

The New England Journal of Medicine

*Effect of Home Testing of International
Normalized Ratio on Clinical Events*

*Effets du Test INR à domicile
sur les événements cliniques :
Comparaison avec le dosage INR
En milieu hospitalier*

RATIONNEL:

Le traitement anticoagulant à base de warfarine, bien mené, réduit les complications thromboemboliques pour les patients porteurs de fibrillation auriculaire ou de valves cardiaques mécaniques, mais sa gestion est complexe et l'INR (international normalized ratio) est souvent hors intervalle cible.

OBJECTIF:

prouver la supériorité du dosage hebdomadaire à domicile de l'INR par rapport à celui mensuel fait en milieu hospitalier, afin d'améliorer le résultat global de survenue d'AVC, d'accident hémorragique majeur ou de décès.

METHODES:

CRITERES D'INCLUSION:

- *Etude prospective randomisée multicentrique*
- *2922 patients sous warfarine pour fibrillation auriculaire ou valve cardiaque mécanique.*
- *Patients pouvant assurer le test INR à domicile « point-of-care ».*

PROTOCOLE:

- Formation des patients pour suivre l'INR.*
- Dosage hebdomadaire de l'INR à domicile.*
- Ajustement du traitement en fonction de l'INR par un staff médical.*
- Suivi trimestriel sur 2 ans minimum, sauf complication, pour les patients randomisés à domicile.*
- Suivi mensuel pour les patients randomisés à l'hôpital.*

CRITERES DE JUGEMENT:

- *AVC*
- *Accident hémorragique majeur*
- *Mortalité*

RESULTS:

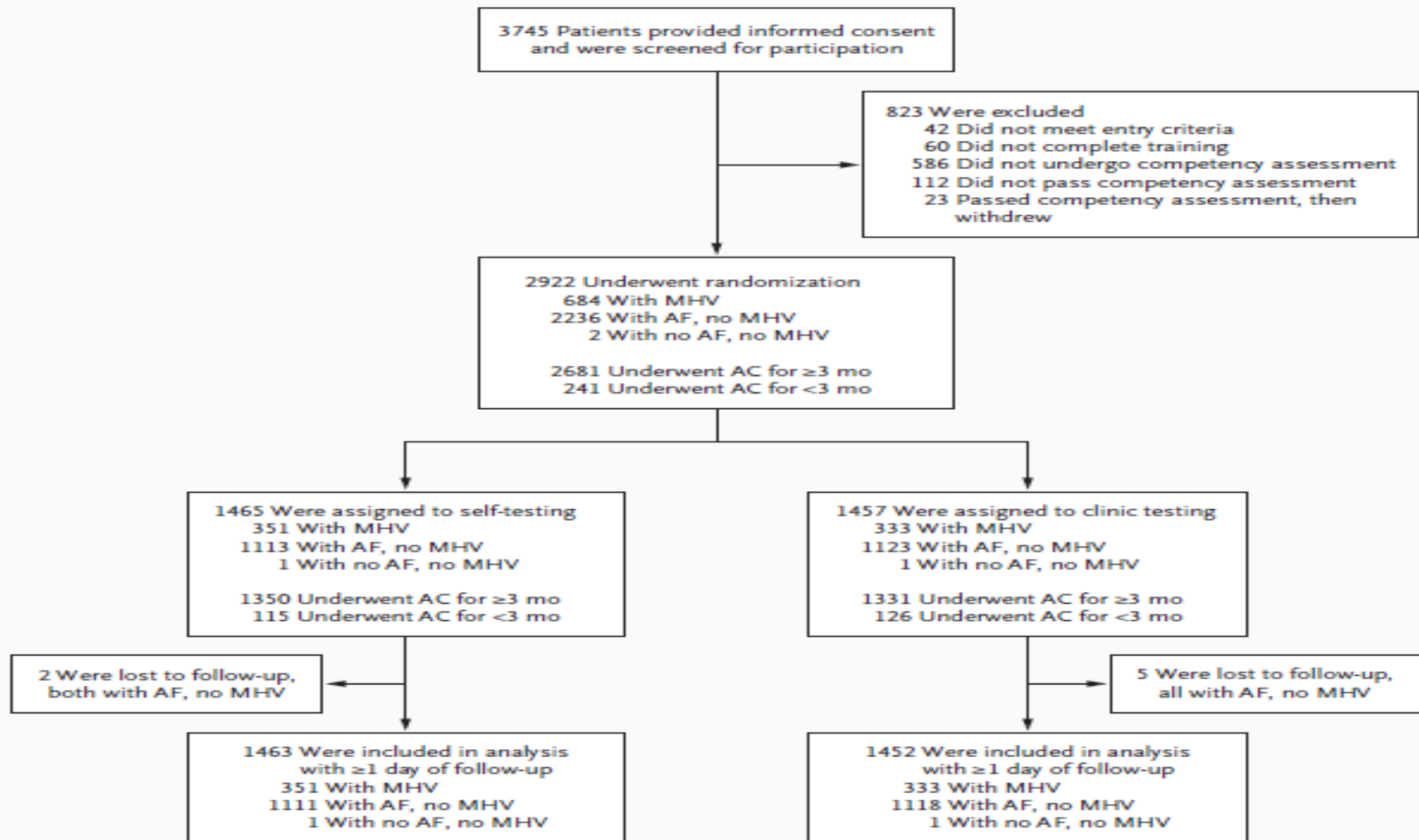


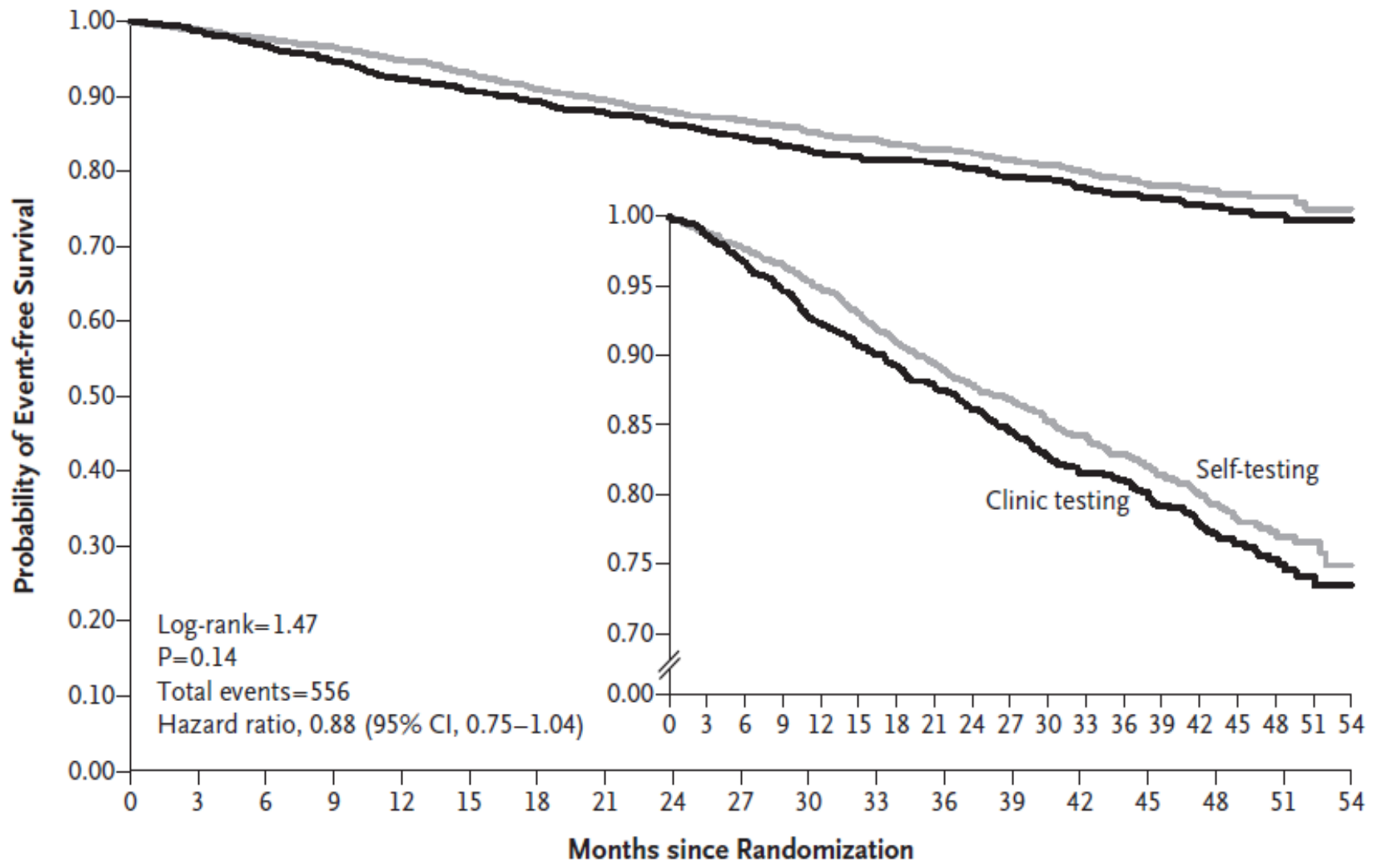
Table 1. Baseline Characteristics of the Study Patients, According to Treatment Group.*

Characteristic	Self-Testing Group (N = 1465)	Clinic-Testing Group (N = 1457)	P Value
Male sex — no. of patients (%)	1440 (98)	1431 (98)	0.87
Age — yr			
Total study population	66.6±9.7	67.4±9.4	<0.05
Patients with MHV †	62.4±10.4	64.2±9.7	0.02
Patients with AF, without MHV †	67.9±9.1	68.3±9.1	0.30
Range	23–89	33–99	
Race or ethnic group — no. of patients (%) ‡			
Hispanic	108 (7)	90 (6)	0.20
White	1347 (92)	1347 (92)	0.61
Black	94 (6)	77 (5)	0.19
Highest level of education — no. of patients (%)			0.10
Grades 1–8	57 (4)	62 (4)	
Grades 9–11	96 (7)	123 (8)	
High-school graduate	450 (31)	412 (28)	
Some college but no degree	485 (33)	447 (31)	
Undergraduate degree	261 (18)	298 (20)	
Postgraduate degree	116 (8)	115 (8)	
No. of household members	2.1±1.0	2.1±1.0	0.62
Transported to clinic (did not drive self) — no. of patients (%)	228 (16)	229 (16)	0.91
Months of anticoagulation treatment — no. of patients (%)			0.39
<3	115 (8)	126 (9)	
3–6	85 (6)	99 (7)	
>6–12	97 (7)	108 (7)	
>12	1168 (80)	1124 (77)	
Cardiac disorders — no. of patients (%)			
AF	1201 (82)	1221 (84)	0.19
AF without MHV	1113 (76)	1123 (77)	
MHV	351 (24)	333 (23)	0.48
Aortic valve	278 (19)	256 (18)	0.33
Mitral valve	91 (6)	89 (6)	0.91
Arrhythmia (other than AF)	158 (11)	160 (11)	0.87
Congestive heart failure	404 (28)	434 (30)	0.19
Angina	241 (16)	256 (18)	0.42

Table 1. (Continued.)

Characteristic	Self-Testing Group (N = 1465)	Clinic-Testing Group (N = 1457)	P Value
CHADS ₂ score for patients who had AF without MHV — no./total no. (%)			0.42
0	128/1113 (12)	110/1123 (10)	
1	323/1113 (31)	328/1123 (29)	
2	327/1113 (32)	357/1123 (32)	
3	199/1113 (17)	208/1123 (19)	
4	96/1113 (6)	82/1123 (7)	
5	34/1113 (2)	36/1123 (3)	
6	6/1113 (<1)	2/1123 (<1)	
Mean CHAD ₂ score	1.94	1.95	
Diabetes mellitus — no. of patients (%)	472 (32)	495 (34)	0.31
Hypertension — no. of patients (%)	1041 (71)	1010 (69)	0.31
Previous stroke — no. of patients (%)	136 (9)	140 (10)	0.76
Weekly warfarin dose — mg			
Mean	37.1 (16.3)	36.1 (15.9)	0.16
Median	35	35	
Range	3–135	5–112	
Antiplatelet medication — no. of patients (%)			
Aspirin	397 (27)	391 (27)	0.87
Clopidogrel	24 (2)	20 (1)	0.56
Ticlopidine	0	1 (<1)	0.50
Amiodarone	119 (8)	112 (8)	0.66

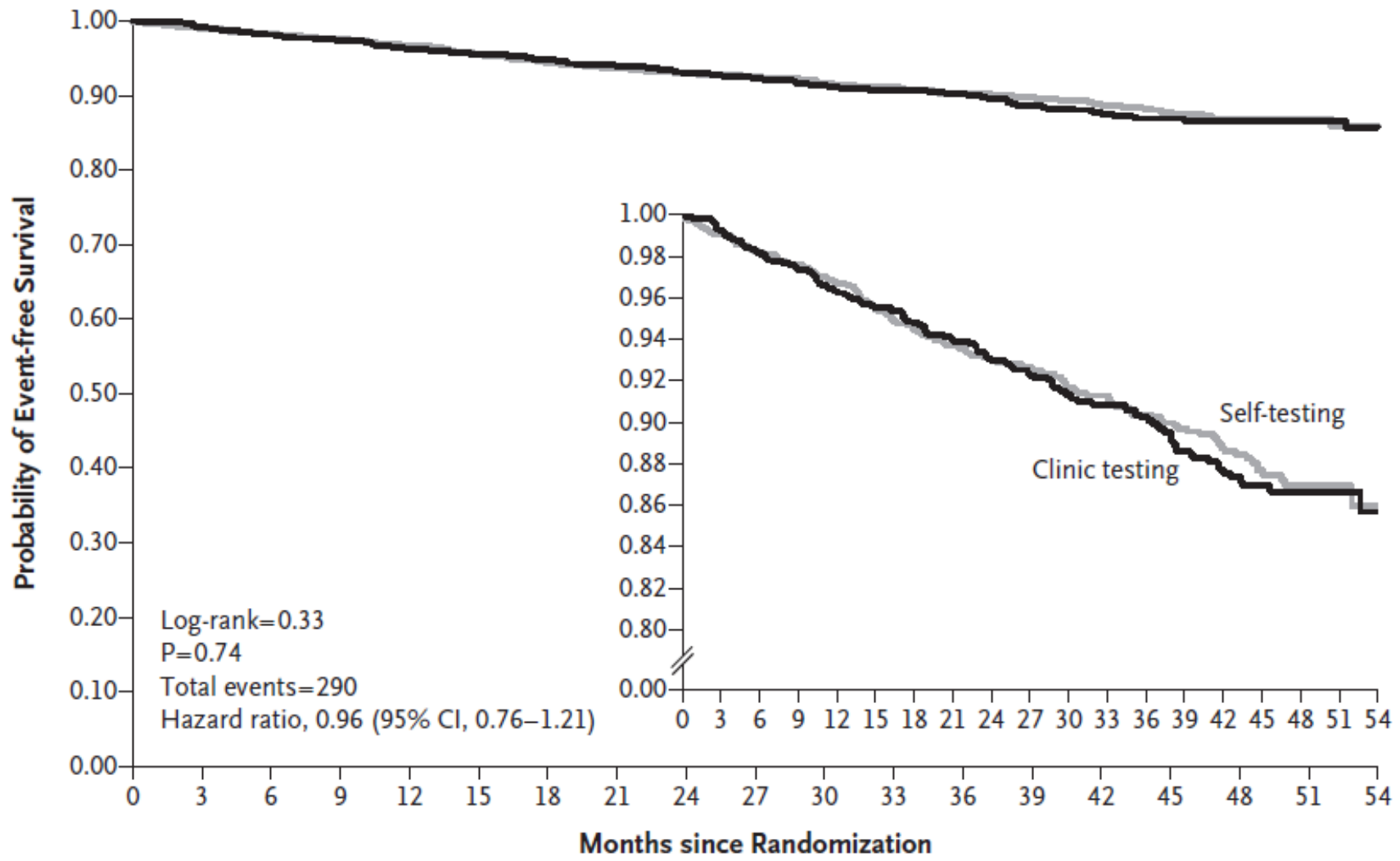
A First Event



No. at Risk

Self-testing	1465	1437	1407	1377	1339	1309	1268	1240	1175	1103	1011	904	770	633	532	400	274	137	48
Clinic testing	1457	1414	1356	1306	1252	1220	1179	1144	1085	1007	928	808	684	533	460	358	227	119	46

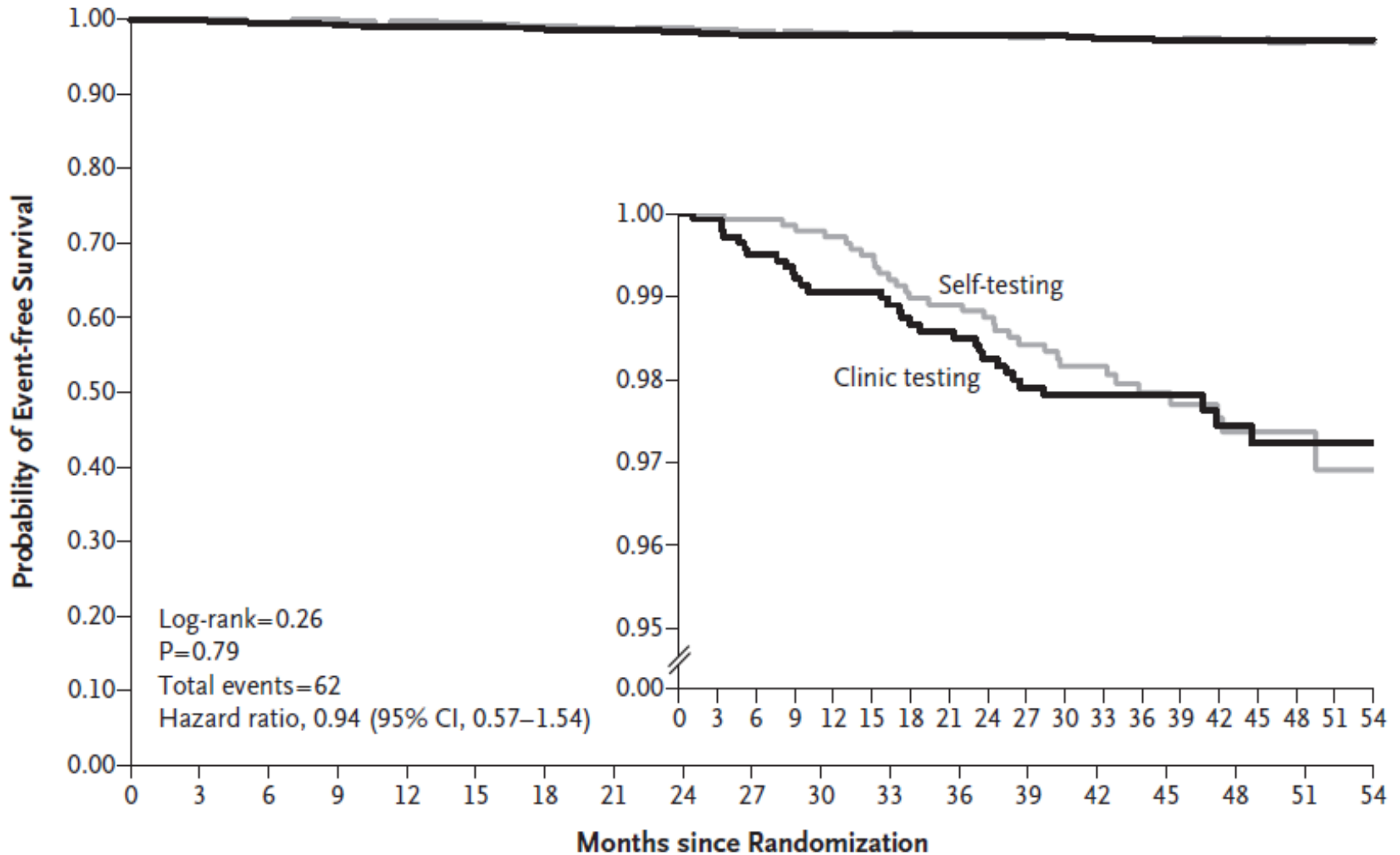
C First Major Bleeding Episode



No. at Risk

Self-testing	1465	1437	1407	1377	1341	1311	1275	1247	1183	1110	1018	911	776	638	537	404	276	139	49
Clinic testing	1457	1415	1363	1316	1263	1231	1191	1156	1099	1021	942	820	695	542	468	365	233	123	47

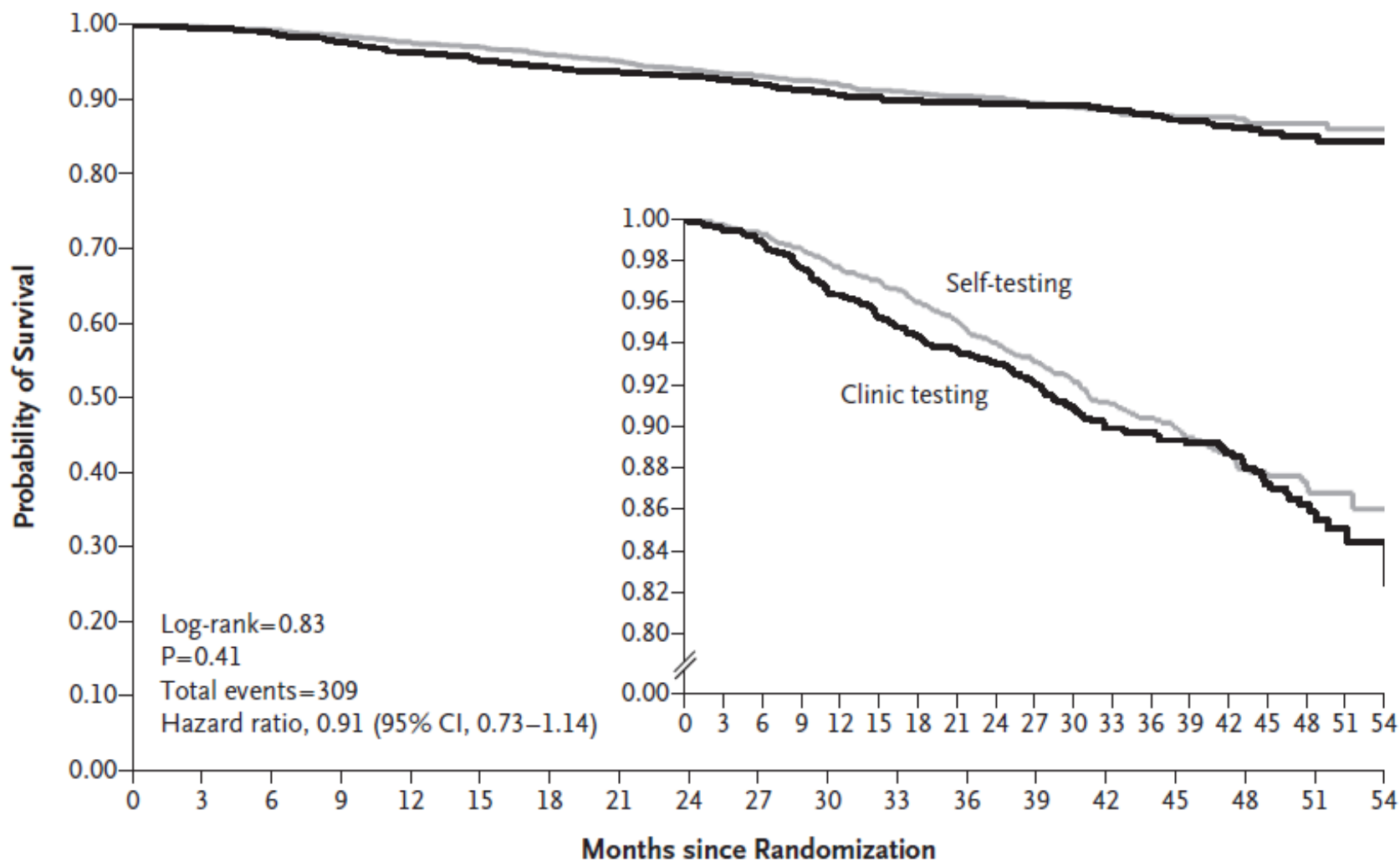
B First Stroke



No. at Risk

Self-testing	1465	1448	1427	1402	1374	1358	1325	1306	1243	1169	1082	970	832	687	584	449	308	153	53
Clinic testing	1457	1423	1378	1335	1294	1270	1233	1207	1155	1079	1005	880	751	598	519	408	267	139	53

D Death



No. at Risk

Self-testing	1465	1448	1428	1403	1377	1362	1336	1316	1254	1180	1092	980	840	694	592	457	312	156	54
Clinic testing	1457	1424	1385	1344	1306	1282	1248	1221	1171	1097	1024	898	767	611	531	419	275	145	56

Table 2. Primary and Secondary End Points, Clinical Events, and Adherence to Test Frequency, According to Treatment Group.*

End Point	Self-Testing Group (N = 1463)†	Clinic-Testing Group (N = 1452)‡	Unadjusted Hazard Ratio (95% CI)	P Value
Primary end point‡				
Stroke, major bleeding, or death	271 (19)	285 (20)	0.88 (0.75 to 1.04)	0.14
Stroke§	31 (2)	31 (2)	0.95 (0.58 to 1.56)	0.83
Major bleeding§	147 (10)	143 (10)	0.98 (0.78 to 1.23)	0.83
Death	152 (10)	157 (11)	0.91 (0.73 to 1.12)	0.41
Difference between Self-Testing Group and Clinic-Testing Group (95% CI)¶				
Secondary end points¶				
Time within target therapeutic range over entire follow-up — %	66.2±14.2	62.4±17.1	3.8 (2.7 to 5.0)	<0.001
DASS score at 2 yr**	46.8±16.3	49.2±18.0	-2.4 (-3.9 to -1.0)	0.002
Cumulative gain in health utilities at 2 yr — yr††	1.204±0.619	1.049±0.575	0.155 (0.111 to 0.198)	<0.001
Health care costs at 2 yr — \$	25,754±35,673	24,505±31,827	1,249 (-1,205 to 3,703)	0.32
Clinical events‡‡				
Patients with 1 or more events — no. (%)				
Nonstroke thrombotic event§§	34 (2)	41 (3)		0.40
Myocardial infarction	27 (2)	18 (1)		0.18
Minor bleeding, reported	315 (22)	254 (17)		<0.01
Primary events — no. of events (annual rate)¶¶				
Total	365 (8.1)	389 (9.2)		
Stroke	33 (0.7)	31 (0.7)		0.61
Major bleeding	180 (4.0)	199 (4.7)		0.60
Death	152 (3.4)	157 (3.7)		0.73
Secondary events — no.				
Nonstroke thrombotic event§§	38	52		0.22
Myocardial infarction	29	18		0.06
Minor bleeding episode, reported	540	401		<0.001

CONCLUSION

- Pas de différence significative des taux de ces évènements chez les deux groupes de patients.

- Le dosage à domicile a permis d'améliorer le nombre de tests dans la fourchette INR cible, la qualité de vie, et la satisfaction des patients