

# IMPACT OF DIABETES ON ENDOLEAKS AND RE- INTERVENTION AFTER EVAR

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**70<sup>TH</sup> ESCVS CONGRESS  
& 7<sup>TH</sup> IMAD MEETING**

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# DISCLOSURE

Collaborative Project – large-scale  
focused research project  
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# AIM OF THE STUDY

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TO IDENTIFY THE IMPACT OF  
DIABETES ON OUTCOME OF THE  
ABDOMINAL AORTIC ANEURYSM  
(AAA) AFTER EVAR

# MATERIAL & METHODS (RETROSPECTIVE STUDY)

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**324 consecutive patients**

( Between March 1998 and October 2016)

**248 met inclusion criteria**

According to Belgian Health Care system (INAMI) requests, all patients followed up by CT at 3th month ,first anniversary of the EVAR and during three years by one CT exams. The following years, they followd by CT or US.

- ▶ Based on their diabetes status, patients were divided in two groups “Diabetics” and “Non-diabetics” and compared.

# CHARACTERISTICS OF THE PATIENTS

	<b>Diabetics</b> 57 (23%)	<b>NON diabetics</b> 191 (77%)	<b>P-value</b>
<b>Gender</b>	56 men (98,2%) et 1 women (1,8%)	185 men (96,9%) et 6 women (3,1%)	0,99
<b>Age (mean)</b>	72	73,7	0,16
<b>Smoking history</b>	32 former smokers (56,1%) et 18 current smokers (31,6%)	108 former smokers (56,8%) et 52 current smokers (27,4%)	0,73
<b>HBP</b>	44 (78,6%)	143 (74,9%)	0,57
<b>COPD</b>	24 (42,1%)	62 (33,7%)	0,25
<b>RI</b>	21 (36,8%)	62 (33,0%)	0,59
<b>Dyslipidemia</b>	46 (82,1%)	119 (62,6%)	0,0063
<b>Stroke or TIA</b>	10 (17,5%)	19 (9,9%)	0,12

**Dyslipidemia**

**46 (82,1%)**

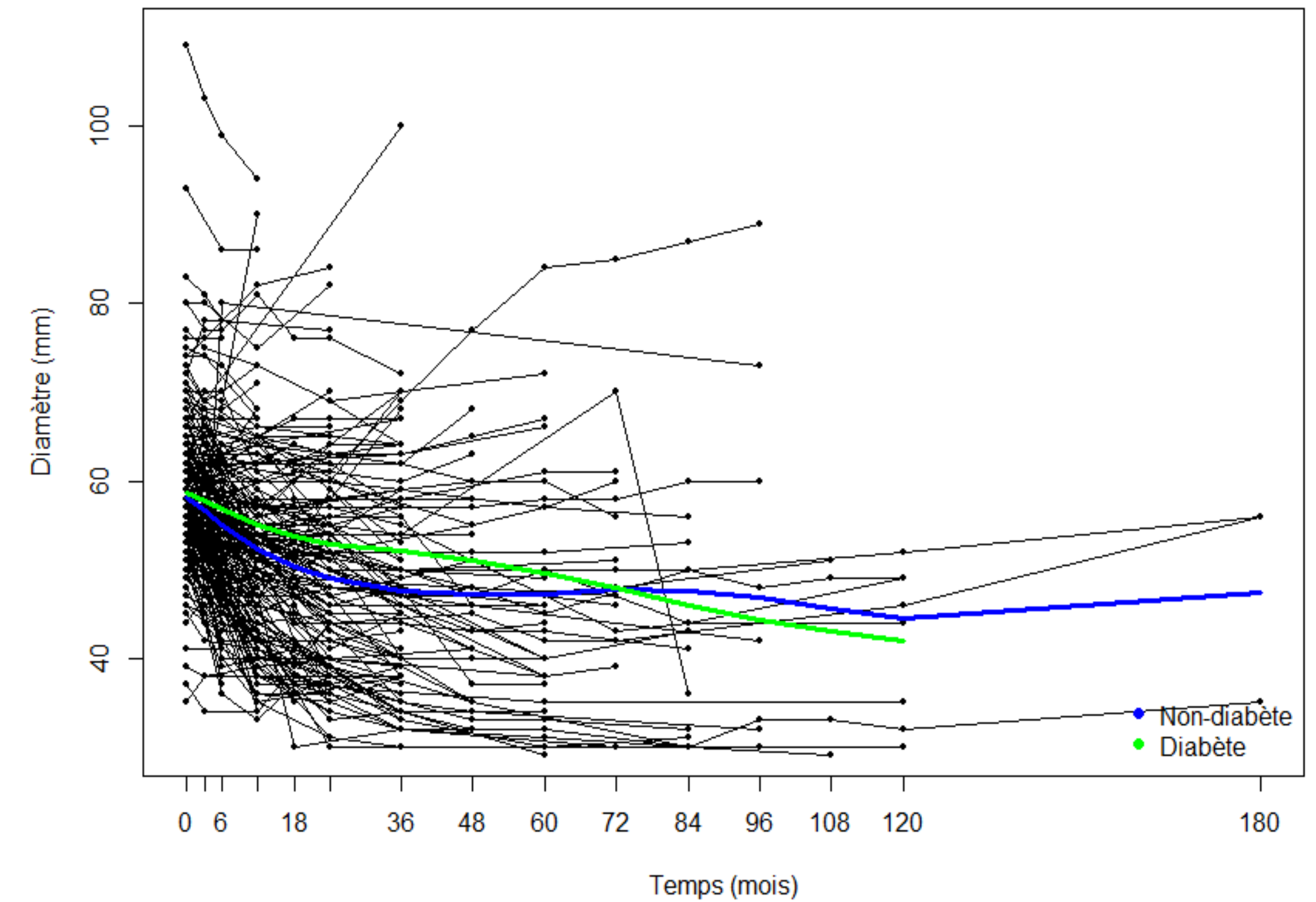
**119 (62,6%)**

**0,0063**

<b>Hypolipidemic</b>			0,21
- Statine	38 (66,7%)	102 (53,4%)	
- Fibrate	2 (3,5%)	9 (4,7%)	
<b>Anti-aggregants</b>	51 (89,5%)	180 (94,2%)	0,23
<b>Anti-coagulants</b>	6 (10,5%)	14 ( 7,3%)	0,42
<b>Aneurysm diameters (mean)</b>	59,4 mm	58,1 mm	0,32
<b>Intervention date</b>	NA	NA	0,37
<b>Endograft type</b>	NA	NA	0,76
<b>Endograft configuration</b>	NA	NA	0,11

# OUTCOME OF THE PATIENTS

	Diabetics # (%)	NON diabetics # (%)	IC 95%	P-value
<b>Global survival</b>	92,3 months	93,5 months	0.54 – 1.64	0.84
<b>Death</b>				<b>0,0092</b>
-All cause mortality	15 (26,3%)	87 (45,5%)		
-Intervention related death	0 (0%)	2 (1%)		
<b>Mean follow-up period</b>	25,3 months	35,9 months		0,23
<b>Aneurysm sac shrinkage during the first 60 months</b>	slope : $-0.18 \pm 0.027$	slope : $-0.24 \pm 0.013$		0.059



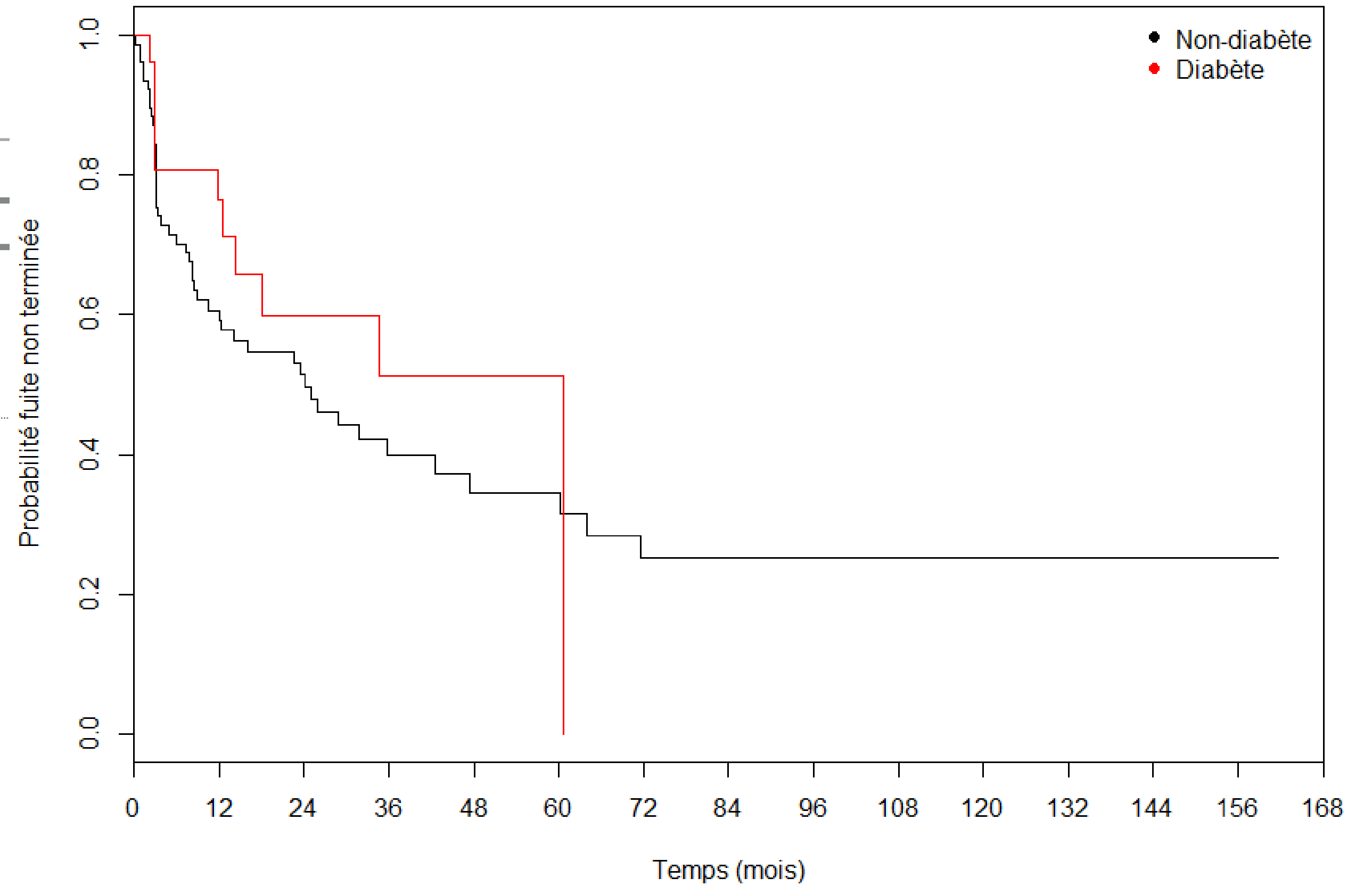
<b>Aneurysm sac shrinkage during the first 60 months</b>	slope : $-0.18 \pm 0.027$	slope : $-0.24 \pm 0.013$		<b>0.059</b>
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<b>Aneurysm sac enlargement (≥5mm)</b>	5 (8,8%)	17 (8,9%)	0.41–3.05	0.83
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# OUTCOME OF THE

## OCCURRENCE AND

	Diabetics # (%)
<b>Endoleaks</b>	
- Any endoleaks	25 (43,9%)
- Type 1	2 (3,5%)
- Type 1A	1 (1,8%)
- Type 1B	2 (3,5%)
- Type 2	24 (42,1%)
- Type 2A	15 (26,8%)
- Type 2B	8 (14,3%)
- Type 3	1 (1,8%)
- Type 3A	1 (1,8%)
- Type 3B	0 (0%)



<b>Median life length of endoleak</b>	60,7 months	24,1 months	0.37 – 1.37	0,31
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endoleak				
<b>Reintervention</b>				
Any reintervention	7 (12,3%)	21 (10,9%)		
Embolisation	5 (8,7%)	7 (3,6%)		0,10
Stenting	1 (1,7%)	7 (3,6%)		0,63
Open	1 (1,7%)	7 (3,6%)		0,63



# OUTCOME OF THE PATIENTS

## TIME OF ENDOLEAKS OCCURENCE (108 ENDOLEAKS)

	<b>≤ 3 month # (%)</b>	<b>3 month - 12 month # (%)</b>	<b>12 month - 24 month # (%)</b>	<b>24 month- 36 month # (%)</b>	<b>≥ 36 month # (%)</b>
<b>Entire cohort</b>	67 (62%)	18 (16,7%)	7 (6,5%)	5 (4,6%)	11 (10,2%)
<b>Non diabetics</b>	51 (63,0%)	12 (14,8%)	6 (7,4%)	4 ( 4,9%)	8 (9,9%)
<b>Diabetics</b>	16 (59,3%)	6 (22,2%)	1 (3,7%)	1 (3,7%)	3 (11,1%)



# COX REGRESSION FOR ENDOLEAK DURATION

Parameters	Parameter Estimate	Standard Error	Pr > ChiSq	Hazard Ratio	95% Hazard Ratio Confidence Limits	
<b>Diabetes</b>	<b>-2.51973</b>	<b>1.21439</b>	<b>0.0380</b>	<b>0.080</b>	<b>0.007</b>	<b>0.870</b>
Date of surgery	0.06922	0.04755	0.1455	1.072	0.976	1.176
Age at the time of surgery	0.0006928	0.02131	0.9741	1.001	0.960	1.043
Gender	-1.08791	1.14545	0.3422	0.337	0.036	3.181
Former smoker	0.49792	0.46898	0.2884	1.645	0.656	4.125
Active smoker	0.48726	0.58024	0.4010	1.628	0.522	5.076
HBP	0.41434	0.42967	0.3349	1.513	0.652	3.513
COPD	0.06099	0.35294	0.8628	1.063	0.532	2.123
RI	-0.03402	0.36459	0.9257	0.967	0.473	1.975
<b>Dyslipidemia</b>	<b>1.10222</b>	<b>0.40109</b>	<b>0.0060</b>	<b>3.011</b>	<b>1.372</b>	<b>6.608</b>
Stroke or TIA	0.15024	0.47067	0.7496	1.162	0.462	2.923
AMI	0.13609	0.39932	0.7333	1.146	0.524	2.506
PVD	0.39648	0.53422	0.4580	1.487	0.522	4.236
Angina	-0.67267	0.60323	0.2648	0.510	0.156	1.665
<b>B-blockers</b>	<b>-0.76741</b>	<b>0.36505</b>	<b>0.0355</b>	<b>0.464</b>	<b>0.227</b>	<b>0.949</b>
Statine	-0.25006	0.39014	0.5216	0.779	0.363	1.673
Fibrate	-1.20542	1.15629	0.2972	0.300	0.031	2.889
Anti-aggregant	0.43432	0.77786	0.5766	1.544	0.336	7.091
Anti-coagulant	1.07969	0.70849	0.1275	2.944	0.734	11.802
Metformine	0.75123	0.89240	0.3999	2.120	0.369	12.186
<b>Sulfonylureas</b>	<b>2.13222</b>	<b>1.05119</b>	<b>0.0425</b>	<b>8.434</b>	<b>1.075</b>	<b>66.189</b>
Other anti-diabetic treatment	1.57486	1.29665	0.2245	4.830	0.380	61.328

# OUTCOME OF THE PATIENTS

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## REINTERVENTIONS

	<b>Diabetics</b> # (%)	<b>NON diabetics</b> # (%)	<b>IC 95%</b>	<b>P-value</b>
<b>Reintervention</b>				
Any reintervention	7 (12,3%)	21 (10,9%)		
Embolisation	5 (8,7%)	7 (3,6%)		0,10
Stenting	1 (1,7%)	7 (3,6%)		0,63
Open	1 (1,7%)	7 (3,6%)		0,63

# CONCLUSION

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- ▶ Diabetes does not seem to have an impact on occurrence of endoleaks. However, it increases life expectancy of endoleaks, whereas sulfonylureas and dyslipidemia decreases it.
- ▶ Furthermore, diabetes seems to slow down the aneurysm sac shrinkage.
- ▶ Diabetes not seem to be more associated with reinterventions.