Is it beneficial or harmful to patients with PE to choose DOACs instead of warfarin?

2018. 04. 21.

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호흡기내과/Thrombosis Clinic

김 양 기

DOACs are beneficial?

Characteristics of DOACs

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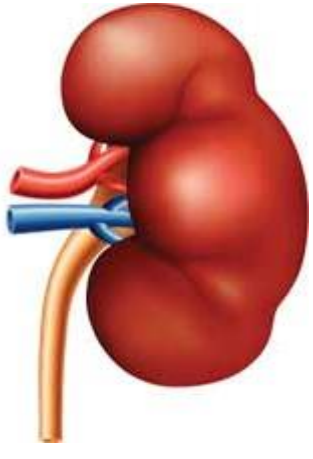
Tmax ± 2 hours

Half life ± 12 hours



Dabigatran : 80%

Rivaroxaban : 33%

Apixaban : 25%

Edoxaban : 35%

Chest 2012; 141:e120S–e151S
Thromb Haemost 2014;111:

식이의 제한 vs 자유로운 식사

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와파린

새로운 항응고제

DOACs의 시기별 용량 (first 3 to 6 months)

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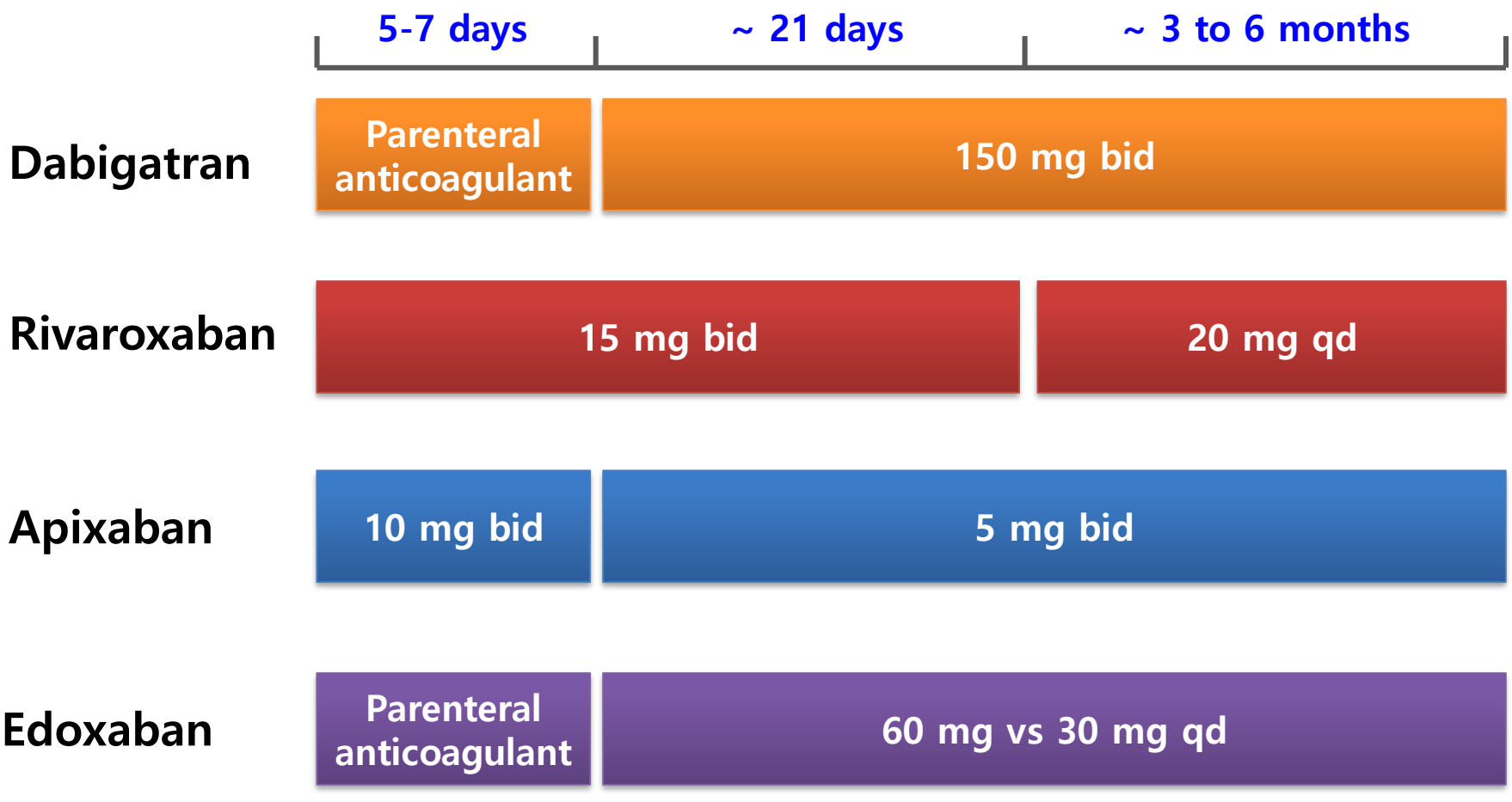

Net Clinical Benefit

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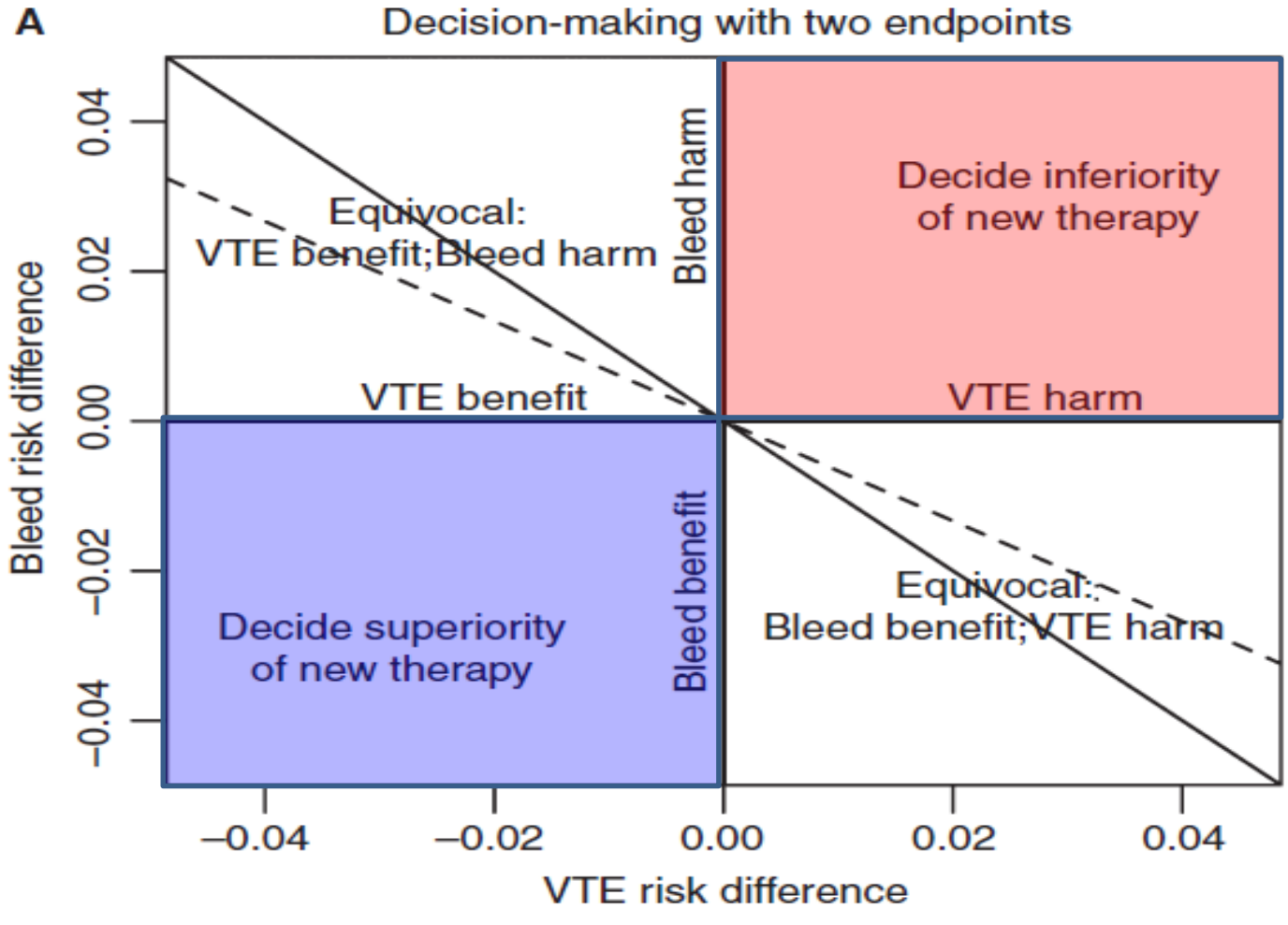

J Thromb Haemost 2013;11(8):1443-8

VTE recurrence & Rates of major or CRNMB in VTE studies

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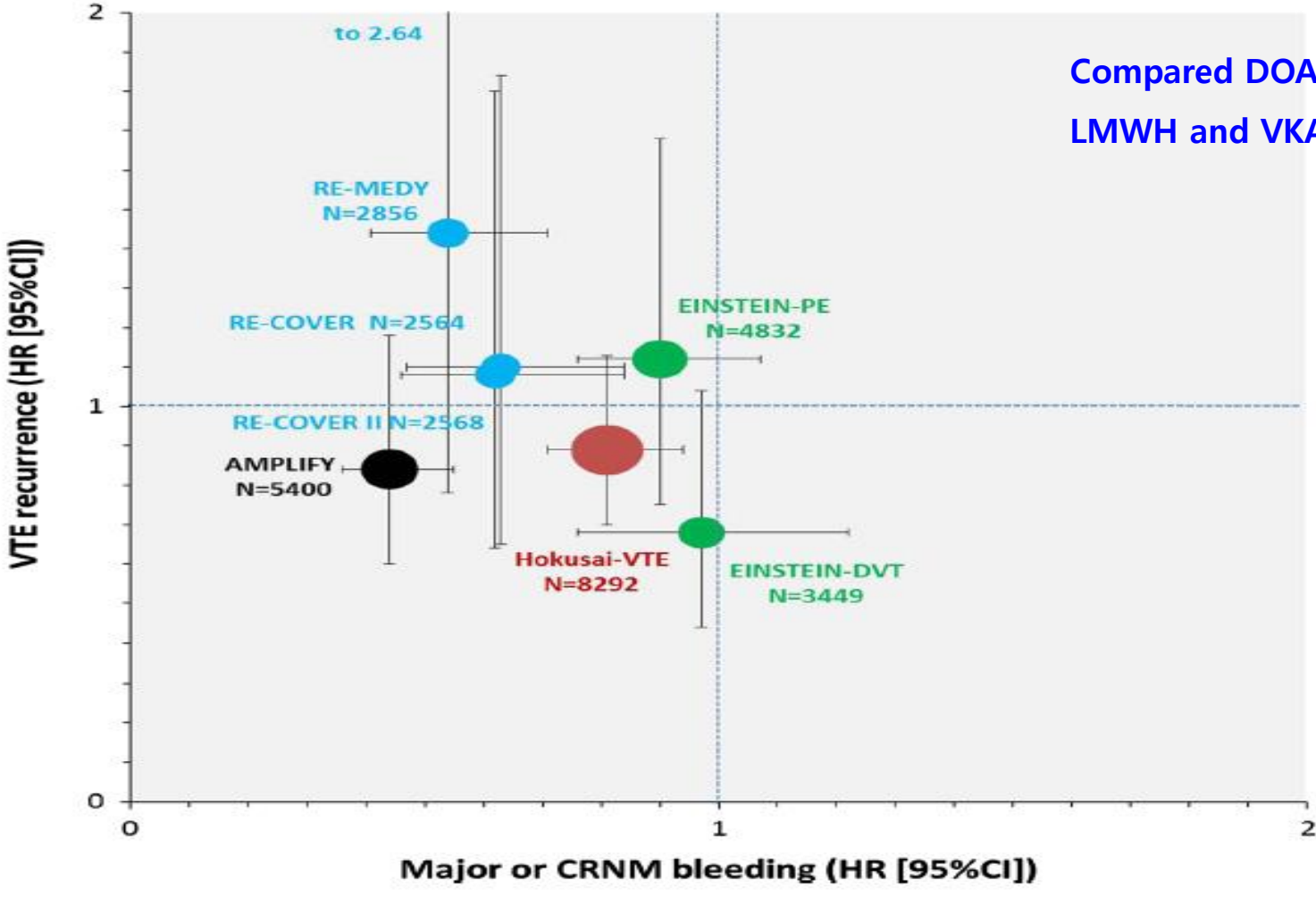

Compared DOACs with LMWH and VKAs

Adv Ther 2014;31:473–493

Safety (major bleeding, DOACs vs Warfarin)

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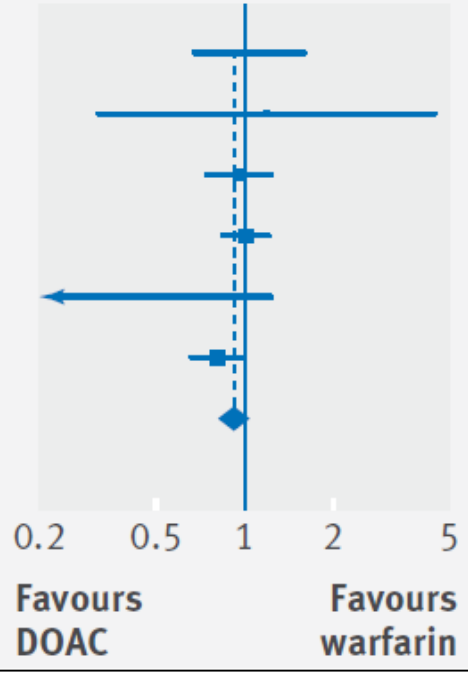
Multicentre, population based, observational study

59 525 VTE patients (12 489 DOAC users; 47 036 warfarin users) with matched cohort

Centre	No of events/total: DOAC	No of events/total: Warfarin	Hazard ratio (95% CI)	Weight (%)	Hazard ratio (95% CI)
Alberta	24/1505	101/6590		6.7	1.04 (0.67 to 1.61)
Manitoba	S/363	8/1144		0.7	1.19 (0.32 to 4.47)
Ontario	74/2151	377/10 476		21.0	0.96 (0.75 to 1.23)
Quebec	140/2624	684/12 942		38.3	1.01 (0.84 to 1.21)
Saskatchewan	S/582	29/1638		1.4	0.48 (0.19 to 1.24)
MarketScan	122/5264	408/14 276		31.9	0.80 (0.66 to 0.98)
Overall				100.0	0.92 (0.82 to 1.03)

Test for heterogeneity: $\chi^2=5.05$, P=0.41, $I^2=1\%$



BMJ 2017;359:j4323

DOACs의 시기별 용량 (after 3 to 6 months ~)

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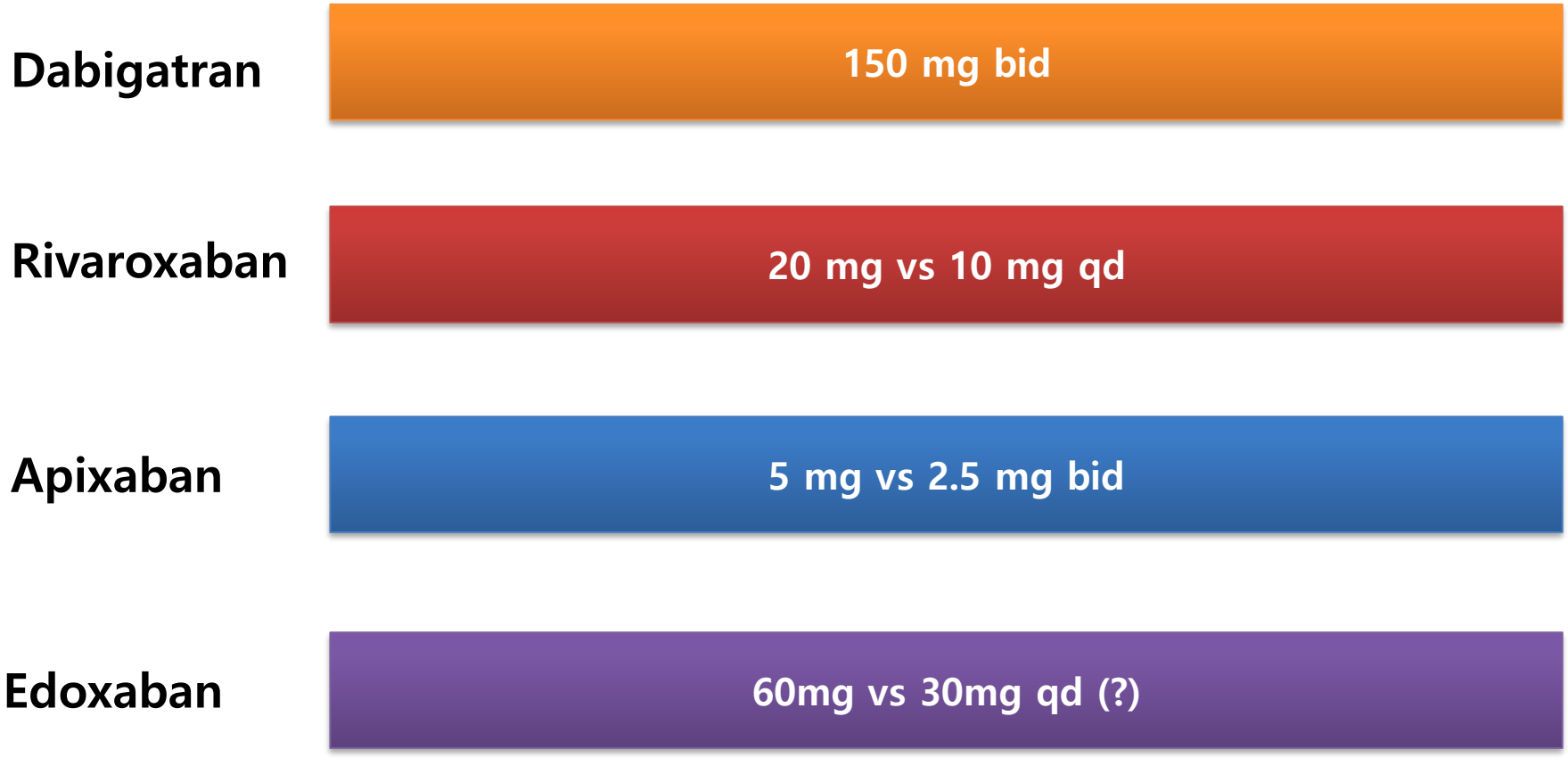

VTE recurrence & Rates of major or CRNMB in VTE studies

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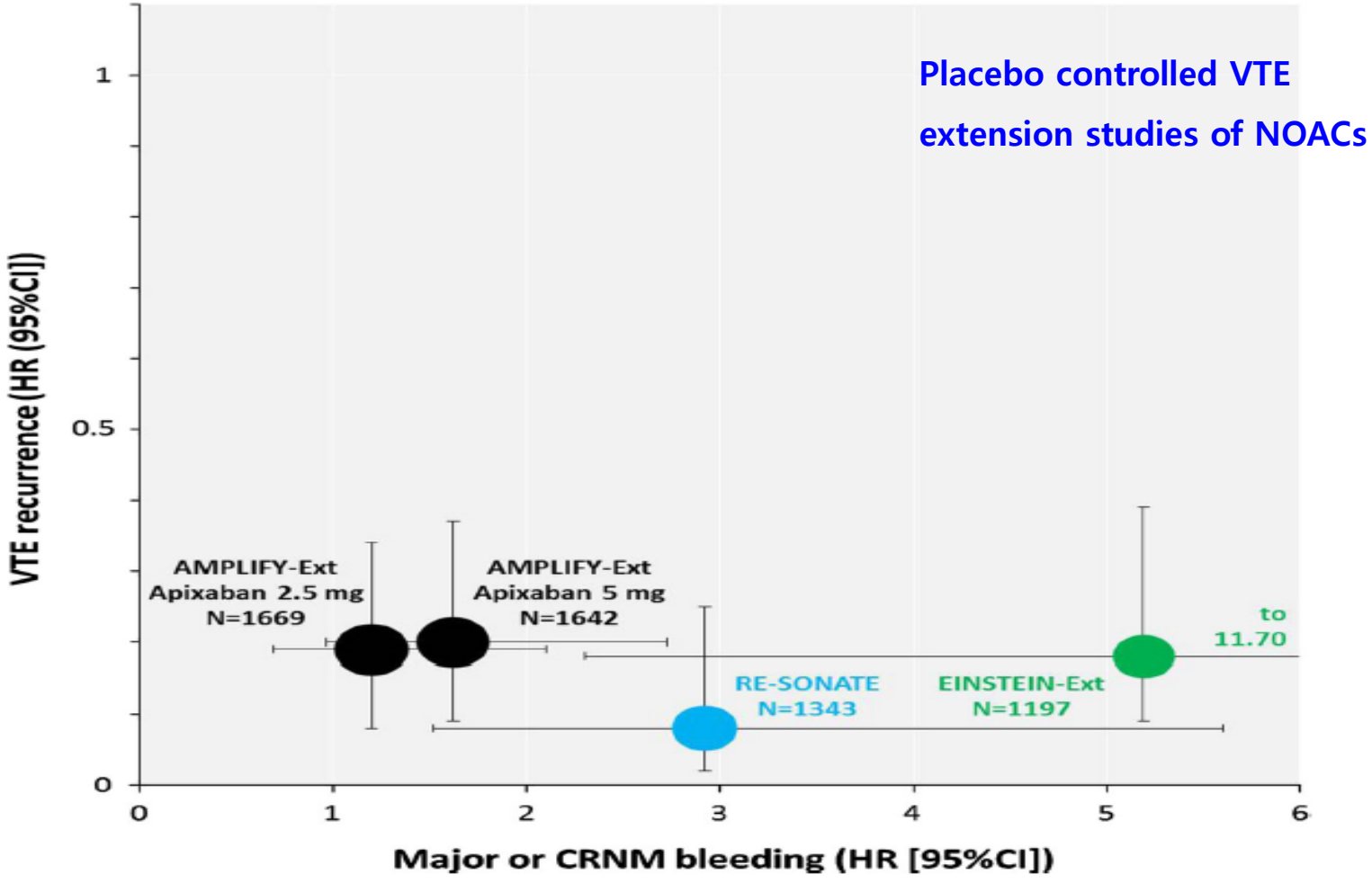

Adv Ther 2014;31:473–493

Results of Apixaban vs Rivaroxaban [Extended]

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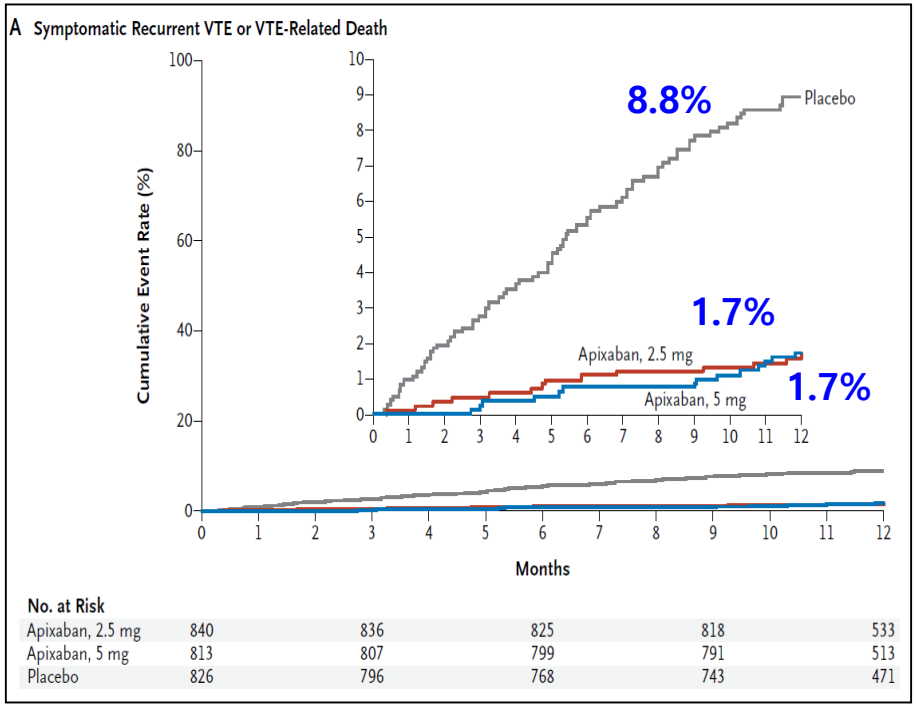
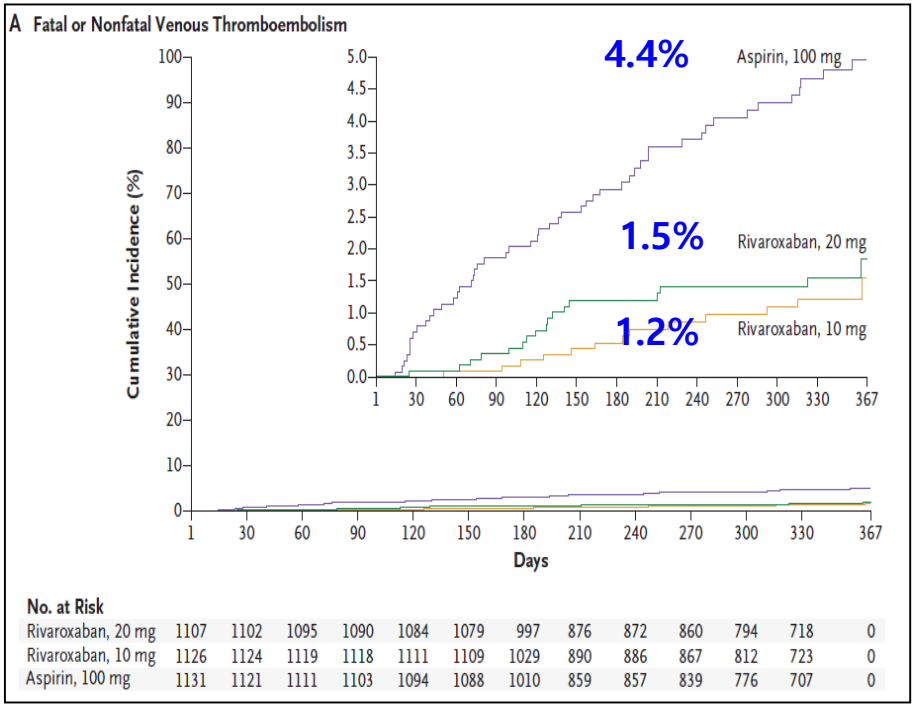
- 20 mg rivaroxaban vs. aspirin, HR 0.34; 95% CI 0.20 to 0.59
- 10 mg rivaroxaban vs. aspirin, HR 0.26; 95% CI 0.14 to 0.47
- P<0.001 for both comparisons

Efficacy

Apixaban



Rivaroxaban



[Caution] Excluded for patients who required extended treatment with therapeutic doses of anticoagulant agents

N Engl J Med 2013; 368: 699-708

N Engl J Med 2017;376(13):1211-1222

Results of Apixaban vs Rivaroxaban [Extended]

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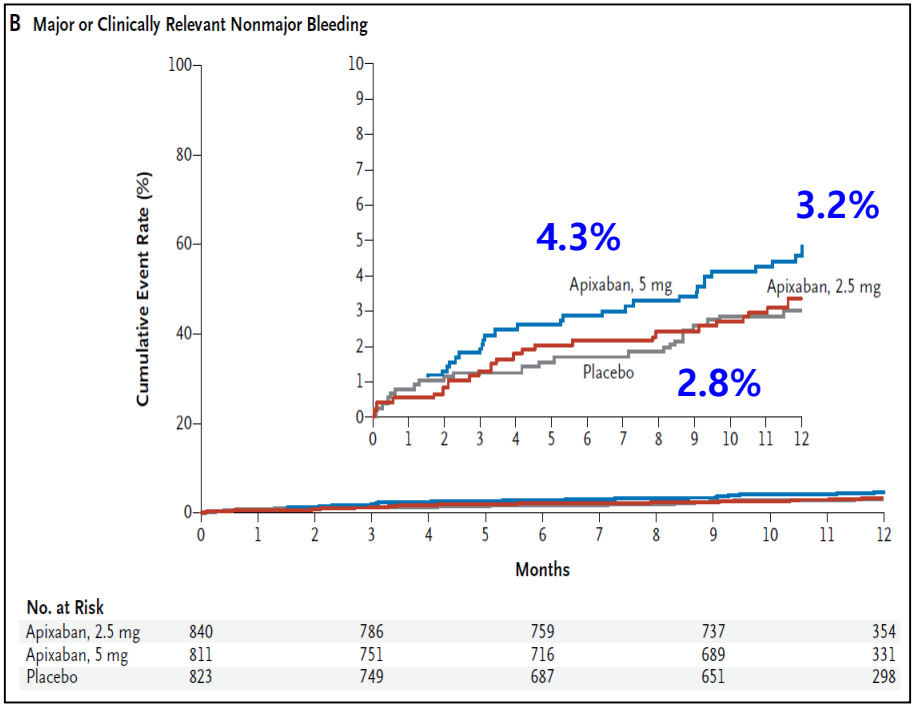
Safety

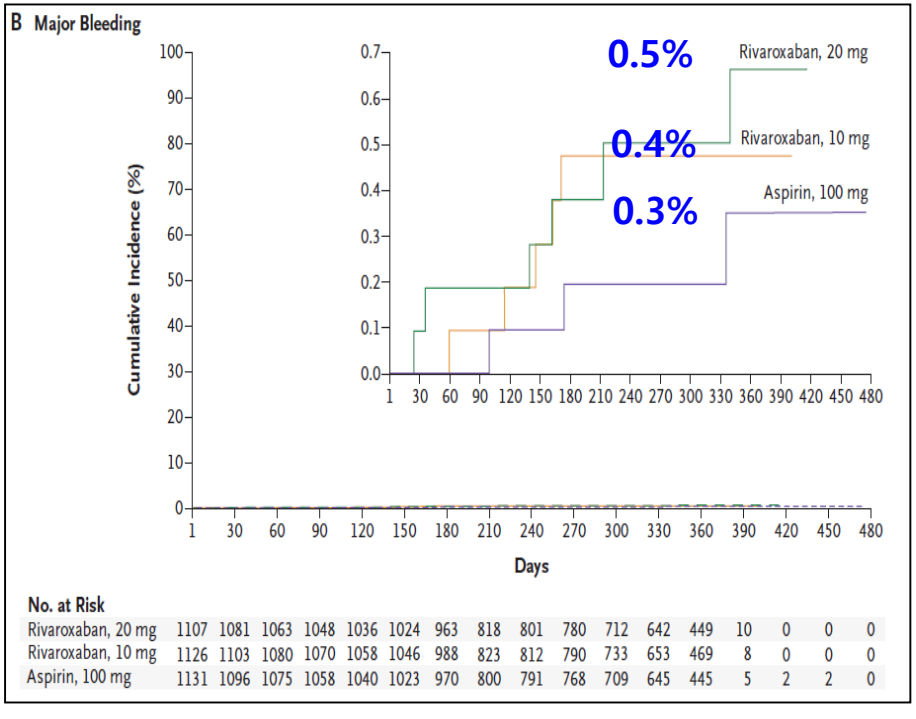
Apixaban



No. at Risk					
Apixaban, 2.5 mg	840	786	759	737	354
Apixaban, 5 mg	811	751	716	689	331
Placebo	823	749	687	651	298

N Engl J Med 2013; 368: 699-708

Rivaroxaban



No. at Risk																	
Rivaroxaban, 20 mg	1107	1081	1063	1048	1036	1024	963	818	801	780	712	642	449	10	0	0	0
Rivaroxaban, 10 mg	1126	1103	1080	1070	1058	1046	988	823	812	790	733	653	469	8	0	0	0
Aspirin, 100 mg	1131	1096	1075	1058	1040	1023	970	800	791	768	709	645	445	5	2	2	0

N Engl J Med 2017;376(13):1211-1222

Body weight 와 Rivaroxaban

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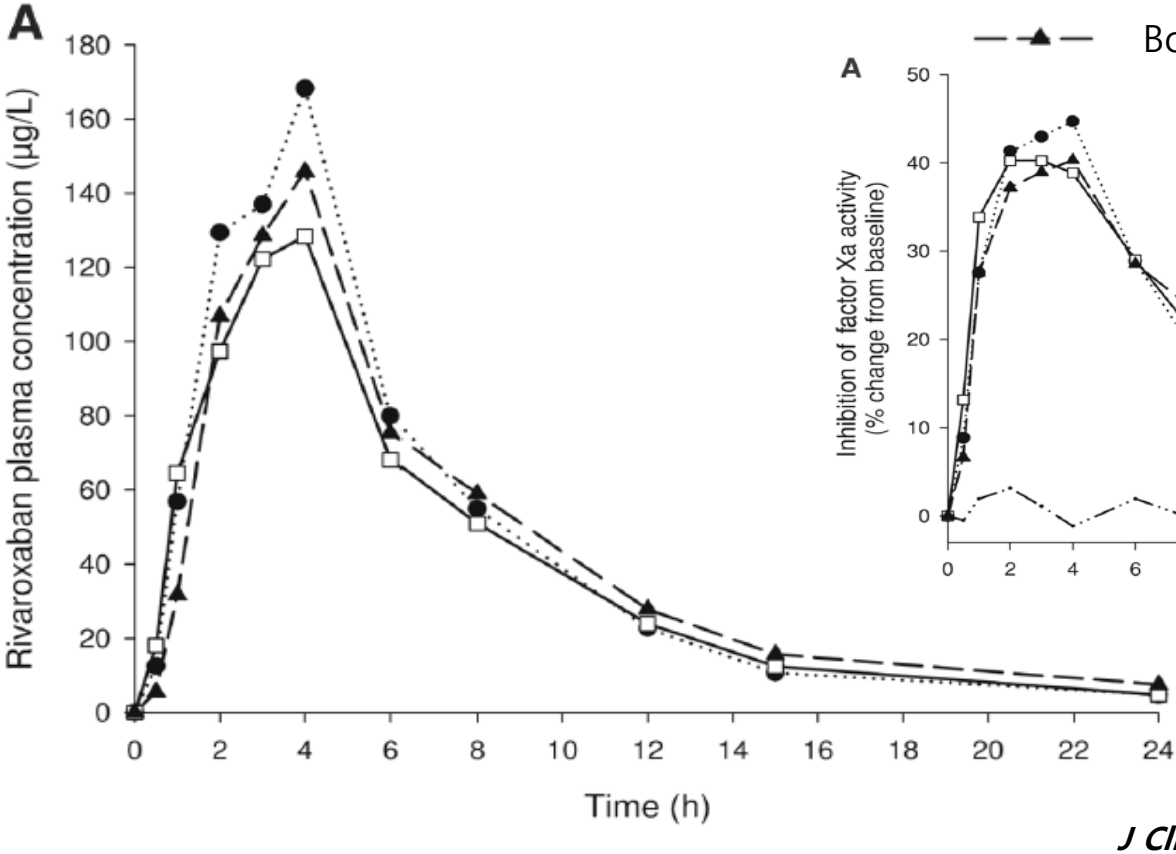
Body weight ≤ 50kg **[BMI 19.3]**

Body weight 70-80kg **[BMI 24.3]**

Body weight > 120kg **[BMI 43.5]**

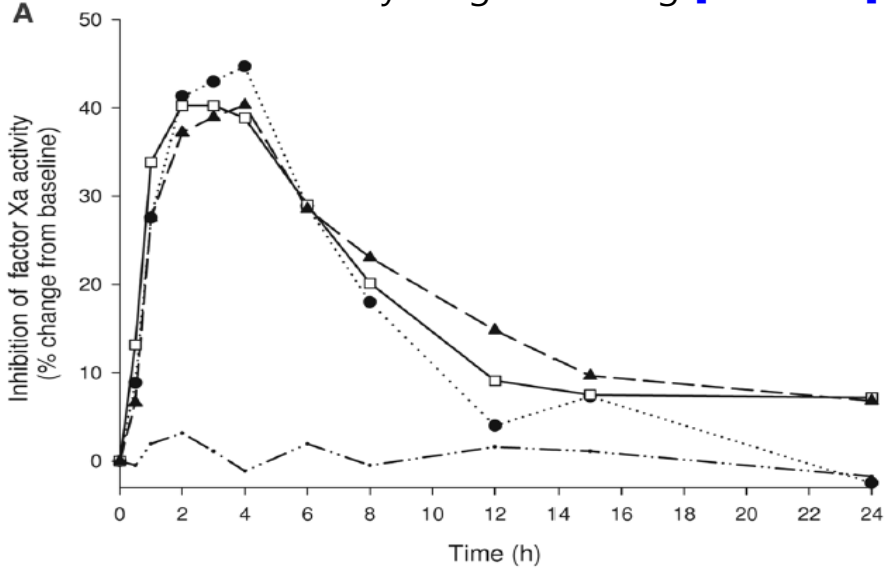


Placebo (all body weight group)

Body weight ≤ 50kg **[BMI 19.3]**

Body weight 70-80kg **[BMI 24.3]**

Body weight > 120kg **[BMI 43.5]**



J Clin Pharmacol 2007;47(2):218-26

Edoxaban

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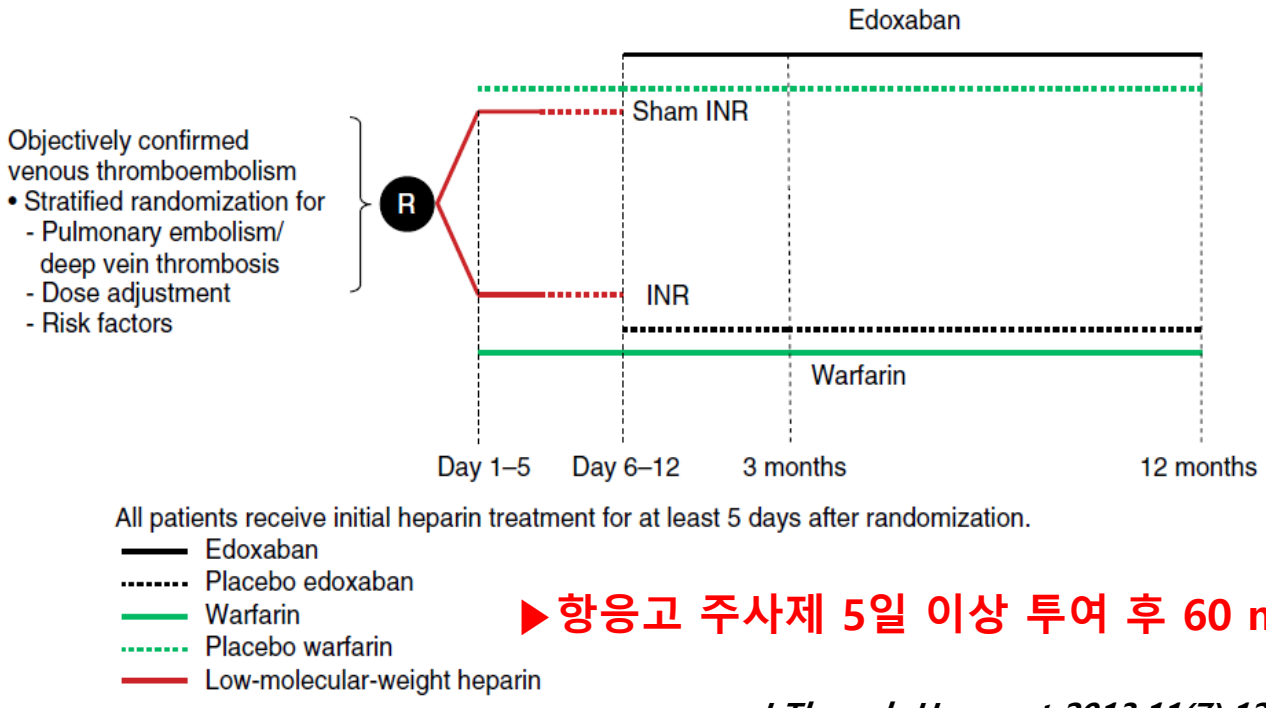
표준용법 및 용량



▶항응고 주사제 5일 이상 투여 후 60 mg qd

J Thromb Haemost 2013;11(7):1287-94

감량 적응증 및 용량

30 mg qd

- moderate renal impairment (**30 ≤ CrCL ≤ 50** mL/min),
- body weight ≤ **60 Kg**, or
- concurrently receiving the P-gp inhibitors (**Quinidine** or **Verapamil**).

N Engl J Med 2013;369(15):1406-15

Edoxaban (first 3 to 6 months)

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	Exoxaban	warfarin	Hazard Ratio
Recurrent VTE, n(%)			
Total, n(%)	130/4118 (3.2)	142/4122 (3.5)	0.89 (95% CI 0.70-1.13)
30mg, n(%)	22/733 (3.0)	30/719 (4.2)	0.73 (95% CI 0.42-1.26)
Major bleeding, n(%)			
Total, n(%)	56/4118 (1.4)	66/4122 (1.6)	0.84 (95% CI 0.59-1.21)
30mg, n(%)	11/733 (1.5)	22/719 (3.1)	0.50 (95% CI 0.24-1.03)
CRNMB, n(%)			
Total, n(%)	349/4118 (**8.5**)	423/4122 (**10.3**)	**0.81** (95% CI 0.71-0.94)
30mg, n(%)	58/733 (**7.9**)	92/719 (**12.8**)	**0.62** (95% CI 0.44-0.86)

N Engl J Med 2013;369(15):1406-15

L-tube feeding 과 Warfarin

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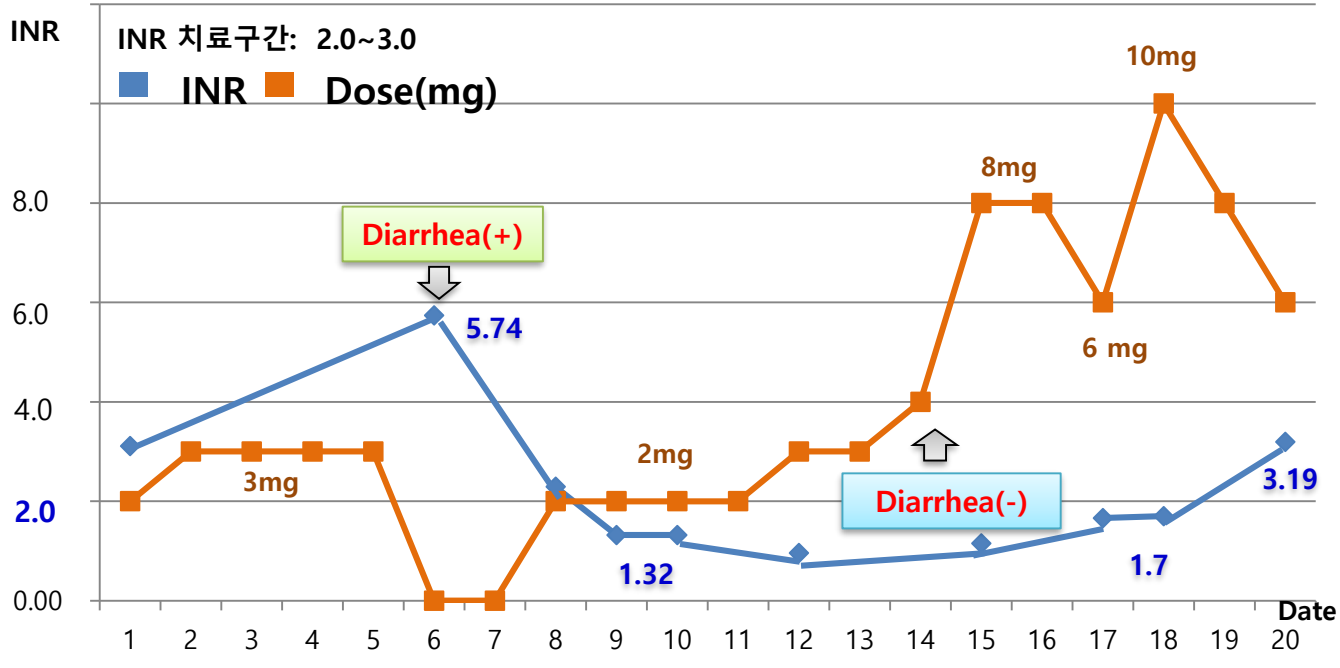
65/F, PEG insertion state



식이	그린비아 DM 150cc X 3회	그린비아 Fiber 300cc X 4회	메디웰 Fiber 300cc X 3회

▶ 설사 후 Fiber formula feeding로 인한 INR 변화 (?)

Nutrition 2008;24:1048–1052

L-tube feeding 과 Apixaban

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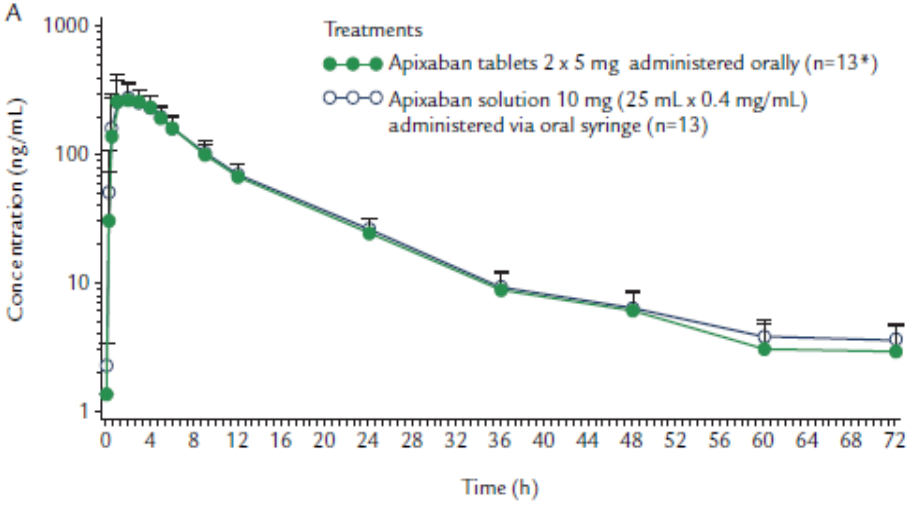

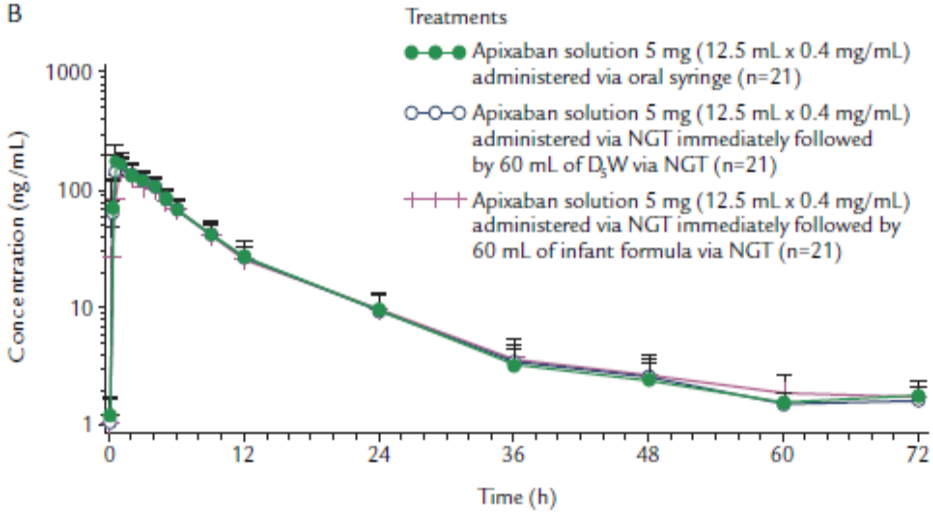

Tablet vs Oral solution

Oral solution vs Solution via NGT (DW vs Infant formula)

Clin Ther 2015;37(8):1703-12

L-tube feeding 과 Apixaban

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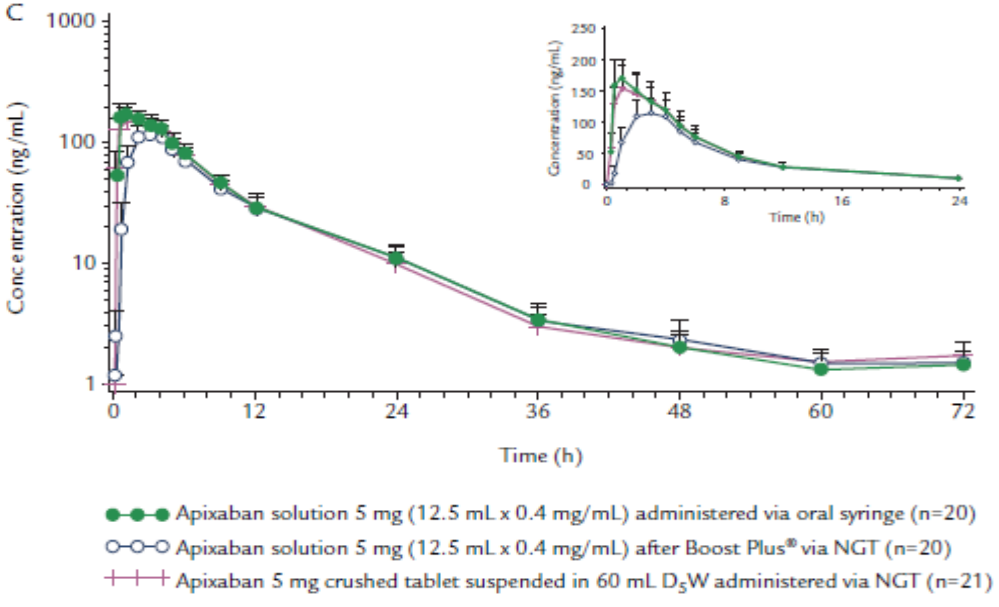
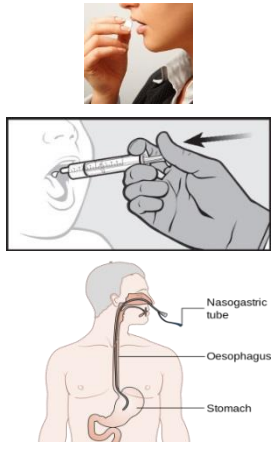


Oral solution vs
Solution via NGT vs
Crushed tablet (DW) via NGT

Alternative methods of administering apixaban may be useful in certain clinical situations.

+

+



Clin Ther 2015;37(8):1703-12

L-tube feeding 과 Dabigatran

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주의사항

- The oral **bioavailability** of **dabigatran etexilate increases by 75%** when the pellets are taken **without the capsule shell** compared to the intact capsule formulation.

- **PRADAXA** capsules should therefore **not be broken, chewed, or opened before administration**.

http://www.accessdata.fda.gov/drugsatfda_docs/label/2013/022512s017lbl.pdf.

Rivaroxaban in fragile patients (VTE)

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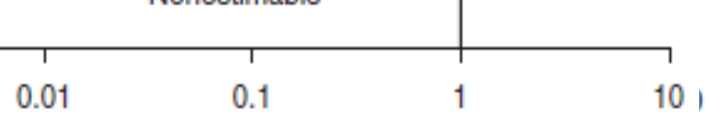
Recurrent VTE

Major bleeding

	Rivaroxaban		Enoxaparin/VKA		HR (95% CI)
	n/N	%	n/N	%	Favors Rivaroxaban / Favors Enoxaparin /VKA
Nonfragile	30/3342	0.9	37/3337	1.1	
Fragile	10/788	1.3	35/779	4.5	
Age >75 years	8/655	1.2	28/624	4.5	
Creatinine clearance <50 ml/min	3/329	0.9	13/320	4.1	
Body weight <50 kg	0/42	0.0	3/65	4.6	Nonestimable



Thromb J 2013;11(1):21

Rivaroxaban in elderly patients (VTE)

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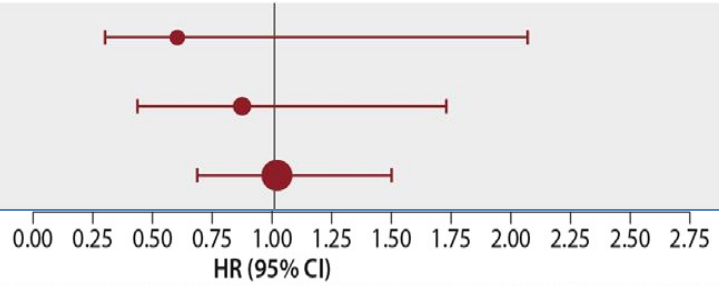
Recurrent VTE

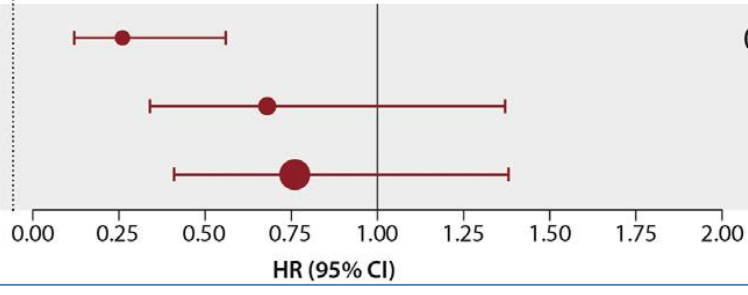
A

Drug	Age	NOAC n/N	NOAC %	VKA n/N	VKA %	Hazard ratio ‡
Rivaroxaban 20 mg QD	>75	15/656	2.29	23/627	3.67	0.42
	≥65-75	16/888	1.80	19/914	2.08	
	<65	55/2606	2.11	53/2590	2.08	



Major bleeding

Drug	Age	NOAC n/N	NOAC %	VKA n/N	VKA %	Hazard ratio	Int-P
Rivaroxaban 20 mg QD	>75	8/655	1.22	28/624	4.48		0.08
	≥65-75	13/883	1.48	20/913	2.19		
	<65	19/2592	0.73	24/2579	0.93		



Best Pract Res Clin Haematol 2013;26:215-224

Perioperative management in DOACs

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Recommended time to interrupt DOACs from last dose to anticipated procedure based on renal function

Renal function		Dabigatran	Rivaroxaban	Apixaban	Edoxaban
CrCl>80mL/min	Moderate bleeding risk	1day	1 day	1day	1day
	High bleeding risk	2days		2days	
CrCl 50-80mL/min		3days	1day	2days	2days
CrCl 30-50 mL/min		4days	1day	3days	3days
CrCl 15-30 mL/min		5days	2days	N/A	3days

수술 혹은 시술 후 재투여시

이것만은 꼭 기억!!!

→ **Tmax** **± 2 hours**

Int J Cardiol 2016;202: 578–585

In case of overdose of Rivaroxaban

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자렐토 20mg 90알을 자살목적으로 먹고 응급실로 환자가 왔다. 복용 12시간 후 INR 은 7.38 이었다. 어떻게 진료하면 될까요?

Antidote ? 혹은 Reversal Agent?

Case Report

The X factor: Lack of bleeding after an acute apixaban overdose☆

Scott M. Leikin, D.O.[a], Hina Patel, Pharm D[b], Katherine L. Welker, M.D.[c], Jerrold B. Leikin, M.D.[d,*]

Am J Emerg Med 2017;35(5):801.e5-801.e6

Massive intoxication with rivaroxaban, phenprocoumon, and diclofenac

A case report

Hella Pfeiffer, MD[a,*], Larissa Herbst, MD[b], Bernd Schwarze, PhD[c], Reinhold Eckstein[a], Volker Weisbach[a]

Medicine (Baltimore) 2016;95(44):e5343

In case of overdose of Rivaroxaban (ceiling effect)

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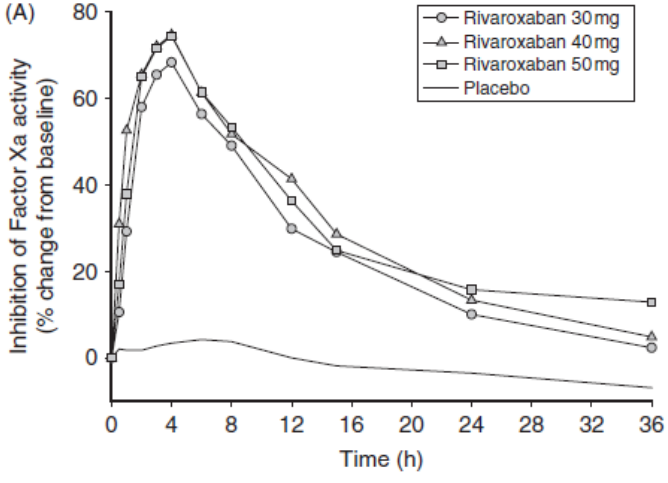

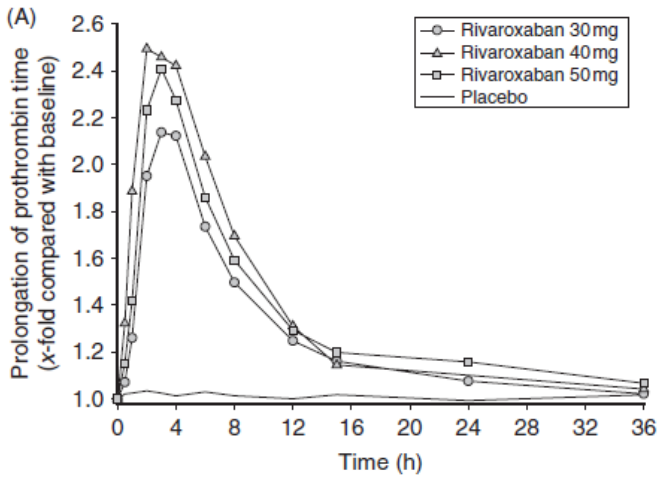

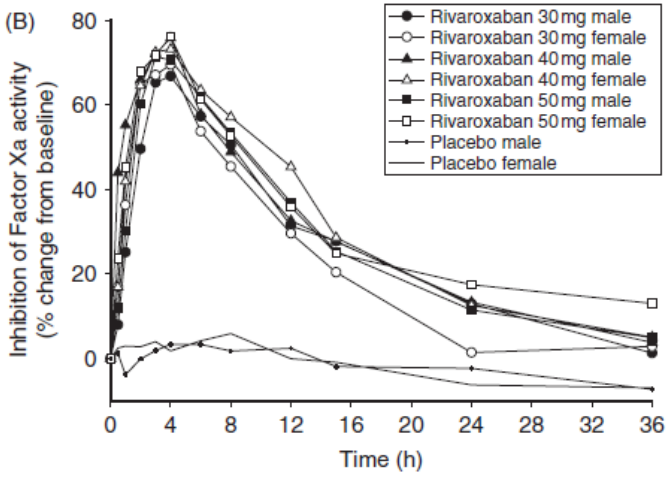

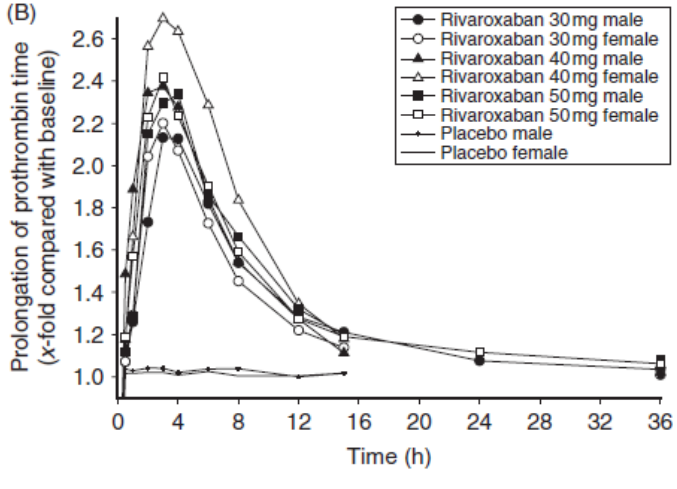

Curr Med Res Opin 2008;24(10):2757-65

In case of overdose of Rivaroxaban (ceiling effect)

[According to the manufacturer] Rivaroxaban 은 과량 복용시 ceiling effect(천장효과)가 있어, **과량 복용 시에도 약물농도 및 효과가 무한대로 늘어나는 것이 아니라 통상 용량의 2-3배 이상은 안 오르는 것으로 알려져 있습니다.(600mg. 즉 30알x20mg을 먹어도 통상양의 2.5배정도인 50mg 정도 복용시의 약물 농도 정도만 상승함).**
고령에서 약은 반감기가 약 12시간 전후 이므로, daily PT level검사를 시행하시고 경과 관찰하시기 바랍니다. 통상 **elimination half life의 약 5-6배인 60~72시간 후가 되면 흡수된 Rivaroxaban의 배설이 다 되어, PT level 이 정상화** 될 가능성이 높아 보입니다.

❖ **F/U Prothrombin Time (INR) level**

7.38['17-03-06, 11am] 90알 복용 12시간 후

→ 3.97['17-03-06, 6pm] 18시간 후

→ 1.80['17-03-07, 8am] 32시간 후

→ 1.26['17-03-08, 8am] 56시간 후

서울대병원 case

Drug Information in Korea (회사의 권고에 따른 것임)

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Renal impairment (eGFR)		
Dabigatran	150mg bid	**[금기]** 중증 신장애 (CrCL<30mL/min)
Rivaroxaban	20mg qd	**[신중투여]** 신장애 (CrCl: 15-49mL/min)
Apixaban	5mg bid	**[신중투여]** 중증 신장애 (CrCl 15-29mL/min),
Edoxaban	60mg qd	**[금기]** 말기 신질환 (CrCL<15mL/min) 및 신장투석
Liver disease (Child Pugh Classification)		
Dabigatran	150mg bid	**[금기]** 간장애 또는 생존에 영향을 미칠 것으로 예상되는 간질환
Rivaroxaban	20mg qd	**[금기]** Child Pugh B 및 C 등의 임상적으로 의미있는 출혈 위험성과 관련된 간질환
Apixaban	5mg bid	**[신중투여]** 경증-중등도 간장애(Child Pugh A 또는 B)
Edoxaban	60mg qd	**[금기]** 혈액응고장애 및 임상적으로 의미있는 출혈 위험성과 관련된 간질환, 중증 간장애

[참고자료] Definition of dosing regimens in non-valvular AF

절대로 VTE 치료 용량과 혼동하시면 안됩니다 !!!!

Standard dose regimens ▶ Reduced dose regimens			
	신기능장애	몸무게	나이
Dabigatran			
Rivaroxaban	CrCl < 50 mL/min		
Apixaban	sCr ≥1.5 mg/dL	weight ≤60kg	age ≥80 years
Edoxaban	CrCl 30–50 mL/min	weight ≤60kg	

Heart Rhythm 2016;13(12):2340-2347

DOACs이 와파린을 모든 환자에서 대신할 수 있는 것은 아닙니다

와파린 용량조절을 잘 할 수 있는 방법을 알아두어야 합니다. (질적 관리)

DOACs 이 대신할 수 없는 와파린 투여의 적응증

❖ **Rifampin 을 투여해야 하는 경우** (결핵, 골수염 등)

❖ **신기능 장애** (< GFR 30 ml/min)

❖ **간기능 장애** (Child Pugh classcification C)

❖ **PE, DVT 이외 다른 장기에 발생한 정맥혈전증 (보험을 원하는 경우)**

- Mesenteric vein thrombosis (including portal vein thrombosis)

- Cerebral venous sinus thrombosis

❖ **잦은 출혈합병증으로 target range 를 낮추어서 조절해야 하는 경우**

- ex) INR range 1.8-2.5

Risk of bleeding with apixaban in patients with renal impairment

Apixaban **reduces bleeding** compared with conventional anticoagulants in patients with **mild**, but **not moderate-to-severe**, **renal impairment**.

Apixaban vs control (placebo, aspirin, or conventional anticoagulants) for major or clinically relevant nonmajor bleeding†

Population	*Number of trials (n)*	*Weighted event rates*		*At a median 0.17 to 1.8 y of follow-up*	
		Apixaban	*Control*	*RRR (95% CI)*	*NNT (CI)*
Mild renal impairment‡	6 (14 034)	2.7%	3.4%	20% (4 to 34)	148 (87 to 736)
				RRI (CI)	*NNH*
Moderate-to-severe renal impairment§	6 (4999)	6.9%	6.8%	1% (−51 to 110)	Not significant

†Abbreviations defined in Glossary. RRR, RRI, NNT, and CI calculated from risk ratios and control event rates in article using fixed-effect (mild renal impairment) or random-effects (moderate-to-severe renal impairment) models.

‡Cockcroft-Gault equation creatinine clearance 50 to 80 mL/min.

§Cockcroft-Gault equation creatinine clearance < 50 mL/min.

Ann Intern Med 2015;162(8):JC3

와파린의 질적관리 평가방법 (Rosendaal linear interpolation)

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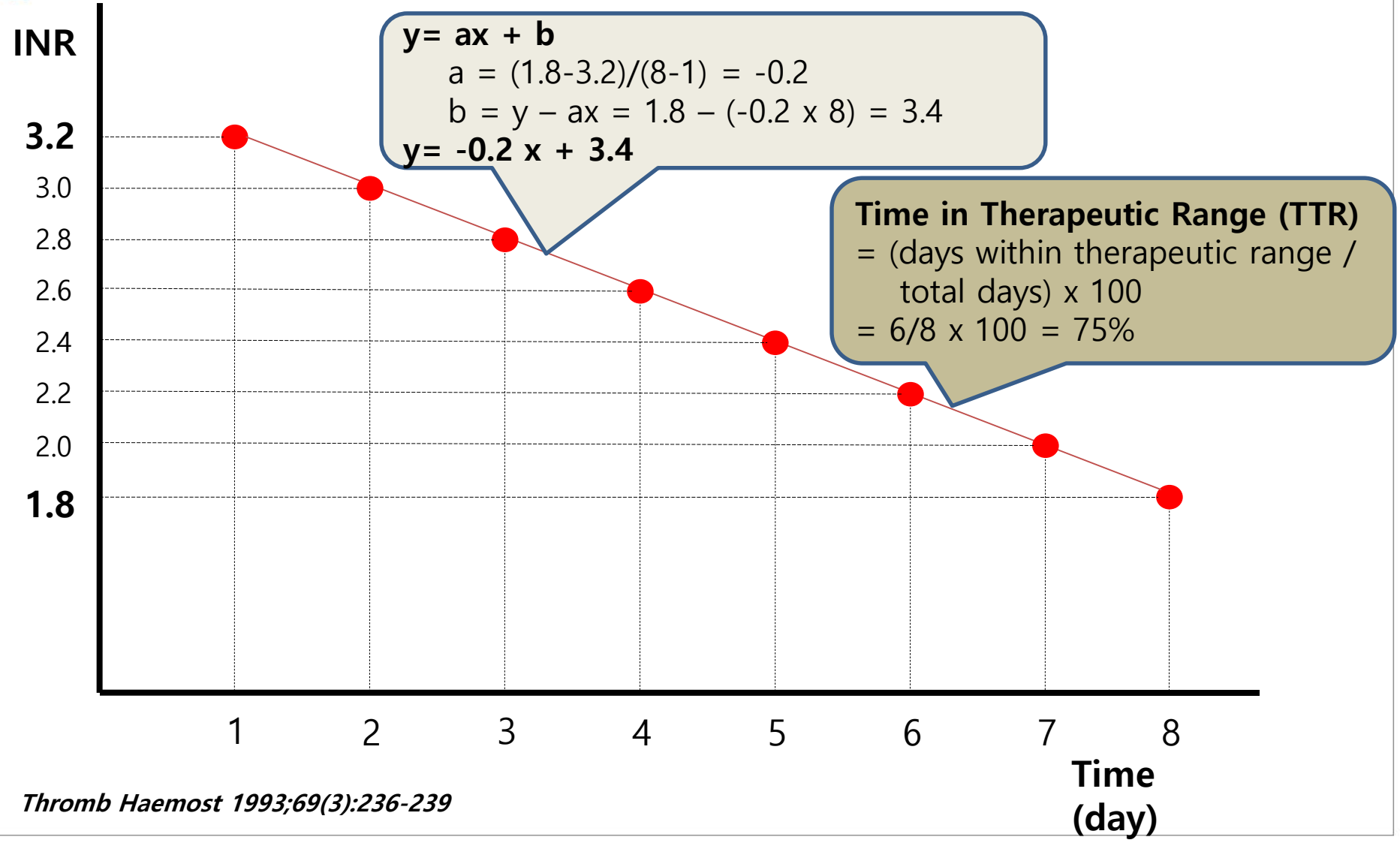

Thromb Haemost 1993;69(3):236-239

Influence the quality of OAC management on clinical outcomes (VTE)

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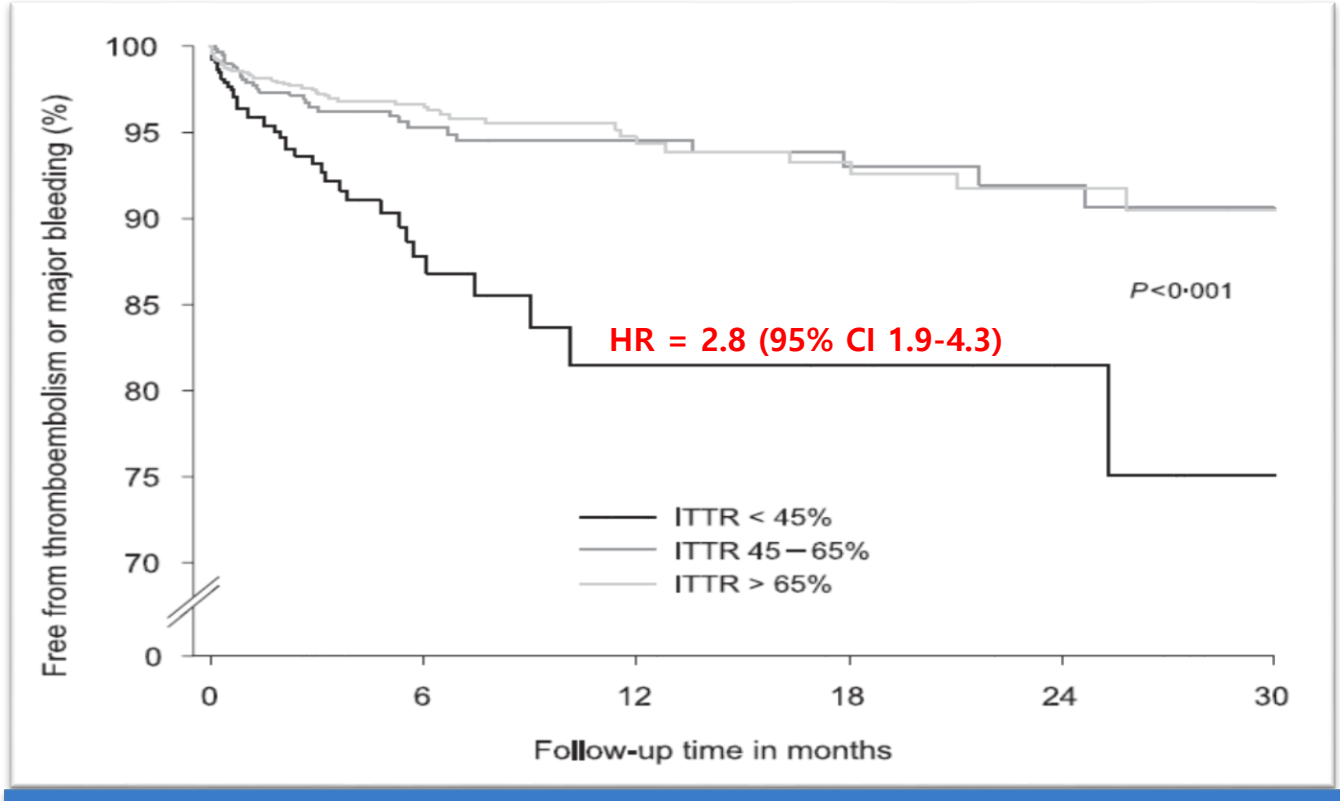
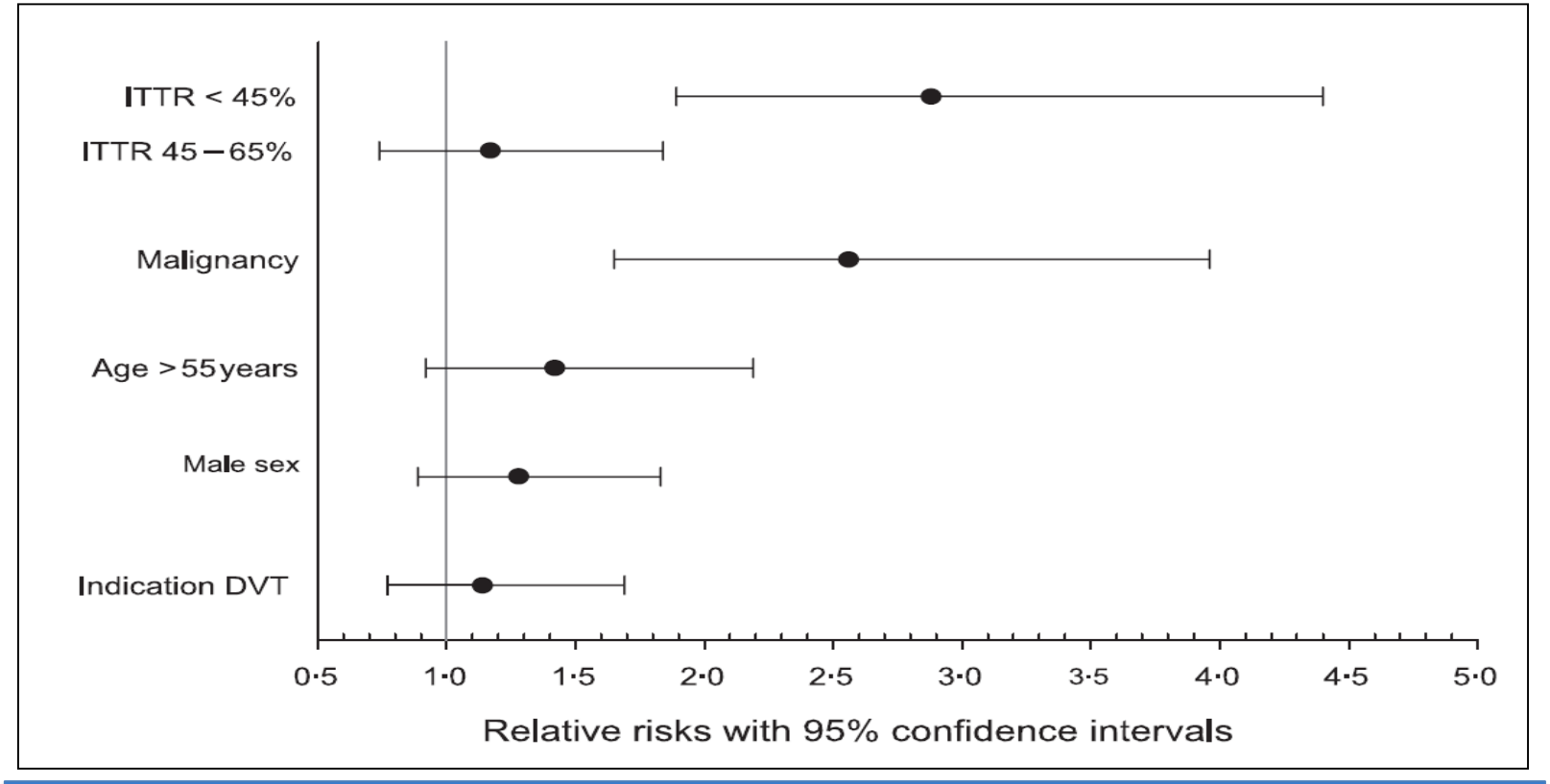


The two highest quartiles (65-80% and 80-100%) were combined.

The risk of recurrent thromboembolism was related to the total time at which INR values were below the target range in individual patients, rather than incidental low INR values.

Br J Haematol 2005;128:513-9

RR of the composite of recurrent thromboembolism and major bleeding, for time within therapeutic range (reference group > 65%)



Both iTTR and malignancy were strong independent predictors of clinical outcome.

Br J Haematol 2005;128:513-9

TTR and Time to risk of adverse events [ACTIVE-W]

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Country	Patients per TTR Quartile (Low to High), n				Mean TTR	Clopidogrel+Aspirin		OAC		Clopidogrel+ASA vs OAC		
	1	2	3	4		Events	%/y	Events	%/y	RR	95% CI	*P*
South Africa	55	43	0	0	46.3	5	8.42	8	14.94	0.57	0.19–1.75	0.33
Brazil	188	25	25	8	47.1	13	9.38	14	9.43	1.01	0.47–2.15	0.98
Russia	188	28	0	41	53.4	13	7.92	7	4.16	1.88	0.75–4.70	0.18
Poland	313	224	86	18	55.3	18	4.71	19	4.94	0.95	0.50–1.81	0.87
Belgium	4	128	9	0	58.7	11	11.91	6	6.72	1.81	0.67–4.90	0.24
United States	135	460	363	116	62.9	59	8.02	48	6.6	1.25	0.85–1.83	0.26
Netherlands	65	98	163	49	64.0	15	6.65	7	3.17	2.12	0.86–5.20	0.10
Argentina	40	79	76	106	64.5	10	6.02	10	5.9	1.03	0.43–2.48	0.94
Czech Republic	11	110	64	48	66.8	7	4.67	5	3.32	1.45	0.46–4.56	0.53
Italy	23	15	107	21	67.2	8	7.46	4	3.83	1.94	0.59–6.46	0.28
Canada	45	259	480	316	68.5	61	8.94	34	4.89	1.88	1.23–2.86	0.003
Germany	0	149	261	171	69.3	22	5.82	15	3.95	1.51	0.78–2.90	0.22
Australia	5	12	54	145	74.5	18	12.92	5	3.76	3.60	1.34–9.71	0.01
United Kingdom	2	34	59	199	74.8	12	7.03	7	3.97	1.79	0.71–4.55	0.22
Sweden	0	0	28	96	77.8	11	14.42	4	5.33	2.86	0.91–8.97	0.07

ASA indicates acetylsalicylic acid; RR, relative risk. Rows are ordered by mean TTR.

Circulation 2008;118:2029-37

Warfarin dosing algorithm (Maintenance)(INR 2.0-3.0)

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INR	Action
≤ 1.5	Increase weekly dose by **15%** ; repeat INR in **7-14 days**
1.51 - 1.99	If falling or low on two or more occasions, increase weekly dose by **10%** ; repeat INR in **7 - 14 days**
2.00 - 3.00	No change
3.01 - 3.99	If rising or high on two or more occasions, decrease weekly dose by **10%** ; repeat INR in **7 - 14 days.**
4.00 - 4.99	Hold for 1 day ; decrease weekly dose by **10%** ; repeat INR in **7-14 days.**

J Thromb Haemost 2010; 8: 101-6

Management with warfarin (example)

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Date	요일	INR	tablet strength(mg)	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Weekely dose(mg)	다음 INR 검사일		% change of weekly dose
2012-01-06	금	1.27	2					4	4	3	22	3	2012-01-09	38
2012-01-09	월	1.91	2	3	2	3	2	3	2	3	36	4	2012-01-13	64
2012-01-13	금	2.38	2	3	2	3	2	3	2	3	36	7	2012-01-20	0
2012-01-20	금	4.81	2	2	2	2	2	3	2	2	30	6	2012-01-26	-17
2012-01-26	목	1.58	2	2	3	2	3	2	3	2	34	7	2012-02-02	13
2012-02-02	목	3.4	2	2	3	2	2	2	2	2	30	7	2012-02-09	-12
2012-02-11	토	2.32	2	2	3	2	2	2	2	2	30	13	2012-02-24	0
2012-02-23	목	2.37	2	2	3	2	2	2	2	2	30	28	2012-03-22	0
2012-03-22	목	3.14	2	2	2	2	2	2	2	2	28	28	2012-04-19	-7
2012-04-19	목	2.18	2	2	2	2	2	2	2	2	28	28	2012-05-17	0
2012-05-17	목	2.12	2	2	2	2	2	2	2	2	28	28	2012-06-14	0
2012-06-14	목	1.96	2	2	2	2	3	2	2	2	30	28	2012-07-12	7
2012-07-12	목	3.04	2	2	2	2	3	2	2	2	30	28	2012-08-09	0
2012-08-09	목	2.48	2	2	2	2	3	2	2	2	30	35	2012-09-13	0
2012-09-13	목	2.31	2	2	2	2	3	2	2	2	30	35	2012-10-18	0

Continue ....

2016-12-26	월	2.76	2	2	1	2	2	1	2	1	22	56	2017-02-20	0
2017-02-20	월	2.43	2	2	1	2	2	1	2	1	22	56	2017-04-17	0
2017-04-19	수	2.6	2	2	1	2	2	1	2	1	22	63	2017-06-21	0
2017-06-21	수	2.58	2	2	1	2	2	1	2	1	22	56	2017-08-16	0
2017-08-16	수	2.07	2	2	1	2	2	1	2	1	22	63	2017-10-18	0
2017-10-18	수	2.06	2	2	1	2	2	1	2	1	22	56	2017-12-13	0

Frequency of INR monitoring

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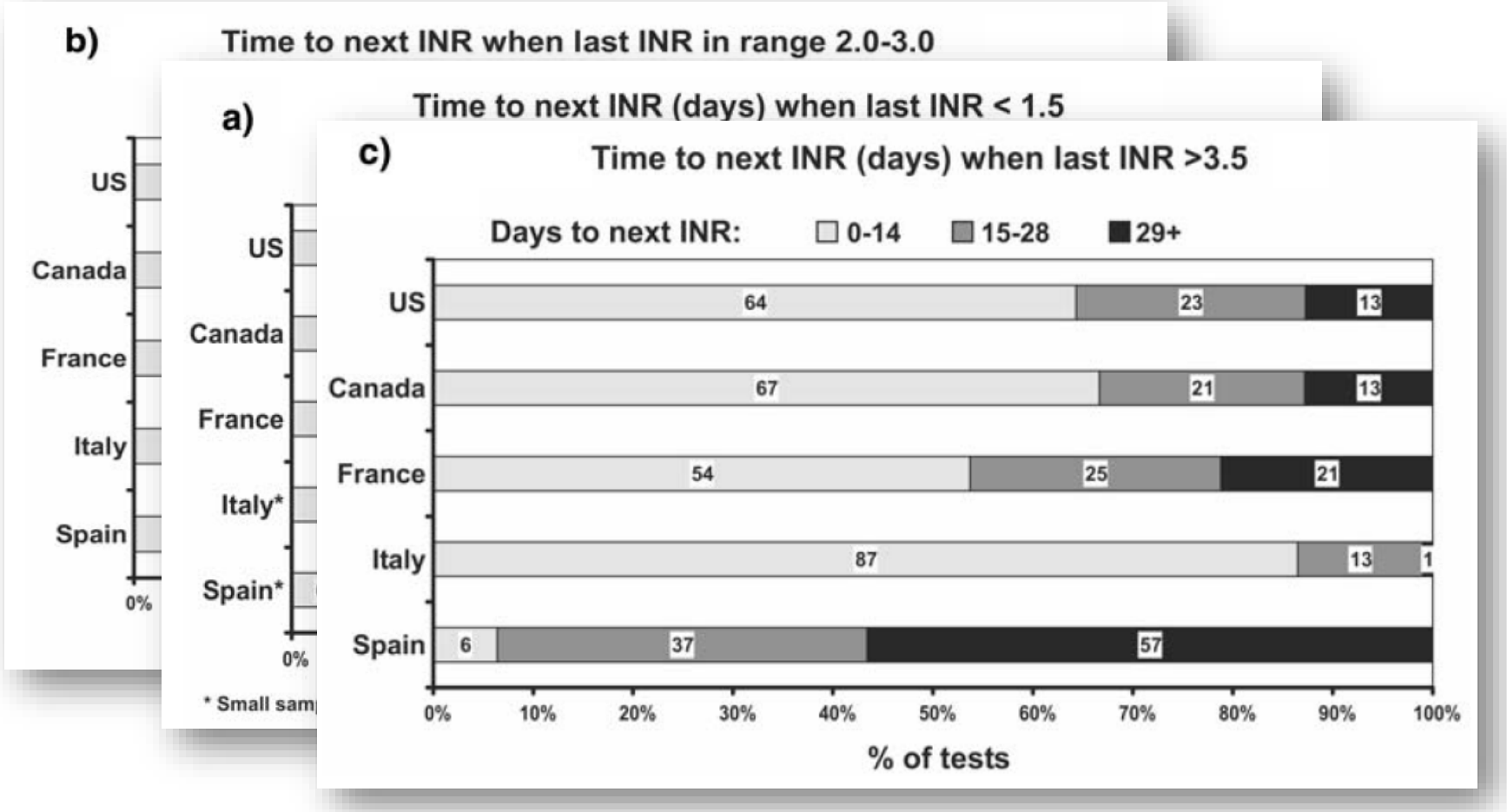
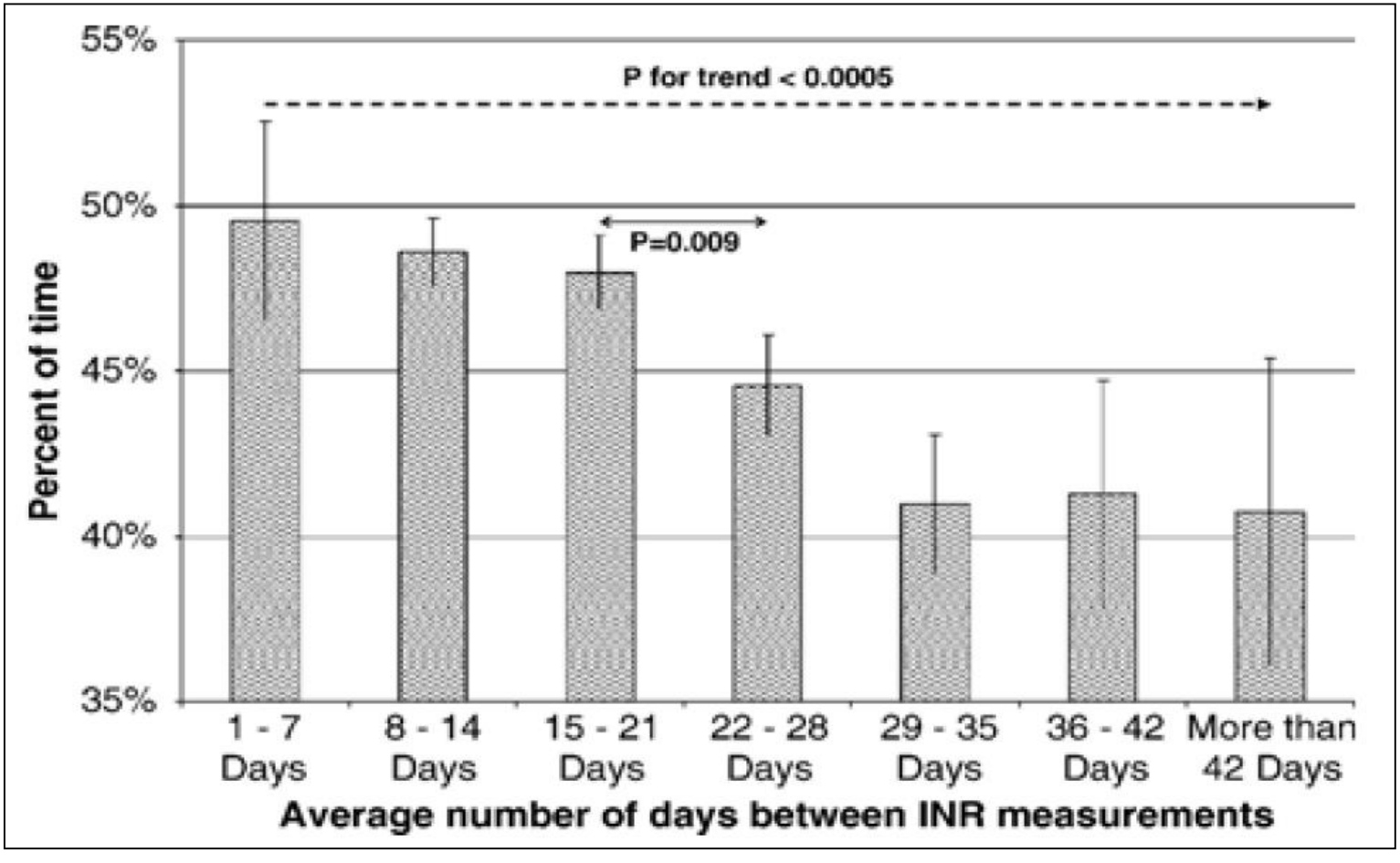


J Thromb Thrombolysis 2007;23:83–91

Frequency of monitoring and Quality of OAC



Thromb Res 2007;120:201-206

~~항응고제~~ 와파린 치료시 주의해야할 식품정보

항응고제 치료를 하시는 분들은 원활한 체내 혈액응고 작용을 위해 식사 내에서 과량의 비타민K 섭취는 제한하고 영양소가 골고루 포함된 식사를 하도록 합니다.

비타민 K는 지용성 비타민으로 우리 몸속에서 혈액응고 및 골대사와 관련된 많은 단백질을 활성화 시키는 조효소로 작용하며 뼈를 건강하게 하며 심장 질환에 도움을 주기도 하지만, 반대로 항응고제 치료를 하시는 분들에게 있어서는 원활한 체내 혈액응고 작용을 방해할 수 있으므로 비타민 K 섭취시 주의해야 합니다.

★ 항응고제 치료시 주의사항

1. **비타민K 섭취량은 한국인 1일 충분 섭취 기준량 정도가 일정하게 공급**되도록 식사를 계획 합니다. (한국인 영양섭취 기준 성인남성 충분섭취량 75㎍/일 성인여성 65㎍/일, 한국영양학회, 2005)
   ※ 본원에서 제공되는 1일 식단구성 예 참조

2. **녹색잎 채소류 중** 시금치, 근대, 쑥갓, 부추, 호박잎, 미나리와 케일과 브로콜리, 양배추 등의 **양채류 일부 식품**에는 비타민K가 다량 함유되어 있으므로 **섭취시 주의가 필요**합니다.
   (※ 비타민 K 고함량 식품 분류 표 참조)

3. 해조류 중 **김의 경우** 생식하기 보다는 **구워서 섭취**하는 것이 비타민K 섭취를 85%가량 줄일 수 있게 됩니다.
   (※ 제7차 식품성분표, 농촌자연개발 연구소, 2006년)

4. 식사 내에 비타민K가 들어있는 모든 식품을 완전히 피할 필요는 없습니다. 다만 **과량을 매일 섭취하거나 주의해야할 식품들을 한 끼 식사에 동시에 구성되지 않도록 합니다.**

5. **모든 종합비타민제에는 비타민K가 함유**되어 있으므로 비타민제를 추가로 섭취하시고자 하신다면 **반드시 의료진에게 문의하신 후 복용**하도록 합니다.

6. 항응고제 치료가 안정적으로 유지되지 않는다면 평소 섭취하고 있는 **식사 내용을 상세히 기록**하여 **영양사의 상담**을 받도록 합니다.

SCH 순천향대학교병원
영양과 영양상담실 : 02)709-9794~5

★ 비타민 K 고함량 식품의 분류(식품 100g당)

식품명	비타민K	식품명	비타민K	식품명	비타민K (㎍)
케일	210	유채	260	쑥(생것)	340
쑥갓(생것)	250	근대(생것)	830	쑥(삶은것)	380
쑥갓(삶은것)	460	근대(삶은것)	327	비름	1,140
냉이	330	부추(삶은것)	330	녹차, 가루차	4,000
시금치(생것)	270	순무잎(생것)	340	홍차, 잎	1,500
시금치(삶은것)	320	순무잎(삶은것)	370		
호박잎(삶은것)	108	브로콜리, 생것	160	미나리	160
고비, 마른것(생것)	120	브로콜리, 삶은것	150	부추, 생것	180
양배추(생것)	78	양배추(삶은것)	76		

※ 녹차(가루차)와 홍차(잎)에는 비타민K가 많이 함유되어 있으나 침출액의 경우 아직 보고된 자료가 없으므로 향후 연구가 필요한 사항입니다.

* 출처 : 식품성분표(제7차 개정판, 농촌자연개발 연구소, 2006년)

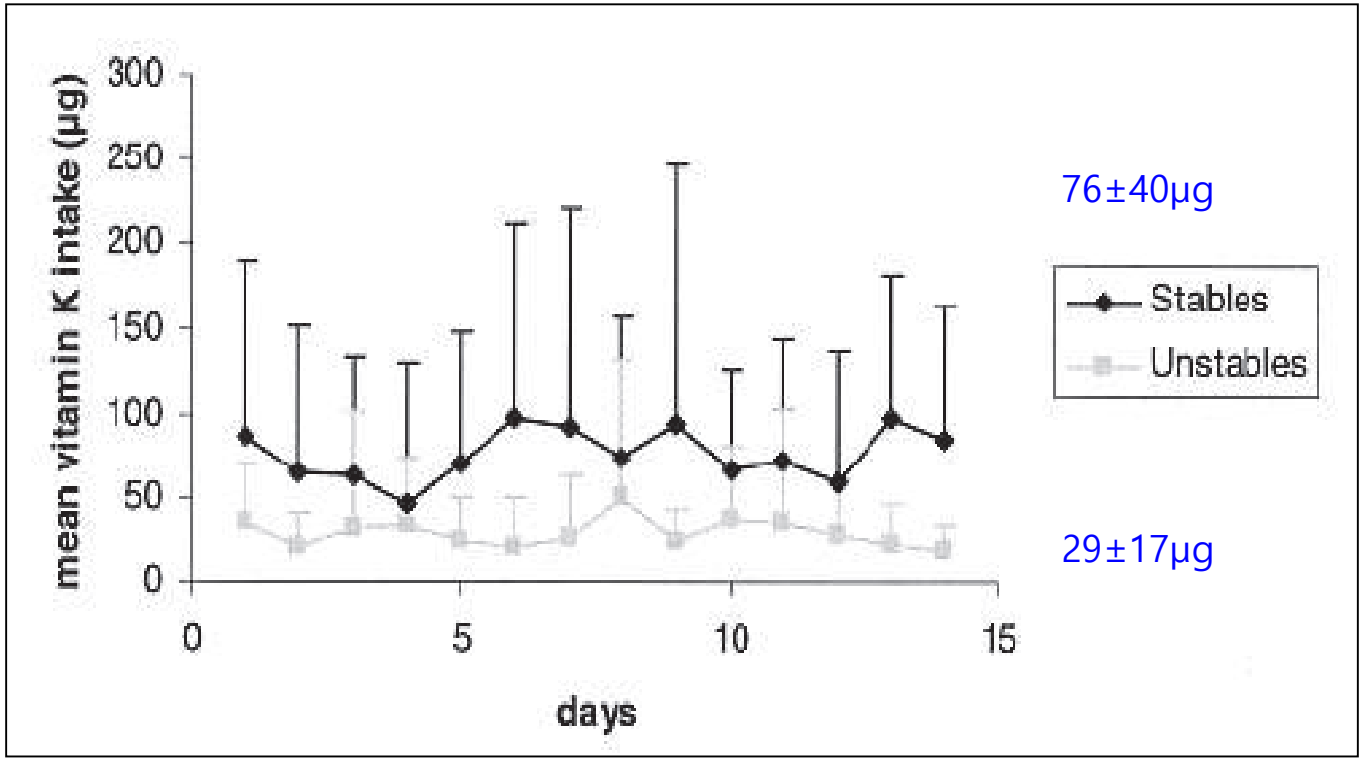
★ 평소 제주 섭취해야 되는 비타민K 함유 식품 표기(1 serving양)

식품명	식품표기	식품명	식품표기	식품명	식품표기
 비름나물 70g 798㎍	□	 시금치나물 70g 189㎍	□	 미나리나물 70g 112㎍	□
 근대나물 70g 581㎍	□	 유채나물 70g 182㎍	□	 브로콜리 70g 112㎍	□
 순무잎 70g 238㎍	□	 쑥갓나물 70g 175㎍	□	 고비나물 70g 84㎍	□
 쑥 70g 238㎍	□	 케일 70g 147㎍	□	 호박잎 70g 76㎍	□
 냉이무침 70g 231㎍	□	 부추나물 70g 126㎍	□	 양배추나물 70g 55㎍	

분량(g) : 가식부 조리전 무게임

SCH 순천향대학교병원
영양과 영양상담실 : 02)709-9794~5

Dietary intake of vitamin K in unstable vs stable control of OAC



Daily supplementation with oral vitamin K in unstable patients could lead to a more stable anticoagulation response to warfarin.

Thromb Haemost 2005; 93:872-5

증례 I

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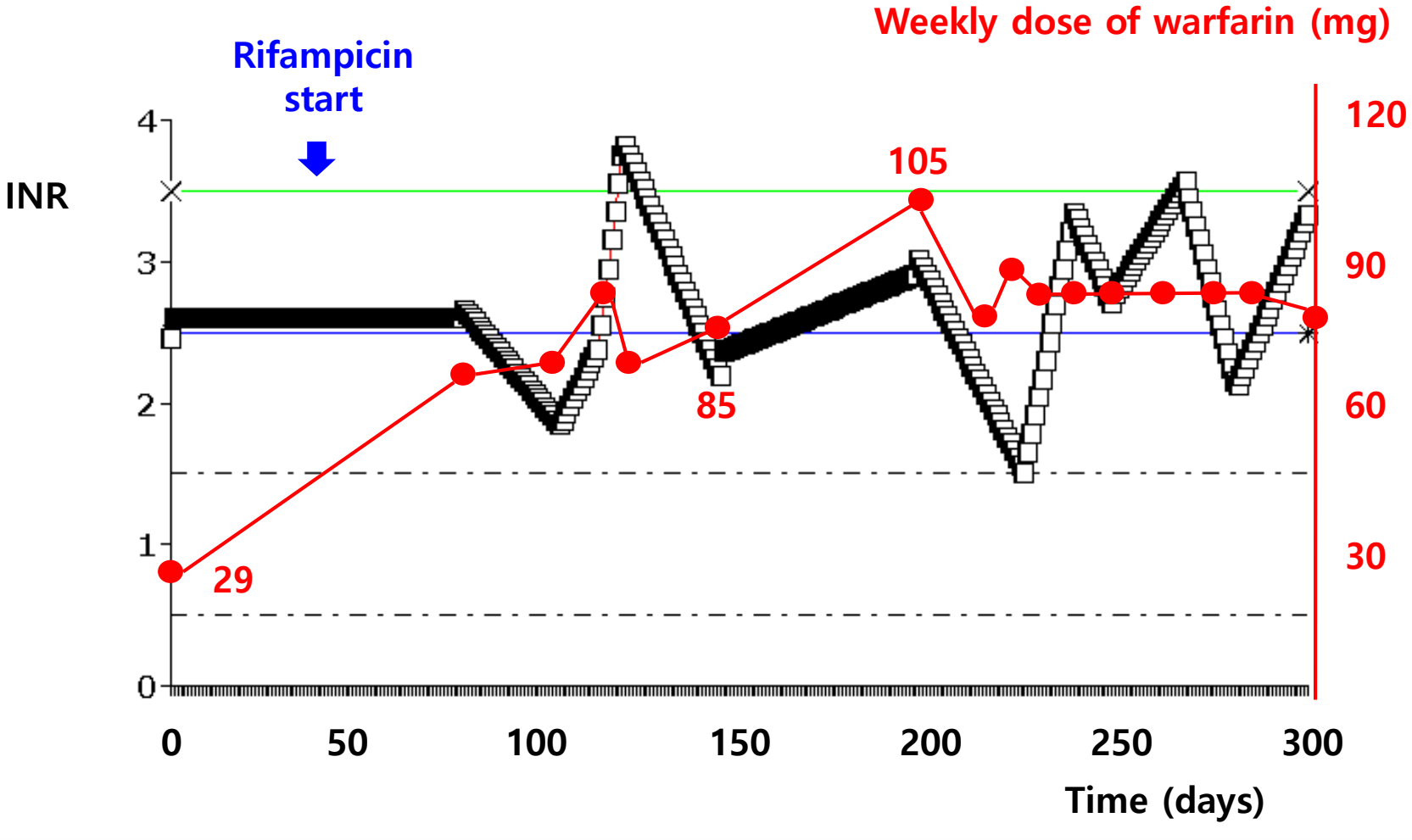
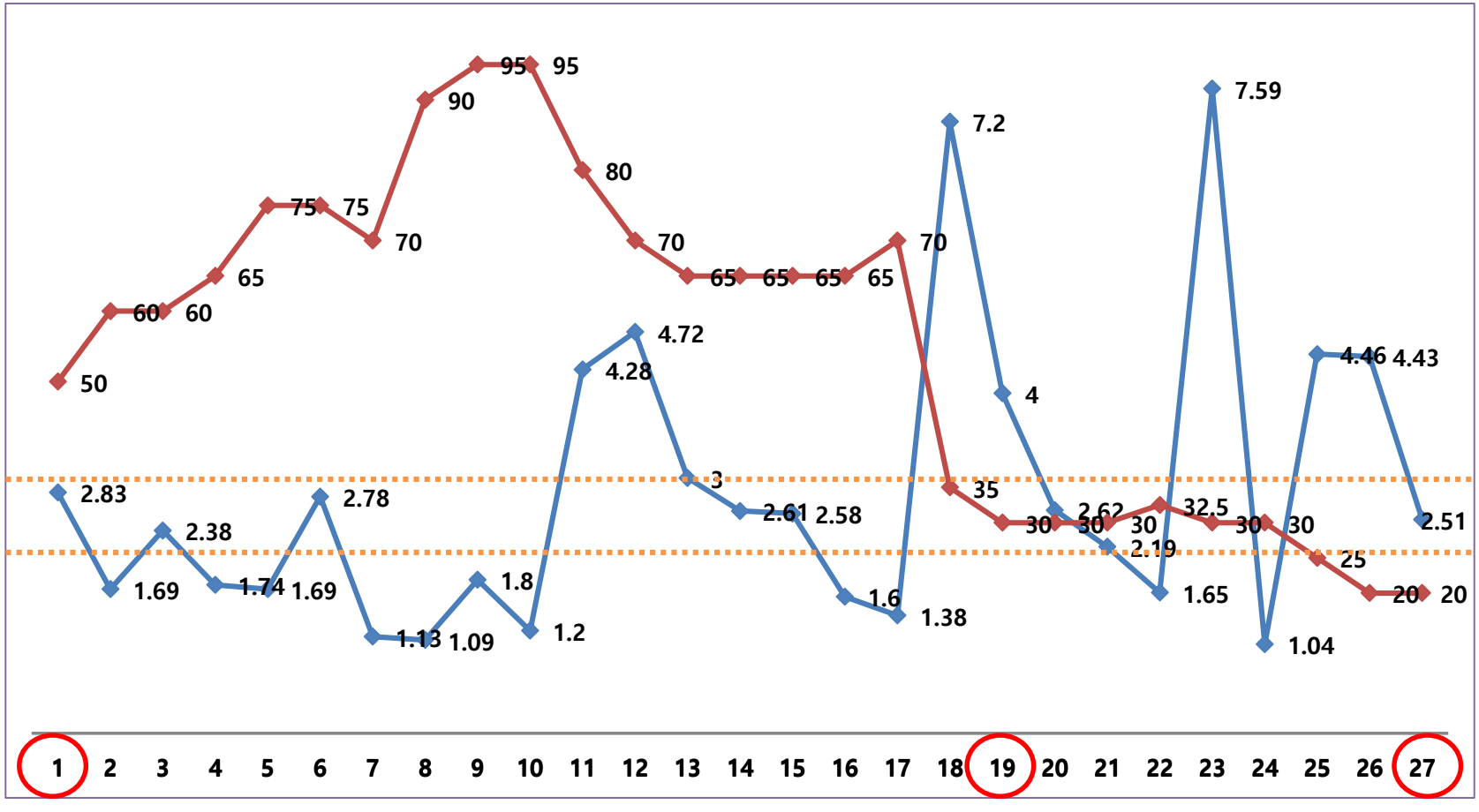


증례 II

SOON CHUN HYANG UNIVERSITY HOSPITAL

Rifampicin 600mg (2014.01.25.~ 10.20.)

Weekly dose (mg) INR **Outpatient management only**



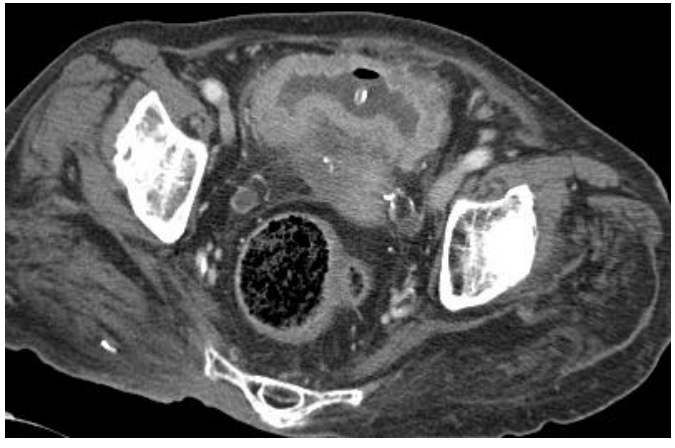
2014.02.07. 2014.10.20. 2015.03.25.

DOACs are harmful?

Unmet Clinical Needs (hematuria)

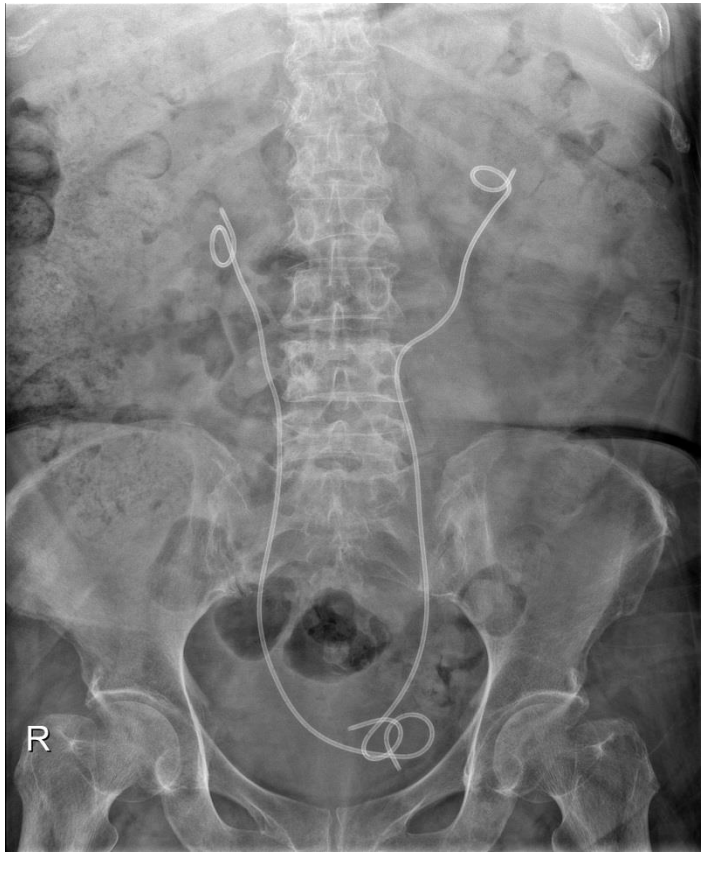
SOON CHUN HYANG UNIVERSITY HOSPITAL

83/F, Chronic cystitis with foley catheter



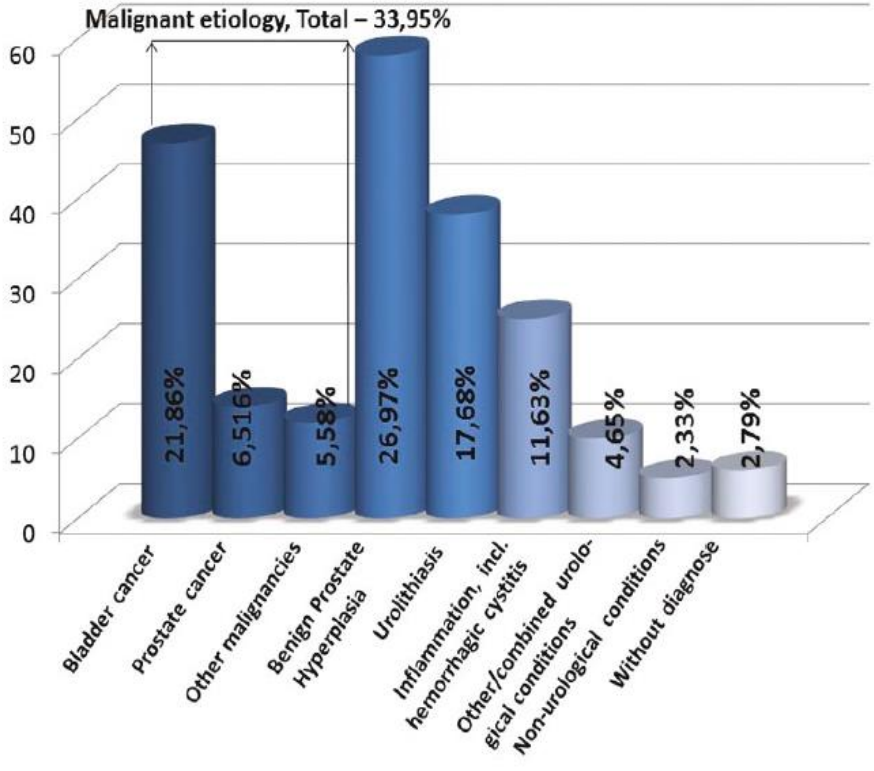
68/M, Renal stone, Lt with hydronephrosis

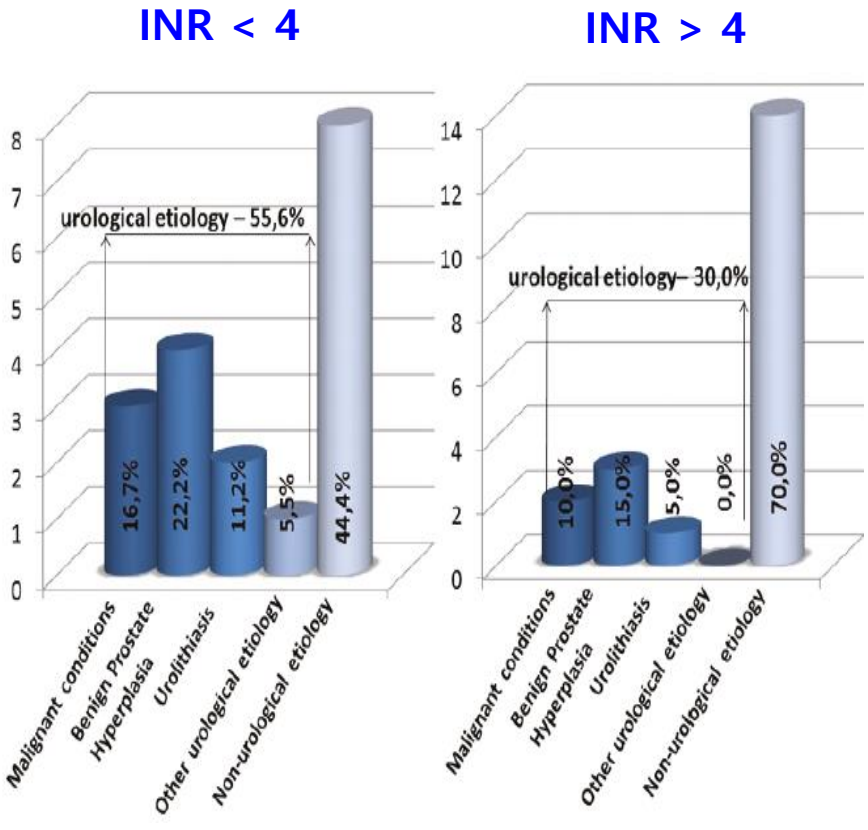
57/F, Ovarian ca with ureter invasion



Distribution of patients with hematuria according to etiology

SOON CHUN HYANG UNIVERSITY HOSPITAL





▶ 혈뇨의 원인 진단 후 항응고제 치료 결정? 어떻게? 그럼 혈전은?

Cent European J Urol 2015;68(3):330-3

경청해주셔서 감사합니다