АНТИТРОМБОЦИТНА И АНТИКОАГУЛАНТНА ТЕРАПИЯ ПРИ НЕСЪРДЕЧНА ХИРУРГИЯ

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МУ - София

European Heart Journal (2014) **35**, 2383–2431
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ESC/ESA GUIDELINES

2014 ESC/ESA Guidelines on non-cardiac surgery: cardiovascular assessment and management

The Joint Task Force on non-cardiac surgery: cardiovascular assessment and management of the European Society of Cardiology (ESC) and the European Society of Anaesthesiology (ESA)

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Journal of Internal Medicine 2005; 257: 399–414

REVIEW

Low-dose aspirin for secondary cardiovascular prevention – cardiovascular risks after its perioperative withdrawal versus bleeding risks with its continuation – review and meta-analysis

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A large meta-analysis, including 41 studies in 49 590 patients, which compared peri-procedural withdrawal vs. bleeding risks of aspirin, concluded that the risk of bleeding complications with aspirin therapy was increased by 50%, but that aspirin did not lead to greater severity of bleeding complications.[121] In subjects at risk of—or with proven—IHD, aspirin non-adherence/withdrawal tripled the risk of major adverse cardiac events.

POISE-2

PeriOperative ISchemic Evaluation-2 Trial

Aspirin in patients undergoing noncardiac surgery

PJ Devereaux, Population Health Research Institute, Hamilton, Canada
on behalf of POISE-2 Investigators

N Engl J Med 2014; 370:1494-1503

Първични и вторични крайни цели

Събитие	Аспирин (4998)	Плацебо (5012)	HR (95% CI)	P
1^{o} крайна цел: Смърт или нефатален МИ на 30-тия ден	351 (7.0)	355 (7.1)	0.99 (0.86-1.15)	0.92
2^{o} крайни цели: Смърт, МИ или инсулт	362 (7.2)	370 (7.4)	0.98 (0.85-1.13)	0.80
Смърт, МИ, реваск., БТЕ, ДВТ	402 (8.0)	407 (8.1)	0.99 (0.86-1.14)	0.90

- **Изключени пациенти: BMS < 6 седмици & DES < 1 година преди хирургията**

Безопасност

Събитие	Аспирин (4998)	Плацебо (5012)	HR (95% CI)	P
Голямо кървене	229 (4.6)	187 (3.7)	1.23 (1.01-1.49)	0.04
Живото-застрашаващо кървене	87 (1.7)	73 (1.5)	1.19 (0.88-1.63)	0.26
Инсулт	16 (0.3)	19 (0.4)	0.84 (0.43-1.64)	0.62

POISE-2

PeriOperative ISchemic Evaluation-2 Trial

The trial results do not support routine use of aspirin in patients undergoing non-cardiac surgery

Aspirin should be discontinued if the bleeding risk outweighs the potential cardiovascular benefit.[121,123–125] For patients undergoing spinal surgery or certain neurosurgical or ophthalmological operations, it is recommended that aspirin be discontinued for at least seven days.

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European Society of Anaesthesiology ESA

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In conclusion, the use of low-dose aspirin in patients undergoing non-cardiac surgery should be based on an individual decision, which depends on the perioperative bleeding risk, weighed against the risk of thrombotic complications.

European Heart Journal Advance Access published August 30, 2013

European Heart Journal
doi:10.1093/eurheartj/eht296

ESC GUIDELINES

2013 ESC guidelines on the management of stable coronary artery disease

The Task Force on the management of stable coronary artery disease of the European Society of Cardiology

Antiplatelet therapy			
SAPT, usually aspirin, is recommended indefinitely.	I	A	172, 333, 501-503
DAPT is indicated after BMS for at least 1 month.	I	A	501, 502, 504, 505
DAPT is indicated for 6 to 12 months after 2nd generation DES.	I	B	
DAPT may be used for more than 1 year in patients at high ischaemic risk (e.g. stent thrombosis, recurrent ACS on DAPT, post MI/diffuse CAD) and low bleeding risk.	IIb	B	334, 504, 505
DAPT for 1 to 3 months may be used in patients at high bleeding risk or with undeferrable surgery or concomitant anticoagulant treatment.	IIb	C	-

European Heart Journal (2012) **33**, 2569–2619
doi:10.1093/eurheartj/ehs215

ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation

The Task Force on the management of ST-segment elevation acute myocardial infarction of the European Society of Cardiology (ESC)

Table 22 Routine therapies in the acute, subacute and long term phase of ST-segment elevation myocardial infarction

Antiplatelet therapy with low dose aspirin (75–100 mg) is indicated indefinitely after STEMI.	I	A	237
In patients who are intolerant to aspirin, clopidogrel is indicated as an alternative to aspirin.	I	B	243
DAPT with a combination of aspirin and prasugrel or aspirin and ticagrelor is recommended (over aspirin and clopidogrel) in patients treated with PCI.	I	A	109, 110
DAPT with aspirin and an oral ADP receptor antagonist must be continued for up to 12 months after STEMI, with a strict minimum of:	I	C	245–247, 283
• 1 month for patients receiving BMS	I	C	
• 6 months for patients receiving DES	IIb	B	
DAPT should be used up to 1 year in patients with STEMI who did not receive a stent.	IIa	C	-

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mortality rates of up to 20% were reported in relation to perioperative stent thrombosis when surgery was performed within weeks following coronary stenting and DAPT was discontinued.[128] Therefore, elective surgery should be postponed for a minimum of 4 weeks and ideally for up to 3 months after BMS implantation. Importantly, whenever possible, aspirin should be continued throughout surgery.[129]

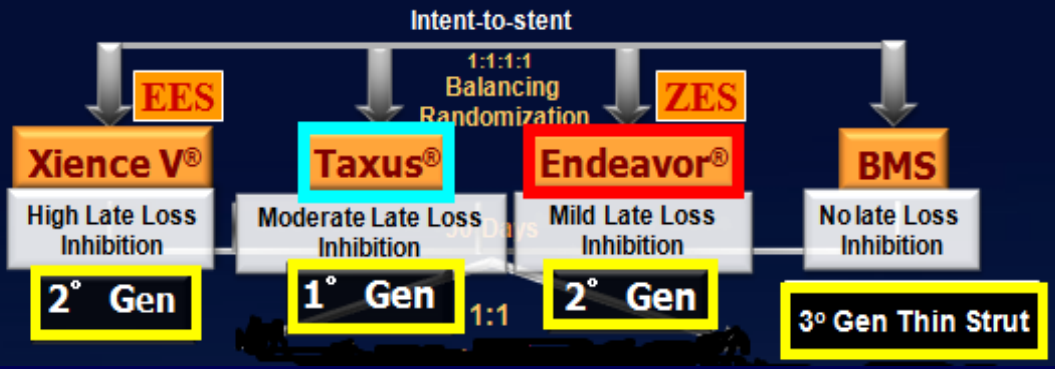
DAPT Duration and Clinical Outcomes at *3 years* Following Endeavor Stent

1414 event- free pts on DAPT at 6 months

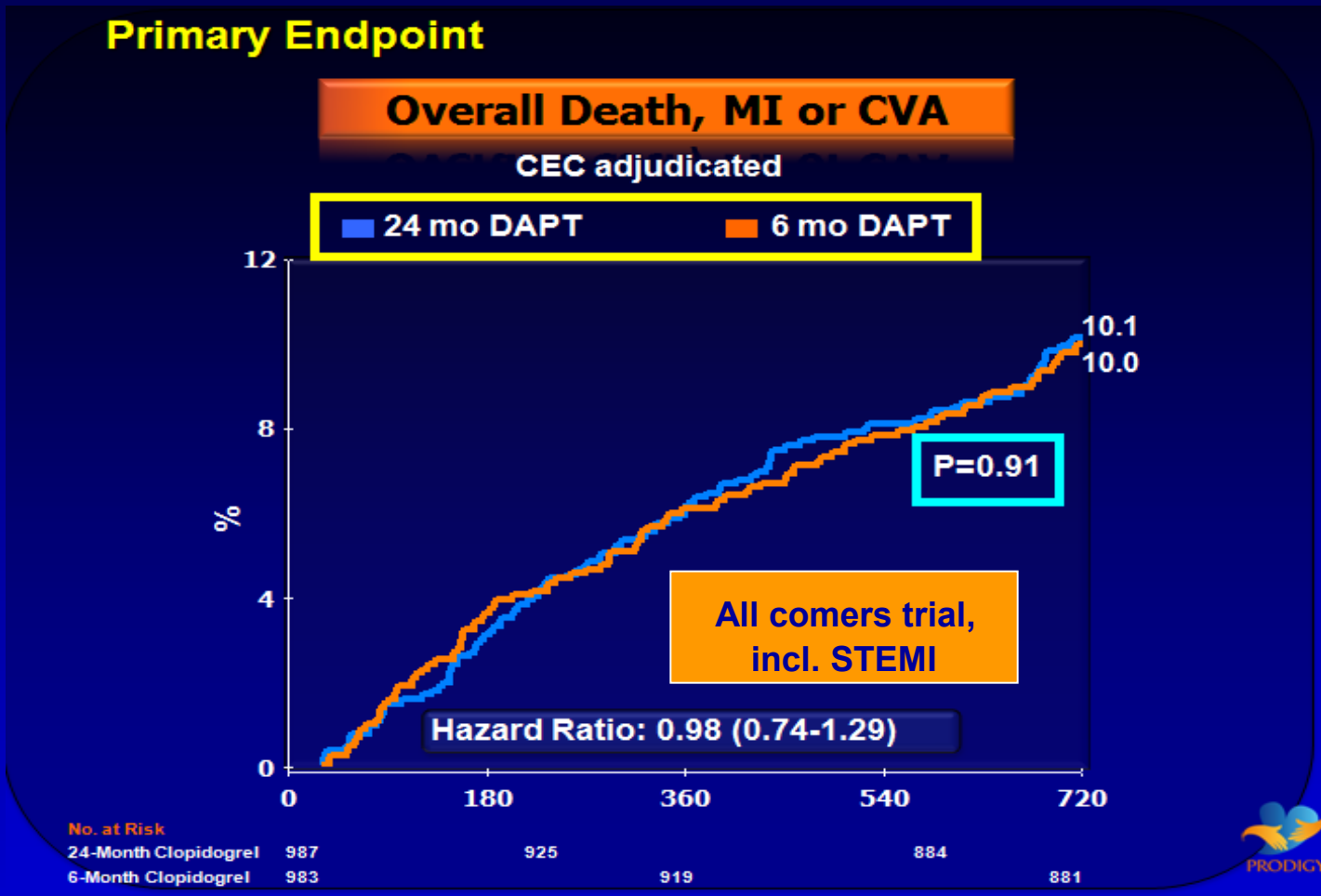
Zotarolimus-Eluting Stents	6 months on DAPT	12 months on DAPT	p Value
Death	2.7%	2.2%	0.48
MI	0.3%	1.1%	0.24
Stroke	1.0%	0.8%	0.42
Stent Thrombosis	0.3%	0	0.19
Death/MI/ Stroke	3.9%	3.9%	0.75

Kandzari D et al, JACC Intv 2011;4:1119 –28

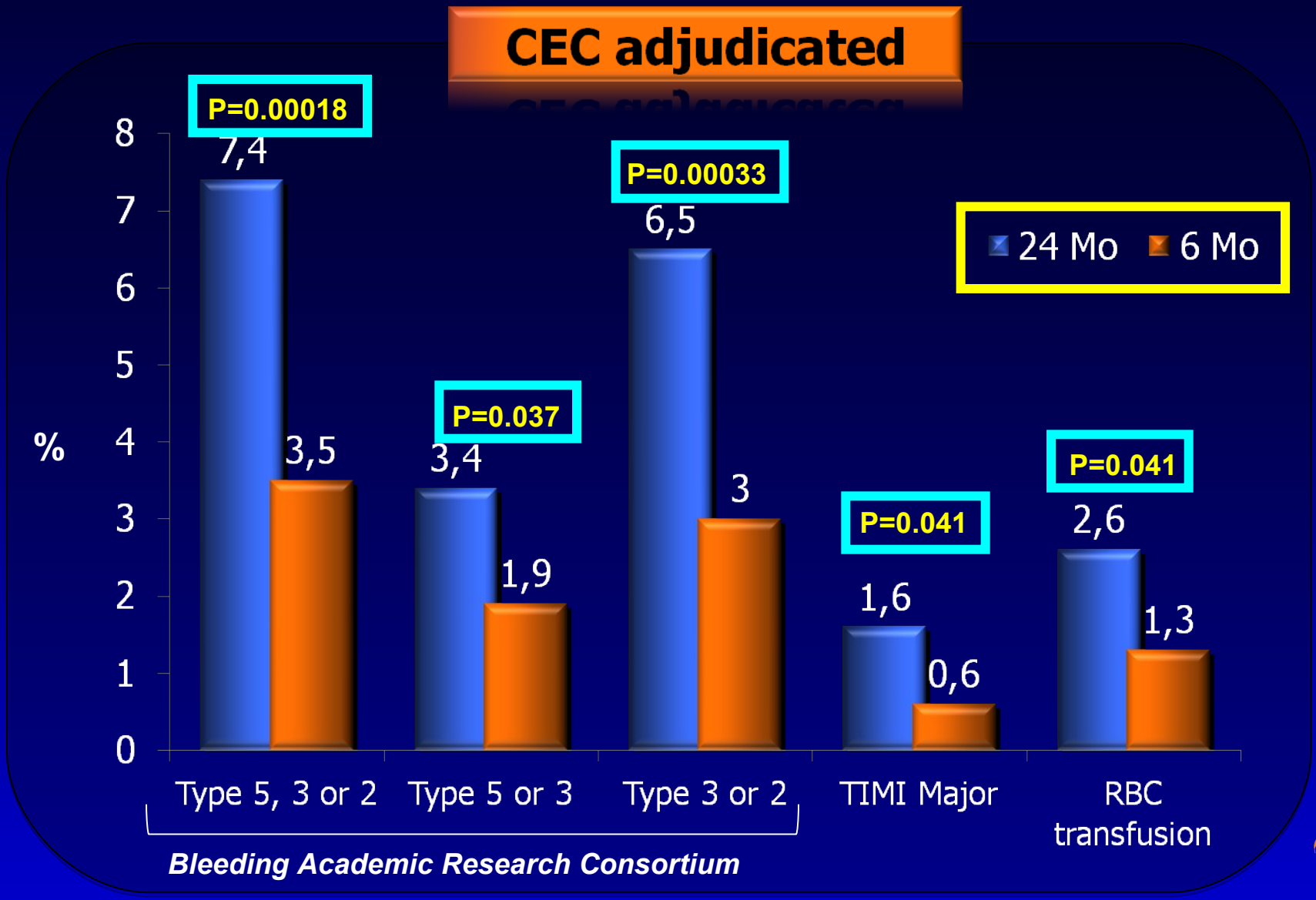
PRODIGY Study Flow Chart



Primary Endpoint



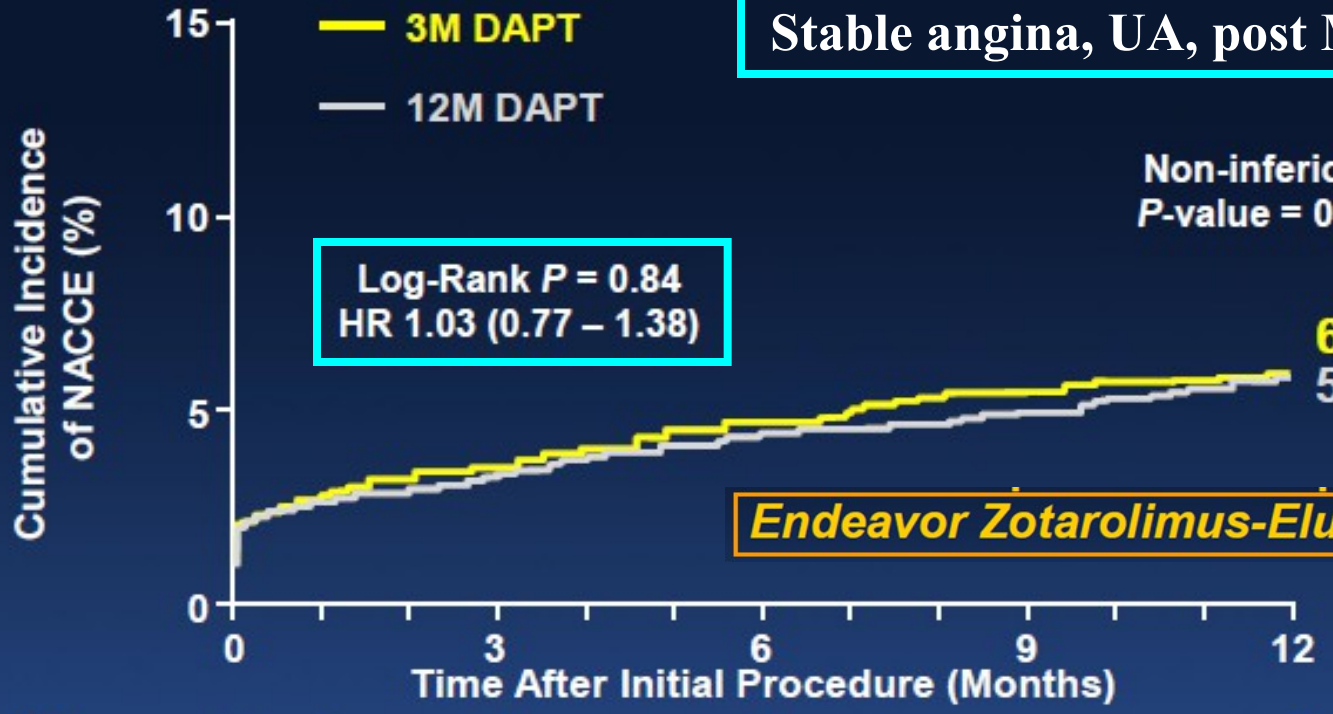
Bleeding Events and RBC Transfusion



PRODIGY

Primary Endpoint: NACCE at 1 Year
(All-Cause Death, MI, Stroke, Major Bleeding)

Stable angina, UA, post MI pts



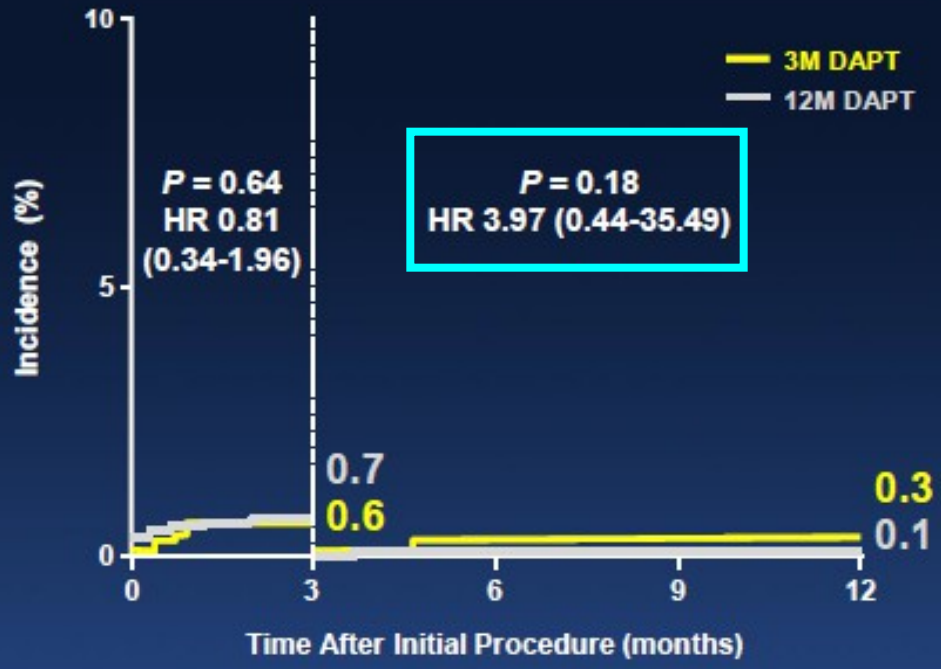
Endeavor Zotarolimus-Eluting Stent

Month	0	1	3	6	12
No. at risk	1563	1520	1504	1468	1384
No. events	18	25	11	18	21
No. at risk	1556	1514	1497	1466	1381
No. events	16	25	11	16	22

OPTIMIZE

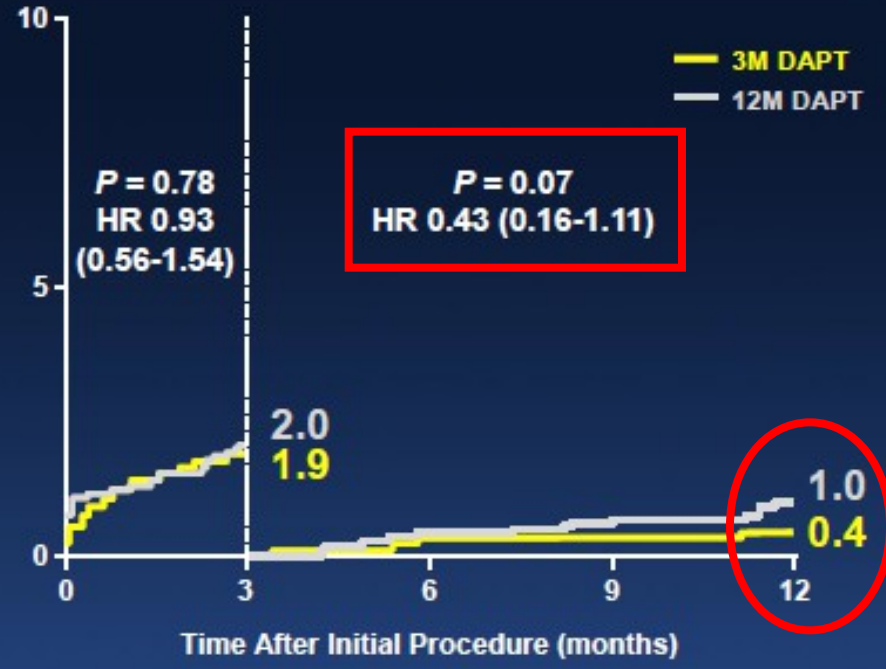
Stent Thrombosis *vs.* Bleeding

ARC Def./Prob. Stent Thrombosis



Month	0	1	3	6	12
No at risk	1563	1555	1540	1506	1505
No events	0	6	3	4	0
No at risk	1556	1541	1525	1501	1500
No events	5	3	3	1	0

Any Bleeding*



Month	0	1	3	6	12
No at risk	1563	1538	1516	1482	1439
No events	4	15	10	4	2
No at risk	1556	1528	1501	1472	1387
No events	11	8	12	6	8

*Any bleeding according to the combined REPLACE-2 and GUSTO criteria.

European Heart Journal (2010) 31, 2501–2555
doi:10.1093/eurheartj/ehq277

ESC/EACTS GUIDELINES

Guidelines on myocardial revascularization

The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

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ESC/ESA GUIDELINES

2014 ESC/ESA Guidelines on non-cardiac surgery: cardiovascular assessment and management

The Joint Task Force on non-cardiac surgery: cardiovascular assessment and management of the European Society of Cardiology (ESC) and the European Society of Anaesthesiology (ESA)

Recommended duration of dual antiplatelet therapy

After percutaneous coronary intervention

- 1 month after BMS implantation in stable angina;[55,60,94]
- 6–12 months after DES implantation in all patients;[60,94]
- 1 year in all patients after ACS, irrespective of revascularization strategy.

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a minimum of 1 (BMS) to 3 (new-generation DES) months of DAPT might be acceptable, independently of the acuteness of coronary disease, in cases when surgery cannot be delayed for a longer period; however, such surgical procedures should be performed in hospitals where 24/7 catheterization laboratories are available, so as to treat patients immediately in case of perioperative atherothrombotic events.

Independently of the timeframe between DES implantation and surgery, single anti-platelet therapy (preferably with aspirin) should be continued.

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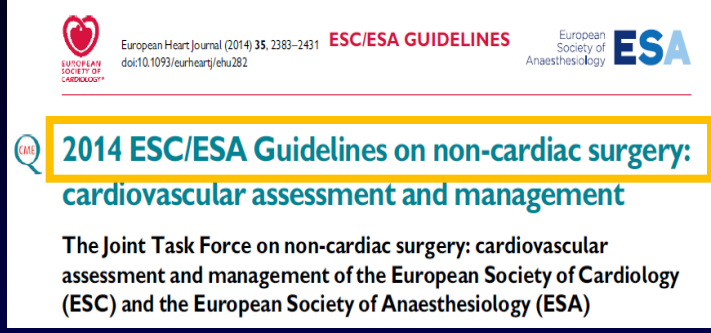
Recommendations on anti-platelet therapy

Continuation of aspirin, in patients previously thus treated, may be considered in the peri-operative period, and should be based on an individual decision that depends on the peri-operative bleeding risk, weighed against the risk of thrombotic complications.	IIb	B	121,122
Discontinuation of aspirin therapy, in patients previously treated with it, should be considered in those in whom haemostasis is anticipated to be difficult to control during surgery.	IIa	B	121,122

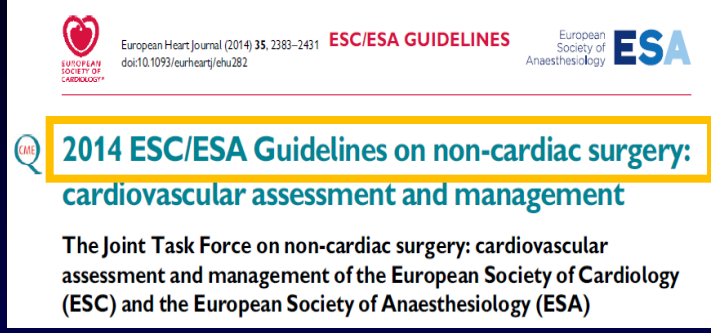
Неотложна хирургия при пациент на DAPT



1. Прекратяване приема на Clopidogrel и Ticagrelor 5 дни, а на Prasugrel 7 дни преди хирургичната интервенция, освен ако има висок риск от тромбоза (IIa C)
2. Няма "идеален" тест за оценка на тромбоцитната функция, както и "cut-off" стойност за кървене
3. При много висок риск от стент-тромбоза: bridging с GP IIb/IIIa рец. антагонист и.в. (по-къс полуживот): Eptifibatide, Tirofiban

   Да се избягва bridging с LMWH
4. Възстановяване приема на DAPT до 48 ч. след интервенцията, ако е възможно
5. При голямо периоперативно кървене – трансфузия на PLT

Несърдечна хирургия при пациент на VKA



1. При **висок риск от VTE**:
   - ПМ с CHA_2DS_2-VASc ≥ 4
   - механична клапна протеза
   - клапна биопротеза (имплантирана през последните 3 мес.)
   - митрална клапна реконструкция (през последните 3 мес.)
   - епизод на VTE през последните 3 мес.

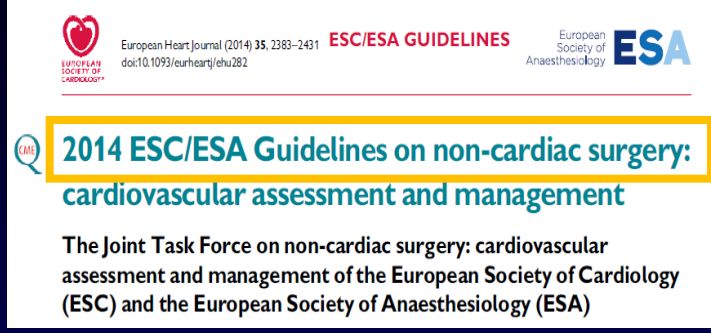
   е необходим **bridging с UFH или терапевтична доза (BID s.c.) LMWH**

2. VKA се спира 3-5 дни преди хирургичната интервенция, а UFH или LMWH се започват при INR < 2.0

3. Последната доза **LMWH: не по-късно от 12 ч. преди**, а **и.в. инфузия с UFH до 4 ч. преди интервенцията**

4. **За безопасна граница за хирургия се приема INR ≤ 1.5**

Антикоагулация след несърдечна хирургия



1. **Възстановяване на UFH или LMWH: поне 12 ч. след интервенцията (според състоянието на хемостазата)**
2. **Приемът на VKA се възстановява 1 - 2 дни след интервенцията (според състоянието на хемостазата) с предоперативните поддържащи дози + 50% ("boosting") за два последователни дни**
3. **Приложението на UFH или LMWH продължава до постигане на терапевтични INR нива**

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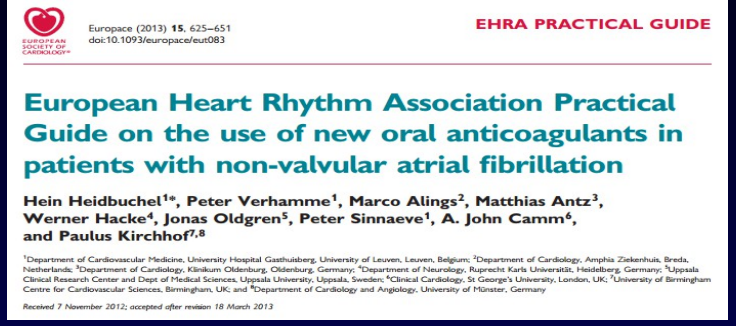
Table 6 Pharmacological features of non-vitamin K antagonist oral anticoagulants

	Dabigatran	Rivaroxaban	Apixaban	Edoxaban
Target	IIa (thrombin)	Xa	Xa	Xa
Application	Oral	Oral	Oral	Oral
Hours to C^{max}	1.25–3	2–4	3–4	1–2
Pro-drug	Yes	No	No	No
Food interactions	No	No	No	No
Bioavailability (%)	6.5	80–100	50	62
Drug interactions	P gp inhibitors or inductors	CYP3a4 inhibitors or inductors P gp inhibitors or inductors	CYP3a4 inhibitors or inductors P gp inhibitors or inductors	P gp inhibitors
Median half-life (hours)	12–14	7-11 (11–13 in the elderly)	12	6-11
Renal clearance (%)	85	33	27	37-50
Dose regimen	b.i.d.	q.d.	b.i.d.	q.d

b.i.d. = *bis in diem* (twice daily); C_{max} = maximum concentration; CYP3a4 = cytochrome P3a4 enzyme; P gP = platelet glycoprotein; q.d. = *quaque die* (once daily).



Europace (2013) 15, 625–651
doi:10.1093/europace/eut083

EHRA PRACTICAL GUIDE

European Heart Rhythm Association Practical Guide on the use of new oral anticoagulants in patients with non-valvular atrial fibrillation

Hein Heidbuchel[1]*, Peter Verhamme[1], Marco Alings[2], Matthias Antz[3], Werner Hacke[4], Jonas Oldgren[5], Peter Sinnaeve[1], A. John Camm[6], and Paulus Kirchhof[7,8]

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Интервенции с висок риск от кървене

- Спинална или епидурална анестезия, диагностична лумбална пункция
- Гръдна хирургия
- Коремна хирургия
- Голяма ортопедична интервенция
- Чернодробна или бъбречна биопсия
- Трансуретрална резекция на простатата

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Table 9 Last intake of drug before elective surgical intervention

	Dabigatran		Apixaban		Edoxaban[a]		Rivaroxaban	
	No important bleeding risk and/or adequate local haemostasis possible: perform at trough level (i.e. ≥12 h or 24 h after last intake)							
	Low risk	High risk	Low risk	High risk	Low risk	High risk	Low risk	High risk
CrCl ≥80 ml/min	≥24 h	≥48 h	≥24 h	≥48 h	No data	No data	≥24 h	≥48 h
CrCl 50–80 ml/min	**≥36 h**	**≥72 h**	≥24 h	≥48 h	No data	No data	≥24 h	≥48 h
CrCl 30–50 ml/min[b]	**≥48 h**	**≥96 h**	≥24 h	≥48 h	No data	No data	≥24 h	≥48 h
CrCl 15–30 ml/min[b]	Not indicated	Not indicated	**≥36 h**	**≥48 h**	No data	No data	**≥36 h**	**≥48 h**
CrCl <15 ml/min	No official indication for use							

Bold values deviate from the common stopping rule of ≥24 h low risk, ≥48 h high risk.

[a]No EMA approval yet. Needs update after finalisation of SmPC.

[b]Many of these patients may be on the lower dose of dabigatran (i.e. 110 mg BID) or apixaban (i.e. 2.5 mg BID), or have to be on the lower dose of rivaroxaban (15 mg QD).

Low risk = surgery with low risk of bleeding; high risk = surgery with high risk of bleeding. See also Table 10.

CrCl, creatinine clearance.

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… **Не е необходима “bridging” терапия при пациенти на лечение с НОАК**, тъй като предсказуемото намаляване на техния антикоагулантен ефект позволява ясно да се определи интервал от време за краткотрайно прекратяване на НОАК преди хирургична интервенция …

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Received 7 November 2012; accepted after revision 18 March 2013

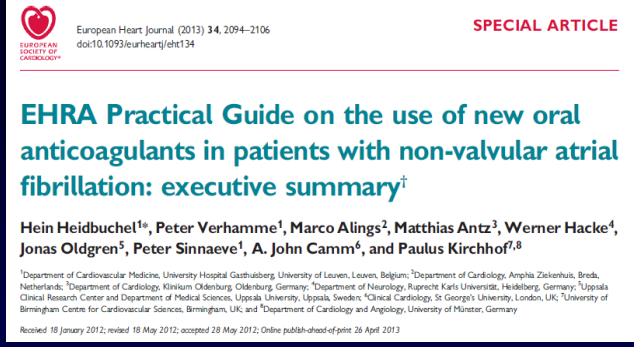
	Dabigatran	Apixaban	Edoxaban[a]	Rivaroxaban
Plasma peak level	2 h after ingestion	1–4 h after ingestion	1–2 h after ingestion	2–4 h after ingestion
Plasma trough level	12–24 h after ingestion	12–24 h after ingestion	12–24 h after ingestion[9]	16–24 h after ingestion
PT	Cannot be used	Cannot be used	Prolonged but no known relation with bleeding risk[5,9]	Prolonged: may indicate excess bleeding risk but local calibration required
INR	Cannot be used	Cannot be used	Cannot be used	Cannot be used
aPTT	At trough: >2x ULN suggests excess bleeding risk	Cannot be used	Prolonged but no known relation with bleeding risk[9]	Cannot be used
dTT	At trough: >200 ng/ml or >65 s: excess bleeding risk	Cannot be used	Cannot be used[10]	Cannot be used
Anti-FXa chromogenic assays	Not applicable	No data yet	Quantitative;[10] no data on threshold values for bleeding or thrombosis	Quantitative; no data on threshold values for bleeding or thrombosis
ECT	At trough: ≥3 × ULN: excess bleeding risk	Not affected	Not affected	Not affected

[a]No EMA approval yet. Needs update after finalization of SmPC.

Коагулационни тестове за оценка на риска от кървене

Routine monitoring is not required. Assays need cautious interpretation for clinical use in special circumstances, as discussed in the text.
PT, prothrombin time; aPTT, activated partial thromboplastin time; dTT, diluted thrombin time; INR, international normalized ratio; ULN, upper limit of normal.

Кога да се започне отново НОАК след интервенция ?



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doi:10.1093/eurheartj/eht134

SPECIAL ARTICLE

EHRA Practical Guide on the use of new oral anticoagulants in patients with non-valvular atrial fibrillation: executive summary†

Hein Heidbuchel[1]*, Peter Verhamme[1], Marco Alings[2], Matthias Antz[3], Werner Hacke[4], Jonas Oldgren[5], Peter Sinnaeve[1], A. John Camm[6], and Paulus Kirchhof[7,8]

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1. **Процедури с бърза и пълна хемостаза:**

   Възстановяване на НОАК 6-8 часа след интервенцията

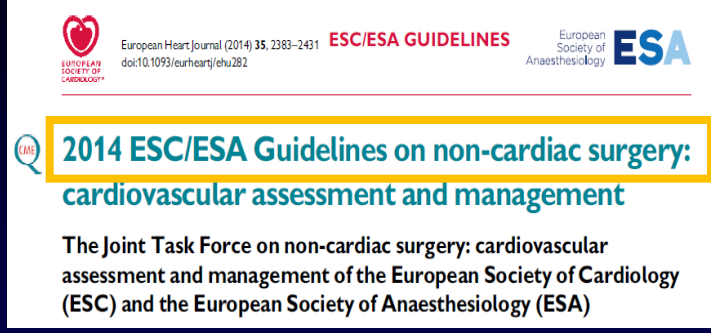
2. **Голяма хирургия:**

   Възстановяването на приема на пълната доза НОАК в периода от 48-72 ч. след интервенцията може да е свързано с риск от кървене, превишаващ риска от СЕ

3. **Операции, свързани с имобилизация:**

   - **LMWH 6-8 часа след интервенцията (след пълна хемостаза)**
   - **НОАК 48-72 часа след интервенцията**

Спешна несърдечна хирургия при пациент на ОАК



1. На Th с VKA → ниска доза (2.5 – 5.0 mg) и.в. или р.о. vit K
   Ефект на vit K върху INR → начало след 6-12 ч.
   За ускоряване на ефекта → + ПЗП или PCC

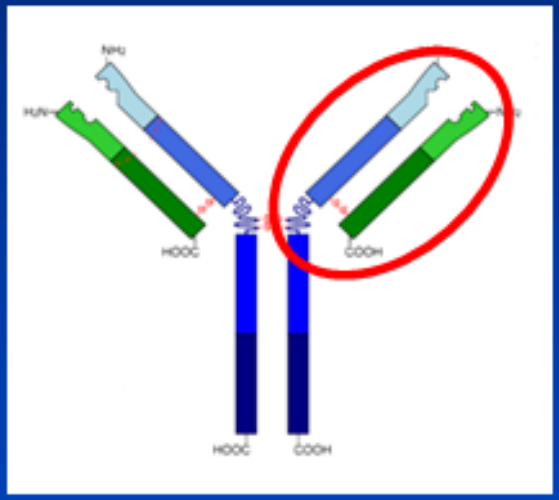
2. На и.в. инфузия с UFH → прекратяване на инфузията (коагулацията обикновено е нормална след 4 ч.)
   Антидот – и.в. протамин сулфат (дозата се изчислява според количеството UFH за последните 2 ч.): 1-1.5 mg на 100 IU UFH

3. На Th с LMWH → обратимост на антикоагулантния ефект в периода от 8 ч. след последната доза (кратък полуживот)
   За ускорен ефект → и.в. протамин сулфат, но анти Xa активността не се неутрализира напълно (max 50%).

Антидот на Dabigatran (Idarucizumab)

- **Възстановяване на коагулацията**
  - Изразен афинитет на свързване (~ 350 пъти по-висок в сравнение със свързването на Dabigatran с тромбин)
  - Няма про- или антитромботичен ефект
  - Кратък полуживот
- **Лесно и бързо приложение**
  - Интравенозно приложение, незабавно начало на действието
- **Нисък риск от нежелани реакции**
  - Не се свързва с Fc рецептора
  - Няма ендогенни цели

Напълно хуманизиран фрагмент от антитяло (Fab)



Idarucizumab в момента е в процес на разработка и не е разрешен за употреба в нито една страна.
Информацията, представена тук, е предназначена само за целите на медицинското обучение

Glund S et al, AHA 2013; abstr 17765; van Ryn J, AHA 2012; presentation 9928; van Ryn J et al, Circulation 2012;126:A9928

Europace (2013) 15, 625–651
doi:10.1093/europace/eut083

European Heart Rhythm Association Practical Guide on the use of new oral anticoagulants in patients with non-valvular atrial fibrillation

Hein Heidbuchel[1]*, Peter Verhamme[1], Marco Alings[2], Matthias Antz[3], Werner Hacke[4], Jonas Oldgren[5], Peter Sinnaeve[1], A. John Camm[6], and Paulus Kirchhof[7,8]

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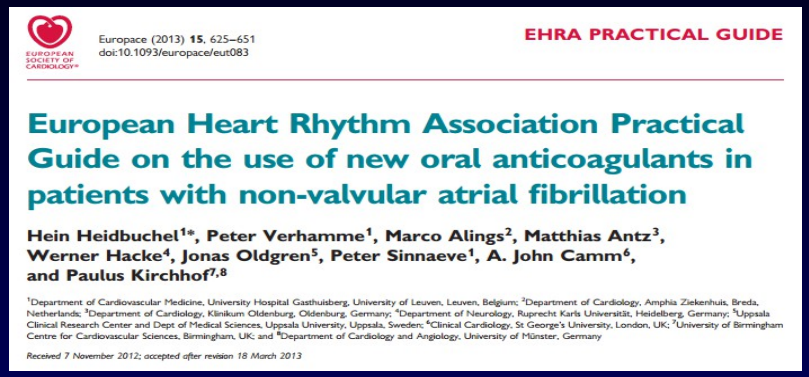
Received 7 November 2012; accepted after revision 18 March 2013

	Direct thrombin inhibitors (dabigatran)	FXa inhibitors (apixaban, edoxaban, rivaroxaban)
Non life-threatening bleeding	Inquire last intake + dosing regimen Estimate normalization of haemostasis: Normal renal function: 12–24 h CrCl 50–80 ml/min: 24–36 h CrCl 30–50 ml/min: 36–48 h CrCl <30 ml/min: ≥48 h	Inquire last intake + dosing regimen Normalization of haemostasis: 12–24 h
	Maintain diuresis Local haemostatic measures Fluid replacement (colloids if needed) RBC substitution if necessary Platelet substitution (in case of thrombocytopenia ≤60 × 10^9/L or thrombopathy) Fresh frozen plasma as plasma expander (not as reversal agent)	Local haemostatic measures Fluid replacement (colloids if needed) RBC substitution if necessary Platelet substitution (in case of thrombocytopenia ≤60 × 10^9/L or thrombopathy) Fresh frozen plasma as plasma expander (not as reversal agent)
	Tranexamic acid can be considered as adjuvans Desmopressin can be considered in special cases (coagulopathy or thrombopathy) Consider dialysis (preliminary evidence: -65% after 4 h)[48] Charcoal haemoperfusion not recommended (no data)	Tranexamic acid can be considered as adjuvans Desmopressin can be considered in special cases (coagulopathy or thrombopathy)
Life-threatening bleeding	All of the above Prothrombin complex concentrate (PCC) 25 U/kg (may be repeated once or twice) (but no clinical evidence) Activated PCC 50 IE/kg; max 200 IE/kg/day): no strong data about additional benefit over PCC. Can be considered before PCC if available Activated factor VII (rFVIIa; 90 μg/kg) no data about additional benefit + expensive (only animal evidence)	All of the above Prothrombin complex concentrate (PCC) 25 U/kg (may be repeated once or twice) (but no clinical evidence) Activated PCC 50 IE/kg; max. 200 IE/kg/day): no strong data about additional benefit over PCC. Can be considered before PCC if available Activated factor VII (rFVIIa; 90 μg/kg) no data about additional benefit + expensive (only animal evidence)

RBC, red blood cells; CrCl, creatinine clearance; PCC, prothrombin complex concentrate.



Europace (2013) 15, 625–651
doi:10.1093/europace/eut083

EHRA PRACTICAL GUIDE

European Heart Rhythm Association Practical Guide on the use of new oral anticoagulants in patients with non-valvular atrial fibrillation

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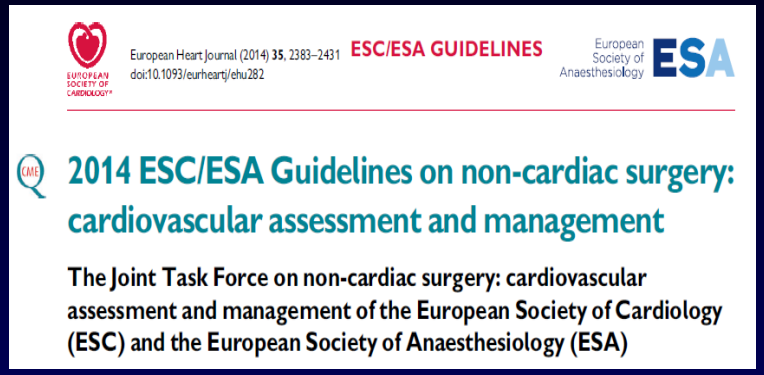

European Heart Journal (2014) 35, 2383–2431
doi:10.1093/eurheartj/ehu282

ESC/ESA GUIDELINES

2014 ESC/ESA Guidelines on non-cardiac surgery: cardiovascular assessment and management

The Joint Task Force on non-cardiac surgery: cardiovascular assessment and management of the European Society of Cardiology (ESC) and the European Society of Anaesthesiology (ESA)

Интервенции, при които не е задължително да се прекрати ОАК

- **Офталмологични интервенции:**
  - **Катаракта**
  - **Глаукома**
- **Ендоскопия без хирургия**
- **“Повърхностна” хирургия** (напр. инцизия на абсцес, малки дерматологични ексцизии …)

"Sure, it's a great invention, but does it comply with all government guidelines?"

ПОСЛАНИЯ

1. Продължителността на **ДАТ след ПКИ при стабилна стенокардия** се определя основно от **вида на стента**:

   (1) BMS: поне 1 месец (I A)

   (2) DES 2-ра ген.: 6-12 месеца (I B)

   Endeavor (ZES) - 3 мес. ДАТ ?
   Resolute™ (ZES) - 1 мес. ДАТ ?

2. Цел на продължителната ДАТ след планова ПКИ с имплантиране на DES: **предотвратяване на късна стент-тромбоза**

ПОСЛАНИЯ

3. При всички пациенти с:

(1) NSTEMI / STEMI + DES / BMS

(2) ОКС без стент (IIa C)

↓

1 година ДАТ: Лекувай пациента !

4. Цел на продължителната ДАТ след ОКС:

- профилактика на СС събития

- предотвратяване на късна стент-тромбоза

Table 1: Risk factors for stent thrombosis.

Procedural	Lesion related	Patient related	Stent related	DAPT related
Stent underexpansion	Necrotic cores	Acute MI	Antiproliferative agent	Premature discontinuation
Stent malapposition	Bifurcation lesions	Acute coronary syndrome	Coating technologies	Interruption
Stent length	Instent restenosis	Diabetes mellitus	Polymer biocompatibility	CYP2C19 polymorphisms
Multiple stents	Chronic total occlusion	Renal failure	Strut/polymer thickness	Platelet reactivity
Geographic miss	Diffuse disease	Low ejection fraction	Stent structure	Antiplatelet drug type
Positive remodeling	Small vessel disease	Younger age	Drug dosage	Duration of therapy
Persistent slow flow		Smoking		
Residual stenosis				
Dissections				

Prasugrel, по-нов и мощен тиенопиридин: намалява честотата на нефаталните МИ при PCI пациенти

- **но** е асоцииран с **повишена честота** на TIMI сериозно и фатално **кървене**
- Трябва да се прилага **с внимание при възрастни** пациенти (> 75 г.) и **тегло < 60 kg**

- Благоприятно съотношение полза / риск за **Prasugrel:**

↓

при пациенти с ОКС с висок риск от исхемични събития (ЗД), планирани за PCI

и нисък риск от кървене (без инсулт и ХБН)

WivioMcCabe CH, *et al*. Prasugrel versus clopidogrel in patients with acute coronary syndromes. *N Engl J Med* 2007; 357: 2001-15 tt SD, Braunwald E

Ticagrelor - различният антиагрегант (PLATO)

1. По-бързо начало на действие и по-значимо инхибиране на тромбоцитната агрегация (ИТА) спрямо Clopidogrel
2. Директно действие върху Thr рецептор P2Y12 (не чрез метаболити) → свързва се с друг активен център на рецептора, различен от този за ADP
3. Обратимо свързване с рецепторите - след дисоциация на Ticagrelor рецепторът остава активен
4. По-бързо възстановяване на тромбоцитната функция:

   ИТА на 3-тия ден след последната доза Ticagrelor е сравнима с тази на Clopidogrel на 5-ия ден

5. По-широк терапевтичен ”прозорец” спрямо Clopidogrel

European Heart Journal Advance Access published August 30, 2013

European Heart Journal
doi:10.1093/eurheartj/eht296

ESC GUIDELINES

2013 ESC guidelines on the management of stable coronary artery disease

The Task Force on the management of stable coronary artery disease of the European Society of Cardiology

Antiplatelet therapy			
SAPT, usually aspirin, is recommended indefinitely.	I	A	172, 333, 501-503
DAPT is indicated after BMS for at least 1 month.	I	A	501, 502, 504, 505
DAPT is indicated for 6 to 12 months after 2nd generation DES.	I	B	
DAPT may be used for more than 1 year in patients at high ischaemic risk (e.g. stent thrombosis, recurrent ACS on DAPT, post MI/diffuse CAD) and low bleeding risk.	IIb	B	334, 504, 505
DAPT for 1 to 3 months may be used in patients at high bleeding risk or with undeferrable surgery or concomitant anticoagulant treatment.	IIb	C	-

Предоперативни характеристики

Характеристики	Аспирин (N=4998)	Плацебо (N=5012)
Възраст – (ср. год.)	68.6	68.6
Мъже (%)	52.0	53.6
Известно съдово заболяване	32.7	32.6
Предшестваща ПКИ	4.7	4.7

- **Изключени пациенти: BMS < 6 седмици & DES < 1 година преди хирургията**