
1A/strong recommendation, high-quality evidence	Benefits clearly outweigh risk and burdens, or vice versa	RCTs without important limitations or overwhelming evidence from observational studies	Strong recommendation, can apply to most patients in most circumstances without reservation
1B/strong recommendation, moderate quality evidence	Benefits clearly outweigh risk and burdens, or vice versa	RCTs with important limitations (inconsistent results, methodological flaws, indirect, or imprecise) or exceptionally strong evidence from observational studies	Strong recommendation, can apply to most patients in most circumstances without reservation
1C/strong recommendation, low-quality or very low-quality evidence	Benefits clearly outweigh risk and burdens, or vice versa	Observational studies or case series	Strong recommendation but may change when higher quality evidence becomes available
2A/weak recommendation, high-quality evidence	Benefits closely balanced with risks and burden	RCTs without important limitations or overwhelming evidence from observational studies	Weak recommendation, best action may differ depending on circumstances or patients' or societal values
2B/weak recommendation, moderate-quality evidence	Benefits closely balanced with risks and burden	RCTs with important limitations (inconsistent results, methodological flaws, indirect, or imprecise) or exceptionally strong evidence from observational studies	Weak recommendation, best action may differ depending on circumstances or patients' or societal values
2C/weak recommendation, low-quality or very low-quality evidence	Uncertainty in the estimates of benefits, risks, and burden; benefits, risk, and burden may be closely balanced	Observational studies or case series	Very weak recommendations; other alternatives may be equally reasonable

RPC 2005 - FACTEURS DE RISQUE DE THROMBOSE PROPRES AU PATIENT

Facteurs de risque de thrombose propres au patient
Immobilité, alitement, paralysie des membres
Cancer et traitement du cancer (hormonal, chimiothérapie, ou radio-thérapie)
Antécédents d'événement thromboembolique veineux
Âge > 40 ans
Contraception orale contenant des estrogènes ou hormonothérapie substitutive
Traitements modulateurs des récepteurs aux estrogènes
Pathologie médicale aiguë
Insuffisance cardiaque, insuffisance respiratoire
Maladies inflammatoires de l'intestin
Syndrome néphrotique
Syndrome myéloprolifératif
Hémoglobinurie paroxystique nocturne
Obésité (IMC > 30)
Tabagisme
Varices
Cathéter veineux central
Thrombophilie congénitale ou acquise

Table 2. **Caprini Risk Assessment Model***

1 Point	*2 Points*	*3 Points*	*5 Points*
Age 41–60 y	Age 61–74 y	Age ≥75 y	Stroke (<1 mo)
Minor surgery	Arthroscopic surgery	History of VTE	Elective arthroplasty
BMI >25 kg/m^2	Major open surgery (≥45 min)	Family history of VTE	Hip, pelvis, or leg fracture
History of major surgery (<1 mo)	Laparoscopic surgery (>45 min)	Positive factor V Leiden	Multiple trauma (<1 mo)
Varicose veins	Cancer (past or present)	Positive prothrombin 20210A	Acute spinal cord injury (<1 mo)
Swollen legs	Patient confined to bed (>72 h)	Elevated serum homocysteine	
Acute myocardial infarction	Immobilizing plaster cast (<1 mo)	Positive lupus anticoagulant	
Congestive heart failure (<1 mo)	Central venous access	Elevated anticardiolipin antibodies	
Sepsis (<1 mo)		Heparin-induced thrombocytopenia	
Serious lung disease, such as pneumonia (<1 mo)		Other congenital or acquired thrombophilia	
Chronic obstructive pulmonary disease			
Medical patient on bed rest			

BMI = body mass index; VTE = venous thromboembolism.
** From Caprini JA. Risk assessment as a guide for the prevention of the many faces of venous thromboembolism. Am J Surg. 2010;199:S3-10. For use of this table, see text on prevention of VTE in hospitalized surgical patients.*

Risque de MTEV selon le score de Caprini

Risk Score	Prophylaxis	Duration	VTE Rate*
0 [lowest]	Early ambulation	During hospitalization	< 0.5%
1-2 [low]	Either compression boots Or prophylactic anticoagulation	During hospitalization	1.5%
3-4 [moderate]	Compression boots AND prophylactic anticoagulation	During hospitalization	3.0%
5-8 [high]	Compression boots AND prophylactic anticoagulation	7-10 days total	6.0%
>8 [highest]	Compression boots AND prophylactic anticoagulation	30 days total	6-18%

Notes

- 30- and 60-day clinical VTE rate based on patient groups and type of surgery without prophylaxis
- Compression boots should be worn during hospitalization and portable boots may be beneficial post-discharge especially when leg swelling is present or the score is very high.

Surgery in the obese patient
Bariatric surgery

- **Laparoscopic bariatric procedures** for obese patients have a lower risk of VTE than open procedures.
- We suggest using only anticoagulants **OR** intermittent pneumatic compression (IPC) for obese patients with a low risk of VTE during and after bariatric procedures (Grade 2C).
- We recommend using anticoagulants **AND** IPC together for obese patients with a high risk of VTE (age >55 years, BMI > 55 $kg.m^{-2}$, history of VTE, venous disease, sleep apnoea, hypercoagulability and pulmonary hypertension) during and after bariatric procedures (Grade 1C).
- We recommend the use of low molecular weight heparin (**LMWH**) over low-dose unfractionated heparin (LDUH) (Grade 1C).
- We suggest a dose of LMWH (3000 to 4000 anti-Xa IU every 12 h subcutaneously) depending on BMI as acceptable for obese patients with a **lower risk of VTE** (Grade 2B).
- We suggest the use of a higher dose of LMWH (4000 to 6000 anti-Xa IU every 12 h subcutaneously) as acceptable for obese patients with a **higher risk of VTE** (Grade 2B).
- We recommend extended prophylaxis for patients with a high risk of VTE during the post-discharge period for 10 to 15 days (Grade 1C).

Surgery in the obese patient
Non-bariatric surgery

- We suggest that in surgery with an indication for VTE prophylaxis, a **higher prophylactic dose of LMWH** (3000 to 4000 anti-Xa IU every 12 h subcutaneously) should be considered for obese patients with a **BMI more than 40 kg.m^{-2}** undergoing non-bariatric surgery (Grade 2C).

- For additional and general recommendations, we refer to the section on ‘VTE prophylaxis of obese patients in bariatric surgery’

Surgery during pregnancy and the immediate post-partum period

- *Non-obstetric surgery during pregnancy*
  - We recommend thromboprophylaxis following surgery during pregnancy or the post-partum period, when they imply, as a consequence, bed-rest, until full mobility is recovered (Grade 1C).
  - We suggest that thromboprophylaxis should be used in cases of perioperative infection during pregnancy or the postpartum period (Grade 2C).

Surgery during pregnancy and the immediate post-partum period

- *Caesarean section*
  - Thromboprophylaxis is recommended after caesarean section in all cases, except elective caesarean section in low-risk patients (Grade 1C), but there is no clear consensus on the definition of this population.
  - The duration of thromboprophylaxis following caesarean section should be at least 6 weeks for high-risk patients, and at least 7 days for other patients requiring anticoagulation (Grade 1C).

Facteurs de risque thromboembolique chez la parturiente :

Facteurs de risque majeur et OR associés

- Antécédent thromboembolique avec/sans thrombophilie sous-jacente (OR > 20)
- Thrombophilie asymptomatique à haut risque : déficit en antithrombine, mutation facteur V Leiden homozygote, mutation prothrombine G202010A homozygote, déficit combiné (OR > 20)
- SAPL symptomatique (OR > 20)
- Hémorragie du post-partum nécessitant un acte chirurgical (OR =12)
- Immobilité prolongée et complète (OR = 11)
- Lupus érythémateux disséminé (OR = 8)
- Cardiopathie majeure (OR = 7)

Facteurs de risque mineur et OR associés

- Obésité (IMC > 30) ou poids > 120 kg (OR = 4)
- Drépanocytose (OR = 4)
- Maladie inflammatoire de l'intestin (OR = 4)
- Grossesse obtenue par PMA (OR = 4)
- Infection du post-partum (OR = 4)
- Grossesse multiple (OR = 4)
- Prééclampsie grave ou avec RCIU (OR = 4)
- Prééclampsie (OR = 3)
- Thrombophilie à bas risque : facteur V Leiden hétérozygote, mutation prothrombine G202010A hétérozygote, déficit en protéine C, en protéine S (OR = 3)
- Accouchement prématuré < 37 SA (OR = 3)
- Anémie ou hémorragie pendant grossesse (OR = 3)
- Tabagisme (OR = 3)
- Varices importantes (OR = 2)
- Parité > 3 (OR = 2)
- Age > 35 ans (OR = 1,4)

CNGOF - RPC POST-PARTUM

	Pas de facteurs de risque		Facteur de risque majeur et /ou facteurs de risques mineurs avec OR ≥ 5		Facteur de risque mineur (Hors âge > 35 ans)	
	Césarienne programmée	Césarienne en urgence	Césarienne programmée	Césarienne en urgence	Césarienne programmée	Césarienne en urgence
Bas anti-thrombose	Oui	Oui	Oui	Oui	Oui	Oui
Enoxaparine 40 mg SC	Non	Non	Oui 14 jours *	Oui 14 jours *	Non	Oui 14 jours

* Durée de 6 semaines si facteurs de risques majeurs.

Surgery in the elderly

- Age over 70 years is a risk factor for postoperative VTE (Grade B).
- In elderly patients, we suggest identification of **comorbidities increasing the risk for VTE** (e.g. congestive heart failure, pulmonary circulation disorders, renal failure, lymphoma, metastatic cancer, obesity, arthritis, post-menopausal oestrogen therapy), and correction if present (e.g. anaemia, coagulopathy) (2C).
- We suggest **against bilateral knee replacement** in elderly and frail patients (2C).
- We suggest **timing and dosing** of pharmacological VTE prophylaxis as in the non-aged population (2C).
- In elderly patients with **renal failure,** low-dose unfractionated heparin (UFH) may be used or weight-adjusted dosing of LMWH (2C).
- In the elderly, we recommend careful prescription of postoperative VTE prophylaxis and **early postoperative mobilisation** (1C).
- We recommend **multi-faceted interventions for VTE prophylaxis in elderly** and frail patients, including PCI, LMWH, (DOACs after knee or hip replacement) (1C)

Day surgery and fast-track surgery

- We recommend that all patients undergoing an ambulatory/fast-track protocol should be assessed for the VTE risk of the procedure and for any personal/ additional VTE risk (1B).
- For patients undergoing **a low-risk procedure, without additional risk according to the Caprini score**, **we recommend general measures** of thromboprophylaxis (including early ambulation and optimal hydration) over other specific measures (mechanical or pharmacological) (1B).
- For patients undergoing a **low-risk procedure with additional risk factors**, **we recommend general measures** of thromboprophylaxis (Grade 1B). We suggest assessing pharmacological prophylaxis with **LMWH** over other drugs (Grade 2B). We suggest the use of specific mechanical measures (**IPC** devices) in patients with an increased bleeding risk (2C).
- For patients undergoing a **high-risk procedure without additional risk factors**, **we recommend general measures** of thromboprophylaxis (1B). **We suggest the administration of LMWH** over other drugs (2B). We suggest assessing IPC in patients with an increased bleeding risk (2C).
- For patients undergoing a **high-risk procedure with additional risk factors, we recommend general measures of thromboprophylaxis and pharmacological prophylaxis with LMWH** (Grade 1B), **or IPC** in patients with an increased bleeding risk (2C).

Day surgery and fast-track surgery

- We suggest the **use of aspirin** for VTE prevention **after total hip arthroplasty, total knee arthroplasty and hip fracture surgery** in patients **without high VTE risk** (2C).
- We suggest the **use of aspirin** for VTE prevention after **low-risk orthopaedic procedures in patients with high VTE risk**, **or other high-risk orthopaedic procedures (e.g. knee arthroscopy) in patients without high VTE risk** (2C).
- We recommend **no pharmacological VTE prevention after low-risk orthopaedic procedures in patients without high VTE risk** (1C).
- For pharmacological prophylaxis, **we recommend a minimum of 7 days duration** of treatment over protocols lasting 3 days or single-dose protocols (Grade 1B), although in selected cases of fast- track surgery, **thromboprophylaxis only during hospitalisation could be an option** (2C). We recommend extending the duration of thromboprophylaxis for **up to 4 weeks in specific cases of high-risk procedures**, according to general rules (2B).
- When the choice of thromboprophylaxis is a **LMWH, the first dose could be administrated before surgery (about 12 h before the beginning of the procedure) or after surgery (optimal time from 6 to 8 h after the end of the procedure)** (Grade 2C). In case of planned neuraxial anaesthesia for the procedure, postoperative administration seems to be the preferred option (2C).

Intensive care

Cardiovascular and thoracic surgery

Neurosurgery

- *Patients undergoing craniotomy*
- *Patients with non-traumatic intra cranial haemorrhage*
- *Spinal surgery*

Chirurgie du rachis

- **Pour patients sans FDR** pas de prophylaxie, mobilisation précoce
- **Chirurgie rachidienne et FDR surajouté** (mobilité limitée, cancer actif, chirurgie complexe): débuter prophylaxie mécanique avec CPI en préopératoire et addition d'HBPM dès que le risque hémorragique est bas (au moins H24)
- Poursuivre la prophylaxie jusqu'à la sortie chez les patients à haut risque
- Si blessé médullaire ou déficit moteur majeur, poursuivre la prophylaxie pendant la phase de réhabilitation

Patients traités par AAP au long cours

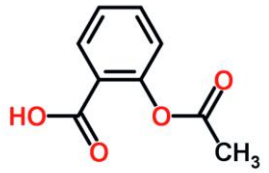
- Thromboprophylaxie si risque modéré ou élevé, tout en évaluant le risque hémorragique (1B)
- **Si risque MTEV > risque hémorragique: prophylaxie médicamenteuse (HBPM, AOD …) (2C)**
- **Si patient sous double AAP (stent récent) et procédure à haut risque thrombotique, prioriser la reprise de la double AAP sur la prophylaxie veineuse (2C)**
- Si un **anticoagulant est associé à un AAP,** prescrire la dose d'AC la plus faible autorisée (2C)
- **Si risque hémorragique AAP+AC > risque thrombotique: utiliser AAP + CPI (2C)**
- **En post-opératoire** reprendre l'**aspirine** le plus tôt possible (J1) (2B). Reprise **clopidogrel**, sans dose de charge, entre J1 et J2 (2C)
- Surveillance clinique et biologique de la survenue d'un saignement
- **Eviter les AINS** chez les patients sous AAP (2C)

Patients with pre-existing coagulation disorders and after severe perioperative bleeding

Mechanical prophylaxis

- We recommend an **institution-wide protocol** for the prevention of VTE that integrates early ambula- tion, pharmacological thromboprophylaxis with anticoagulants and mechanical thromboprophylaxis (IB).
- We recommend **against the routine use of graduated compression stockings (GCS)** without pharmacological thromboprophylaxis to prevent VTE in patients at intermediate and high risk (IB).
- In patients with contra-indications to pharmacological thrombo-prophylaxis, we recommend the use of mechanical prophylaxis with IPC or GCS (IB) and **suggest the use of IPC over GCS** (2B).
- In patients with contra-indications for pharmacological thrombo-prophylaxis **who are not at high risk for VTE, we suggest no prophylaxis over GCS alone** (2C).
- In patients receiving pharmacological thromboprophylaxis **who are not at very high risk for VTE, we recommend against the routine use of mechanical thromboprophylaxis with GCS or IPC** (IB).
- We suggest **combined mechanical and pharmacological prophylaxis** in selected patients at **very high risk** for VTE (2B). We suggest the use of IPC rather than GCS in selected high-risk patients in addition to pharmacological thromboprophylaxis (2B).

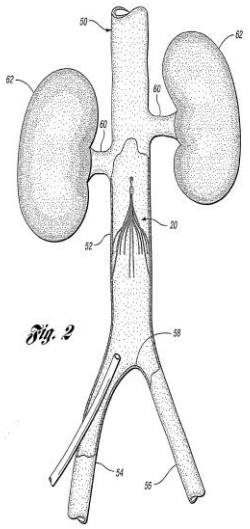
Aspirine



Aspirin
Molecular Formula: $C_9H_8O_4$
Average mass: 180.157 g/mol
Chemical name: 2-(acetyloxy) benzoic acid

- **Option possible pour la prophylaxie post-PTH, PTG et fracture du col** (1B) en particulier pour les patients qui ne sont pas à haut risque thrombotique (2C)
- Possibles pour les chirurgies orthopédiques à bas risque et patients à haut risque ou des chirurgies ortho à haut risque mais patients à bas risque (2C)
- Possible après PTH, PTG et fracture du col chez patients à risque de saignement (2C)
- Suggérée dans les **programmes RAAC** pour PTH et PTG (2C)
- **En association avec CPI pour PTH, PTG et fracture du col (1C)**
- Pas de prophylaxie médicamenteuse après procédure orthopédique à faible risque chez patients sans FDR (ex. arthroscopie du genou) (1C)
- Pas de recommandation sur dose, durée et sélection des patients
- Aspirine non recommandée en chirurgie générale

Filtres de la veine cave inférieur



- Pas de preuves suffisantes sur efficacité et sécurité des filtres chez les patients avec CI à la prophylaxie médicamenteuse et mécanique et ayant une procédure à haut risque
- Complications des filtres > bénéfices; retrait plus difficile si tardif
- **Discussion d'un filtre temporaire quand chirurgie à très haut risque et CI formelle à la thromboprophylaxie mécanique et médicamenteuse**
- **Filtre temporaire en cas d'épisode récent de TVP, CI formelle à l'anticoagulation et chirurgie majeure non différable**
- Pas de filtre systématique pour prévenir l'EP en péri-opératoire
- **Discussion pluridisciplinaire**