



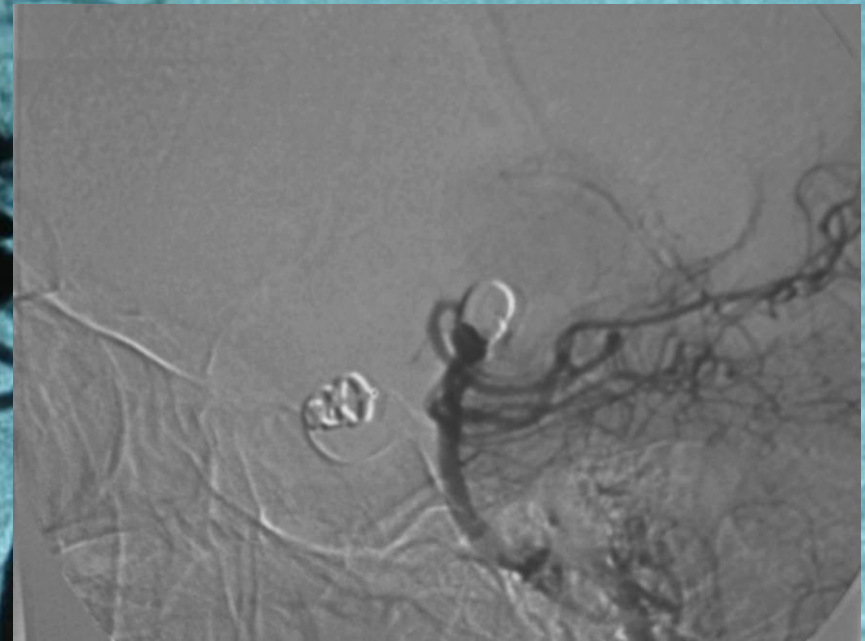
ANEURISMAS CEREBRAIS CLIP ? COIL ?

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ANEURISMAS CEREBRAIS

- Clip? Coil?
- Clip ou Coil
- Clip e Coil
- Coil + Clip
- Coil em vez de Clip
- Clip em vez de Coil
- Clip? Coil?





EXCLUSION IS THE AIM IN TREATING AN ANEURYSM

REBLEEDING IS MORE FREQUENT AFTER COIL THAN AFTER CLIP

LATE RECANALIZATION AND ANEURYSM RECCURENCE. A RISK THAT DOES NOT EXISTS WITH SURGERY

IT'S NOT NICE TO OPERATE ON A COILED ANEURYSM

INDIVIDUAL RISK FACTORS ARE NOT THE SAME FOR CLIPPING OR COILING AN ANEURYSM

VASOSPASM AND HYDROCEPHALUS CAN BE PREVENTED WITH SURGERY

IF BASILAR TIP ANEURYSMS ARE BETTER FOR COILING WHY MIDDLE CEREBRAL BIFURCATION ONES ARE NOT?

“ISAT” RESULTS SHOULD NOT BE ACCEPTED AS A RULE FOR THE TREATMENT OF RUPTURED ANEURYSMS

DECISION MAKING IN UNRUPTURED ANEURYSMS IS THE SAME AS IN RUPTURED ONES

PERSONAL AND CENTER EXPERIENCE ARE AS IMPORTANT AS CLINICAL FEATURES IN ANEURYSMAL SAH TREATMENT

TECHNOLOGICAL AND TECHNICAL IMPROVEMENTS ARE BIGGER AND QUICKER IN COILING THAN IN CLIPPING

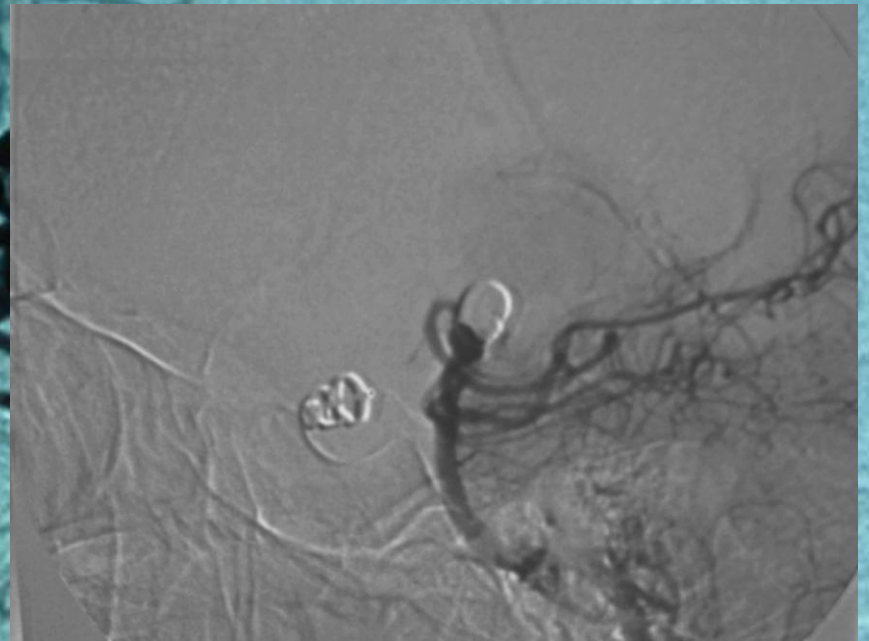
ANEURISMAS CEREBRAIS

The background of the slide is a cerebral angiogram, a medical image showing the blood vessels of the brain. The vessels are dark against a lighter, textured background. A prominent feature is a large, rounded aneurysm (a bulge in the vessel wall) located in the lower central part of the image. The vessels branch out in various directions, creating a dense network.

- Morbilidade e mortalidade: idade e estado clínico; estado do cérebro; estado das artérias; localização, características do aneurisma
- Eficácia
- Durabilidade

ANEURISMAS CEREBRAIS

- ISAT
- Virtudes e reservas



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International Subarachnoid Aneurysm Trial (ISAT) of neurosurgical clipping versus endovascular coiling in 2143 patients with ruptured intracranial aneurysms: a randomised trial

Interpretation In patients with a ruptured intracranial aneurysm, for which endovascular coiling and neurosurgical clipping are therapeutic options, the outcome in terms of survival free of disability at 1 year is significantly better with endovascular coiling. The data available to date suggest that the long-term risks of further bleeding from the treated aneurysm are low with either therapy, although somewhat more frequent with endovascular coiling.

Lancet 2002; **360**: 1267–74

ANEURISMAS CEREBRAIS

International Subarachnoid Aneurysm Trial (ISAT) of neurosurgical clipping versus endovascular coiling in 2143 patients with ruptured intracranial aneurysms: a randomised trial

- Taxa de dependência ou morte: 23,7% com coil, 30,6% com clip
- redução do risco absoluto 6,9% (7,4%)
- redução do risco relativo 22,6% (23,9%)

ANEURISMAS CEREBRAIS

- ISAT

incompleto

heterogeneidade

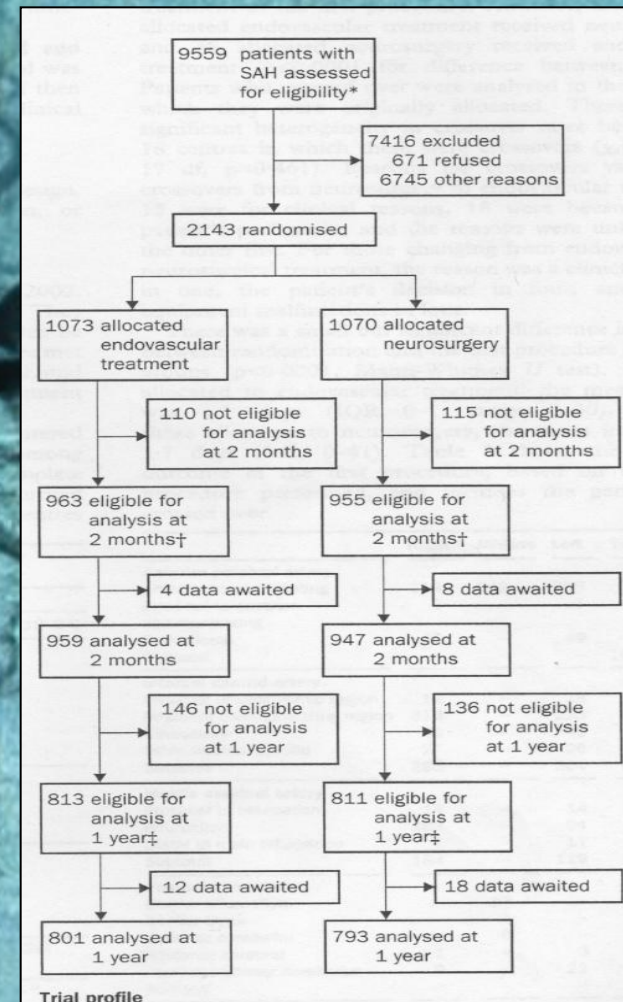
viés de selecção

selecção de pessoal

tempos tratamento

cross-over

taxa re-hemorragia

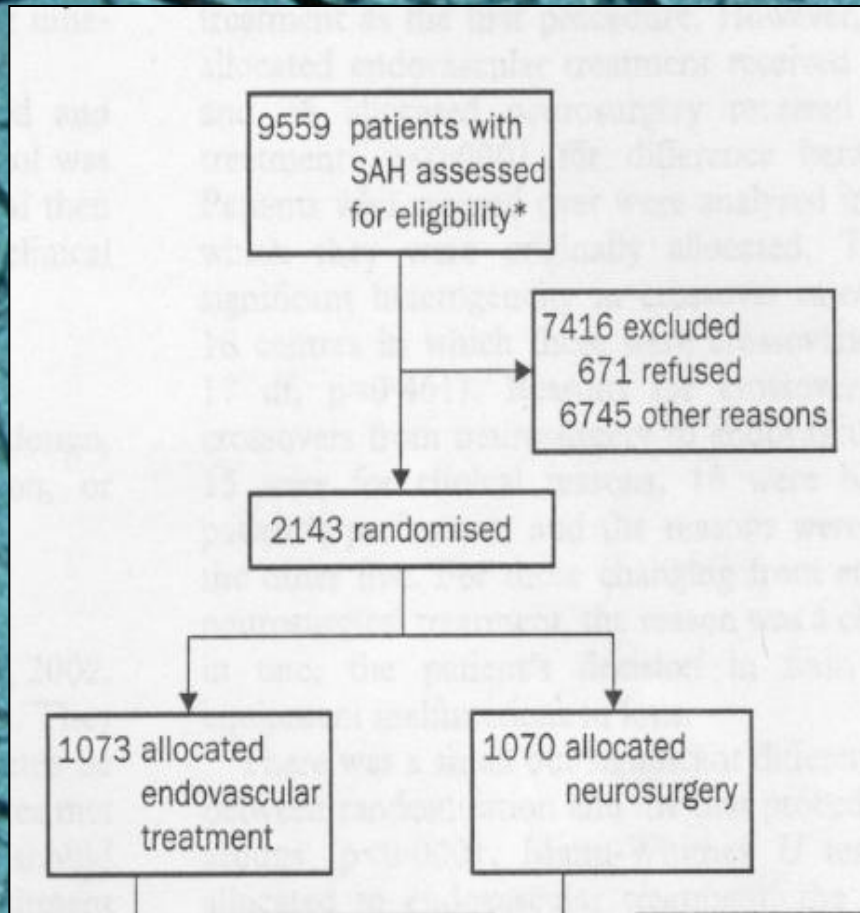


ANEURISMAS CEREBRAIS

The background of the slide is a blue-tinted angiogram of a brain. It shows a complex network of dark, branching blood vessels. A prominent feature is a large, dark, rounded mass (aneurysm) protruding from one of the vessels in the center of the image. The overall appearance is that of a medical scan used to visualize the brain's vasculature.

- **Heterogeneidade** - os doentes eram avaliados por um neurocirurgião e um neurorradiologista em cada um dos Centros participantes. A elegibilidade para serem randomizados era determinada com base nas *avaliações subjectivas* e na *concordância* de ambos de que tanto o tratamento cirúrgico como o endovascular seriam opções aceitáveis.

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menos de ¼ dos doentes elegíveis foi randomizado, por uma óbvia preferência baseada na experiência clínica.

3615 - cirurgia

2737 - coils

1064 - ?

ANEURISMAS CEREBRAIS

The background of the slide is a medical angiogram of a brain, showing a complex network of dark, branching blood vessels against a light blue background. The vessels vary in thickness and form, with some showing slight bulges or irregularities.

- **Viés de selecção**

“Cherry picking” - processo pelo qual, de uma determinada população de doentes elegíveis, apenas um subgrupo é randomizado, o que causa um viés de selecção e retira poder estatístico ao estudo.

ANEURISMAS CEREBRAIS

The background of the slide is a cerebral angiogram, a medical image showing the blood vessels of the brain. The vessels are dark against a lighter, textured background. A prominent feature is a large, dark, rounded aneurysm (a bulge in the vessel wall) located in the central part of the image, where several vessels meet. The overall color scheme is a monochromatic blue-green.

- Se não foram todos randomizados então os resultados deste estudo não se podem generalizar para o tratamento dos aneurismas em geral.
- Jovens, 97,3% circulação anterior, 93% < 10mm, 88% bom estado clínico (22% HSA's)

ANEURISMAS CEREBRAIS



- **Seleccção de pessoal** - neurocirurgiões “com experiência” / neurorradiologistas com mínimo de 30 aneurismas tratados. Capacidade técnica de execução não valorizada (idade, tamanho, localização, estado clínico).
3,4% re-operados...

ANEURISMAS CEREBRAIS

- **Seleção de pessoal - sem necessidade de demonstrar resultados em cada um dos Centros (43)**

> 200 = 3

> 100 = 1

> 50 = 11

> 25 = 4

< 25 = 24 (55,8%) (13 < 10)

ANEURISMAS CEREBRAIS

- Tempo tratamento
- Angiografia
- Cirurgia - 1,7 dias
Coils - 1,1 dias
($p < 0.0001$)

	Endovascular treatment	Neurosurgery
Before first procedure	14 (7)	23 (16)
After procedure up to 30 days	20 (10)	6 (3)
30 days to 1 year	6 (5)	4 (2)
Total up to 1 year	40 (22)	33 (21)
After 1 year	2 (0)	0

Numbers in parentheses indicate deaths. All deaths from rebleeding occurred within first week except for one at 20 days. Rebleeding was confirmed on CT scanning in all cases.

Table 7: **Non-procedural bleeding from target aneurysm**

ANEURISMAS CEREBRAIS



- **Cross-over**

9 coils → cirurgia

38 cirurgia → coils
(4,7%)

análise pelo grupo de randomização

ANEURISMAS CEREBRAIS

- Taxa de re-hemorragia

	Endovascular treatment	Neurosurgery
Before first procedure	14 (7)	23 (16)
After procedure up to 30 days	20 (10)	6 (3)
30 days to 1 year	6 (5) 3,2%	4 (2) 1,3%
Total up to 1 year	40 (22) 2,4%	33 (21) (>50%)
After 1 year	2 (0)	0

Numbers in parentheses indicate deaths. All deaths from rebleeding occurred within first week except for one at 20 days. Rebleeding was confirmed on CT scanning in all cases.

Table 7: Non-procedural bleeding from target aneurysm

	Endovascular treatment (n = 1073)	Neurosurgical treatment (n= 1070)	Relative risk (95% CI)
Before first procedure	17 (7)	28 (19)	0.60 (0.33-1.10)
After first procedure and before 30 days	20* (9)†	8 (4)	2.46 (1.09-5.57)
30 days to 1 year	8 (6)	3 (1)‡	2.64 (0.70-9.93)
Total during first year	45	39	1.15 (0.75-1.75)
After 1 year	7 (2) 0,75% ano	2 (2)§ 0,01% ano	

Numbers in parentheses indicate deaths within 30 days of re-bleeding. *1 patient bled from another aneurysm which was not recognised at the time of the first angiogram. †1 patient reclassified from first paper because date of death > 30 days. ‡1 patient reclassified from first paper because date of re-bleed < 30 days. §1 patient allocated neurosurgery opted for coiling.

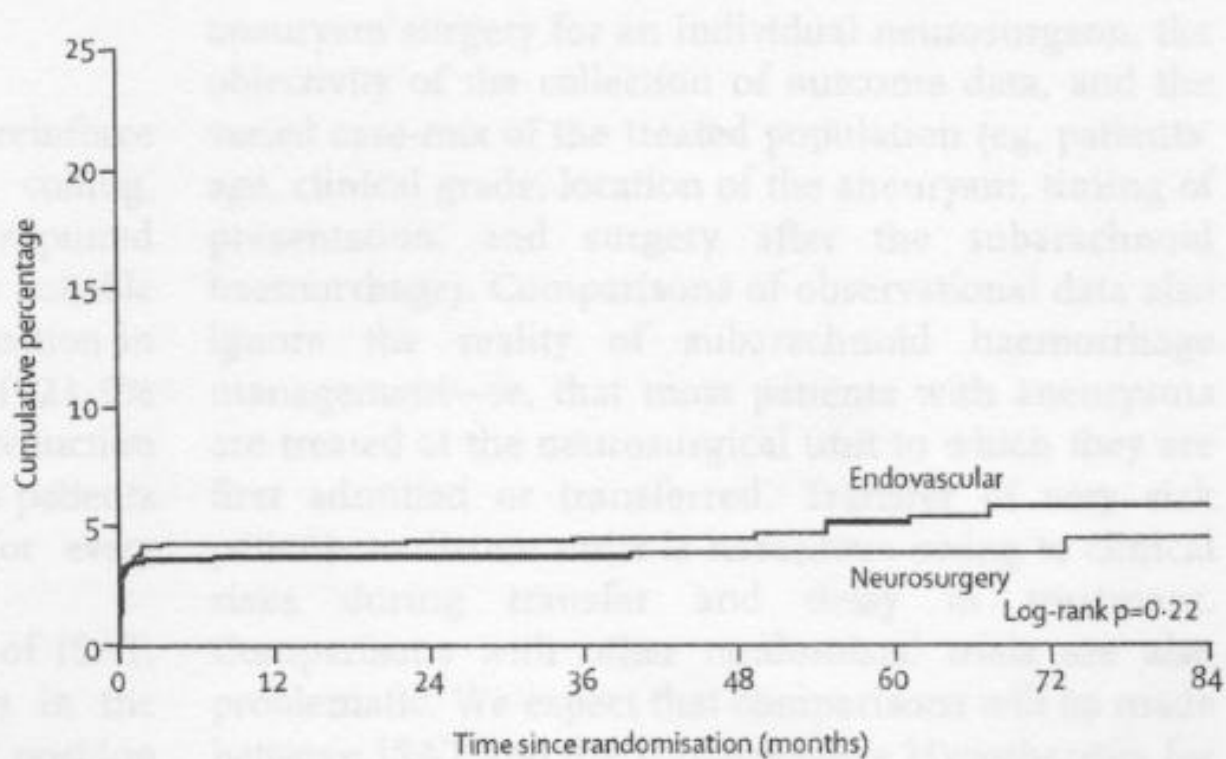
Table 5: Confirmed rebleeding from target aneurysm

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- **Taxa de re-hemorragia**
- re-hemorragia -70% escala de Rankin de 3 ou mais alto
- follow-up 3 anos - redução do risco absoluto nos tratados com coil passa para 4,19%, deixando de ser estatisticamente significativa
- 6 anos - 0,02% a favorecer a cirurgia
- 10 anos - 5.6% a favor da cirurgia, (p=0,002)

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Annual number at risk (rebleeding):

Endovascular	1073 (45)	953 (1)	865 (1)	698 (0)	524 (3)	360 (2)	201 (0)	98
Neurosurgery	1070 (39)	926 (0)	821 (0)	652 (1)	495 (0)	332 (0)	188 (1)	95

Figure 3: Cumulative rebleeding risk from target aneurysm

ANEURISMAS CEREBRAIS

Outcome	Number of patients
Endovascular procedure	
Completed	1005 (92.5%)
Failed to catheterise target aneurysm	29 (2.7%)
Aneurysm catheterised but anatomy unsuitable	36 (3.3%)
Not attempted*	16 (1.5%)
Total	1086 (100%)
Neurosurgical procedure	
Clipped	968 (96.4%)
Wrapped	14 (1.4%)
Not completed (partial clipping or wrapping)	14 (1.4%)
Not attempted*	8 (0.8%)
Total	1004 (100%)

*Anaesthesia started but procedure not completed—eg, because of change in patient's condition or presence of severe vasospasm preventing immediate endovascular treatment.

Table 3: **Technical outcome of first procedure**

• 13%

• 3.4% *

ANEURISMAS CEREBRAIS

- Follow-up angiográfico
- Grau de oclusão
- Taxa de re-canalização

Outcome	Number of patients
Endovascular procedure	
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ANEURISMAS CEREBRAIS

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Total	1004 (100%)

*Anaesthesia started but procedure not completed—eg, because of change in patient's condition or presence of severe vasospasm preventing immediate endovascular treatment.

Table 3: Technical outcome of first procedure

	Number of patients (%)
Endovascular procedure	
Completed	1014 (92.6%)
Failed to catheterise target aneurysm	29 (2.6%)
Aneurysm catheterised but anatomy unsuitable	37 (3.4%)
Not attempted	? 15 (1.4%)
Total	1095 (100%)
Neurosurgical procedure	
Clipped	977 (96.5%)
Wrapped	? 13 (1.3%)
Not completed (partial clipping or wrapping)	14 (1.4%)
Not attempted	8 (0.8%)
Total	1012 (100%)

*The results relate to the first procedure done, not the random treatment assignment.

Table 1: Technical outcome of first procedure *

ANEURISMAS CEREBRAIS

	Endovascular treatment (n=959)	Neurosurgery (n=947)
Modified Rankin scale		
0 No symptoms	192 (20.0%)	138 (14.6%)
1 Minor symptoms	275 (28.7%)	245 (25.9%)
2 Some restriction in lifestyle	248 (25.9%)	219 (23.1%)
<i>(0-2 inclusive)</i>	<i>715 (74.6%)</i>	<i>602 (63.6%)</i>
3 Significant restriction in lifestyle	95 (9.9%)	172 (18.2%)
4 Partly dependent	29 (3.0%)	39 (4.1%)
5 Fully dependent	48 (5.0%)	55 (5.8%)
6 Dead	72 (7.5%)	79 (8.3%)
<i>(3-6 inclusive)</i>	<i>244 (25.4%)</i>	<i>345 (36.4%)</i>

Data in Italics are primary outcome.

Table 5: **Outcome at 2 months in 1906 patients**

	Endovascular treatment (n=801)	Neurosurgery (n=793)
Modified Rankin scale		
0 No symptoms	207 (25.8%)	152 (19.2%)
1 Minor symptoms	217 (27.1%)	220 (27.7%)
2 Some restriction in lifestyle	187 (23.4%)	178 (22.4%)
<i>(0-2 inclusive)</i>	<i>611 (76.3%)</i>	<i>550 (69.4%)</i>
3 Significant restriction in lifestyle	80 (10.0%)	106 (13.4%)
4 Partly dependent	24 (3.0%)	32 (4.0%)
5 Fully dependent	21 (2.6%)	25 (3.2%)
6 Dead	65 (8.1%)	80 (10.1%)
<i>(3-6 inclusive)</i>	<i>190 (23.7%)</i>	<i>243 (30.6%)</i>

Data in Italics are primary outcome.

Table 6: **Outcome at 1 year in 1594 patients (primary outcome)**

ANEURISMAS CEREBRAIS

	2 month outcome		1 year outcome	
	Endovascular n=1065	Neurosurgery n=1063	Endovascular n=1063	Neurosurgery n=1055
Modified Rankin Scale				
0 No symptoms	203 (19.1%)	144 (13.6%)	260 (24.5%)	187 (17.7%)
1 Minor symptoms	310 (29.1%)	273 (25.7%)	301 (28.3%)	292 (27.7%)
2 Some restriction in lifestyle	274 (25.7%)	254 (23.8%)	252 (23.7%)	250 (23.7%)
(0-2 inclusive)	787 (73.9%)	671 (63.1%)	813 (76.5%)	729 (69.1%)
3 Significant restriction in lifestyle	107 (10.1%)	189 (17.8%)	107 (10.1%)	141 (13.4%)
4 Partly dependent	34 (3.2%)	46 (4.3%)	30 (2.8%)	42 (4.0%)
5 Fully dependent	62 (5.8%)	73 (6.9%)	28 (2.6%)	38 (3.6%)
6 Dead	75 (7.0%)	84 (7.9%)	85 (8.0%)	105 (9.9%)
(3-6 inclusive)	278 (26.1%)	392 (36.9%)	250 (23.5%)	326 (30.9%)

Table 2: Clinical outcome at 2 months and 1 year

ANEURISMAS CEREBRAIS

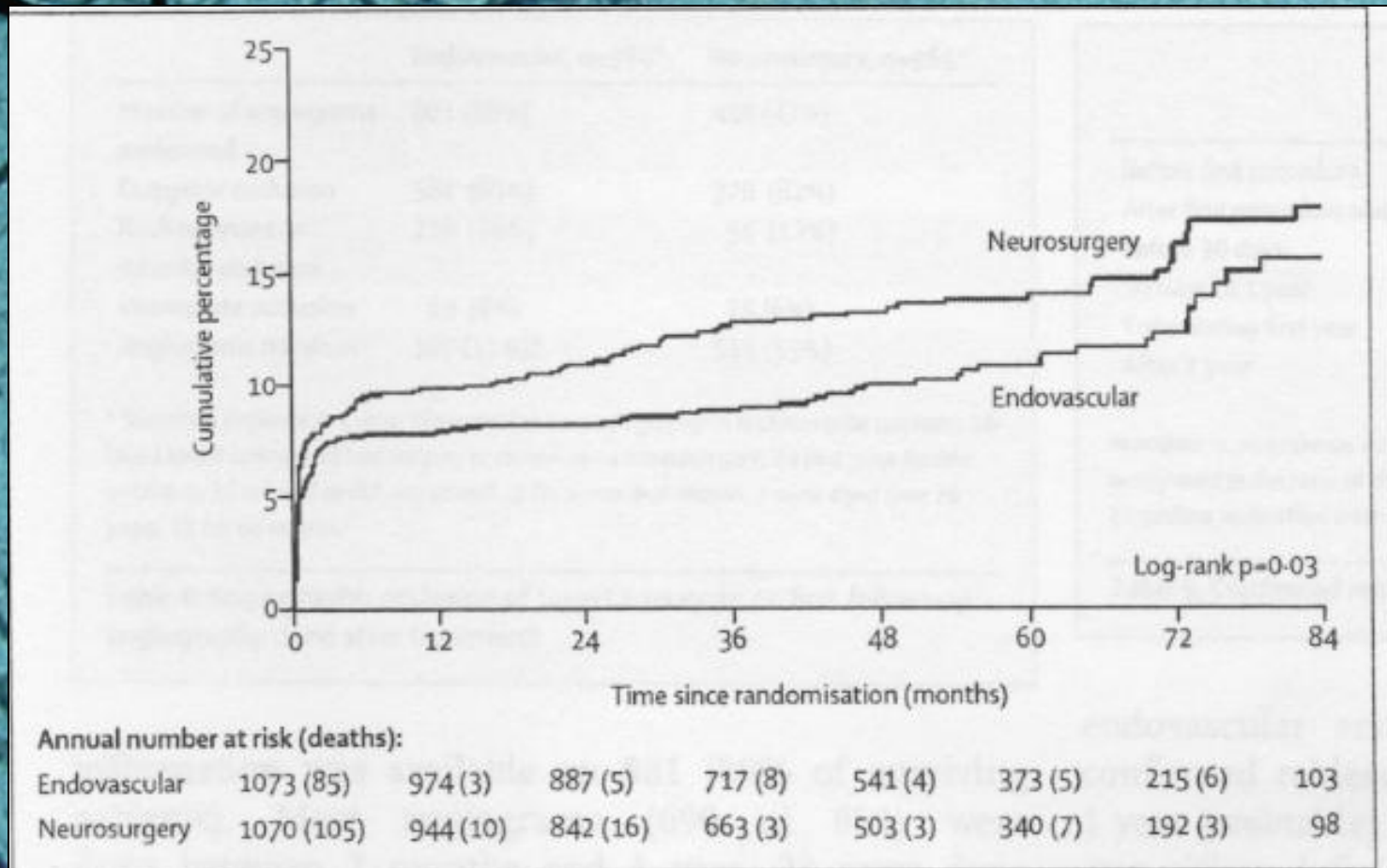
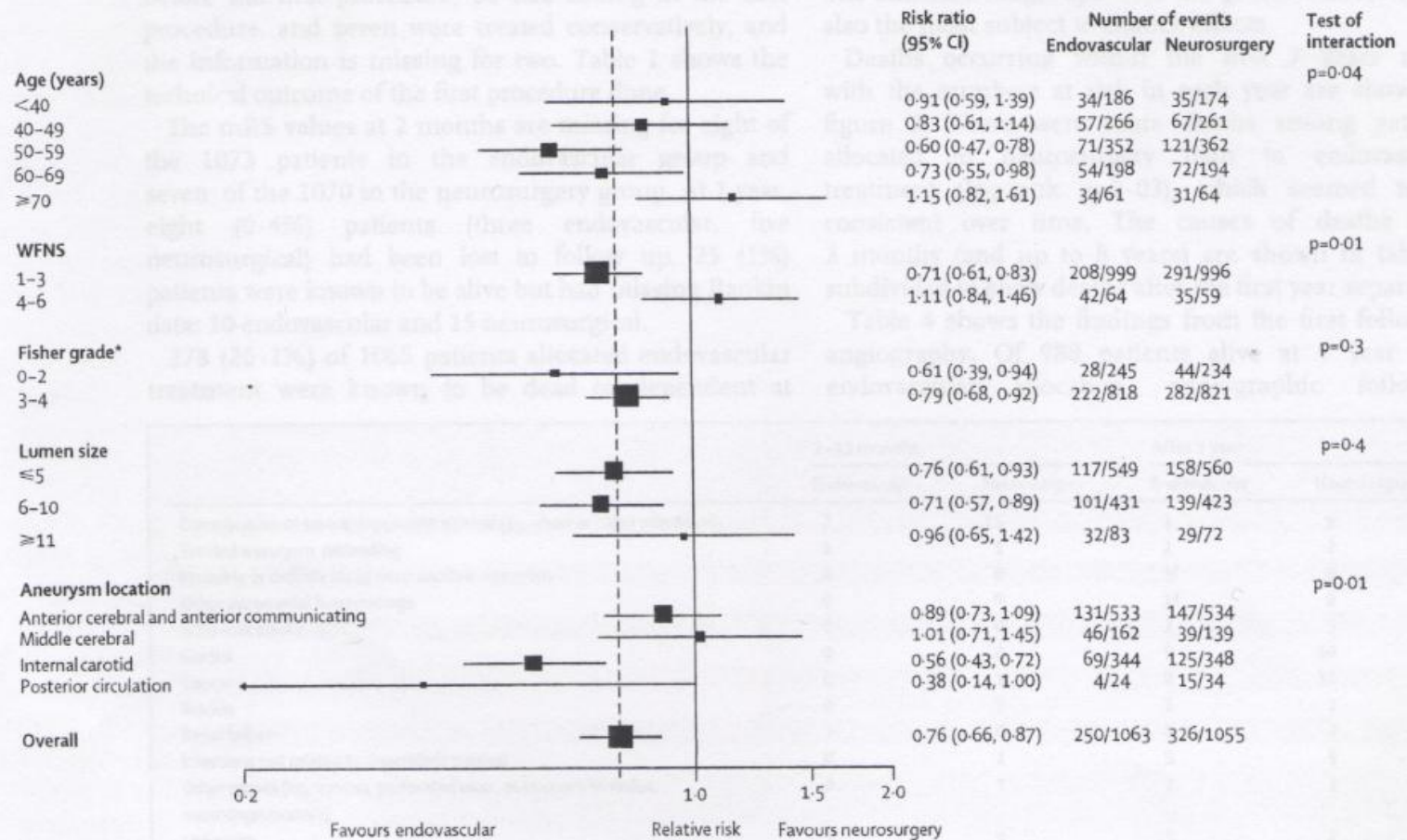


Figure 2: Kaplan Meier cumulative mortality to 7 years

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* Fisher grade is a measure of the amount of blood on the CT scan.

ANEURISMAS CEREBRAIS

	Endovascular, n=988*	Neurosurgery, n=965*
Number of angiograms performed	881 (89%)	450 (47%)
Complete occlusion	584 (66%)	370 (82%)
Neck remnant or subtotal occlusion	228 (26%)	55 (12%)
Incomplete occlusion	69 (8%)	25 (6%)
Angiograms not done	107 (11%)†	515 (53%)

* Surviving patients at 1 year. †Reasons for no angiography in endovascular patients: 56 failed initial coiling and had surgery or crossover to neurosurgery, 24 had poor Rankin outcome, 11 refused or did not attend, 2 for a /medical reason, 2 were aged over 70 years, 12 for no reason.

Table 4: Angiographic occlusion of target aneurysm on first follow-up angiography done after treatment

ANEURISMAS CEREBRAIS

The background of the slide is a medical image showing a complex network of cerebral blood vessels. A large, dark, rounded aneurysm is clearly visible, protruding from one of the main vessels. The overall color scheme is a light blue with darker blue and black tones for the vessels.

- Gugliemi Detachable Coil embolization of cerebral aneurysms: 11 years' experience
Muryama Y, Viñuela F, et al
J. Neurosurg 98(5):959-66 (2003)
- 818 doentes com 916 aneurismas (41,8% incidentais)
- Oclusão completa = 55%
- 75,4% “bons”; 41,2% “pequenos e colo largo; 45,4% grandes; 26% gigantes

ANEURISMAS CEREBRAIS

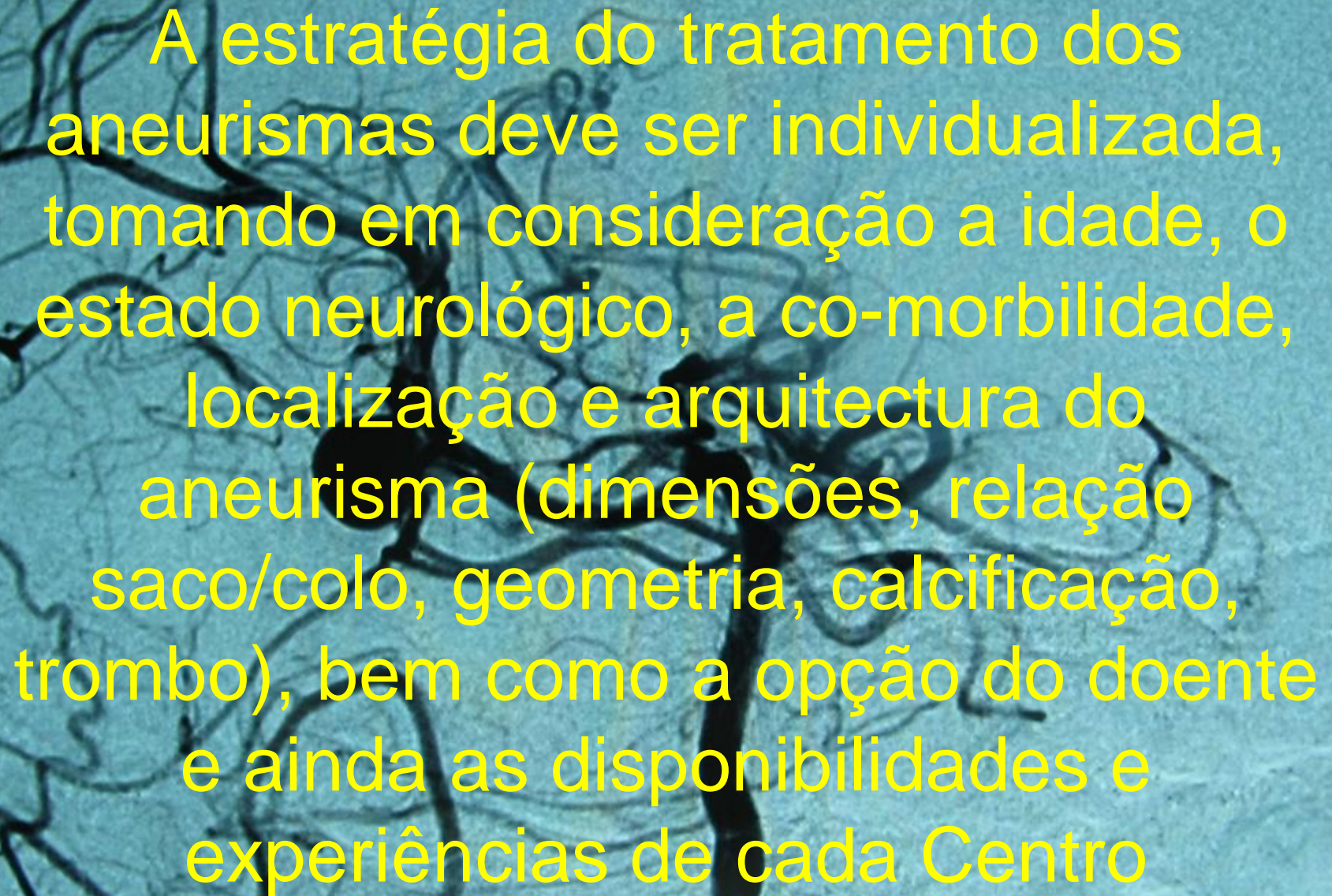
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- (cont.)
- Colo remanescente = 35,4%
- Embolização incompleta = 3,5%
- Procedimento não possível = 5%
- Re-canalização = 20,9% (tardia?)

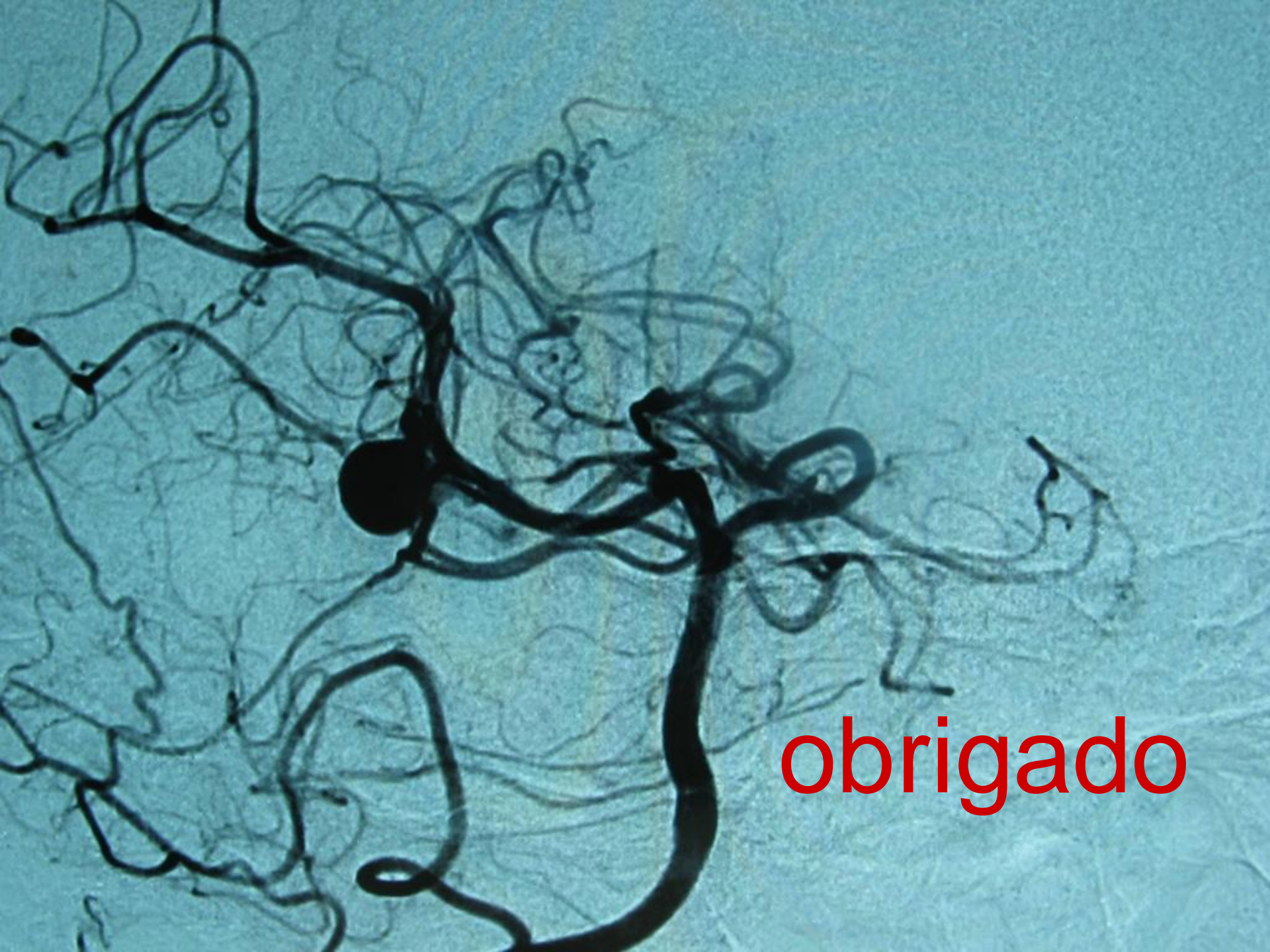
ANEURISMAS CEREBRAIS

An angiogram showing a cerebral aneurysm. The image displays a complex network of dark, branching blood vessels against a light blue background. A prominent, dark, rounded mass is visible, representing the aneurysm, which is a localized swelling or ballooning of a blood vessel. The vessels are dense and intricate, with the aneurysm being a central feature.

- (cont.)
- Mortalidade e morbidade = 9,4%
- Re-hemorragia = 1% no 1º ano
4,1% 5 anos
1/3 faleceram
- Coils bio-ativos, bio-absorvíveis

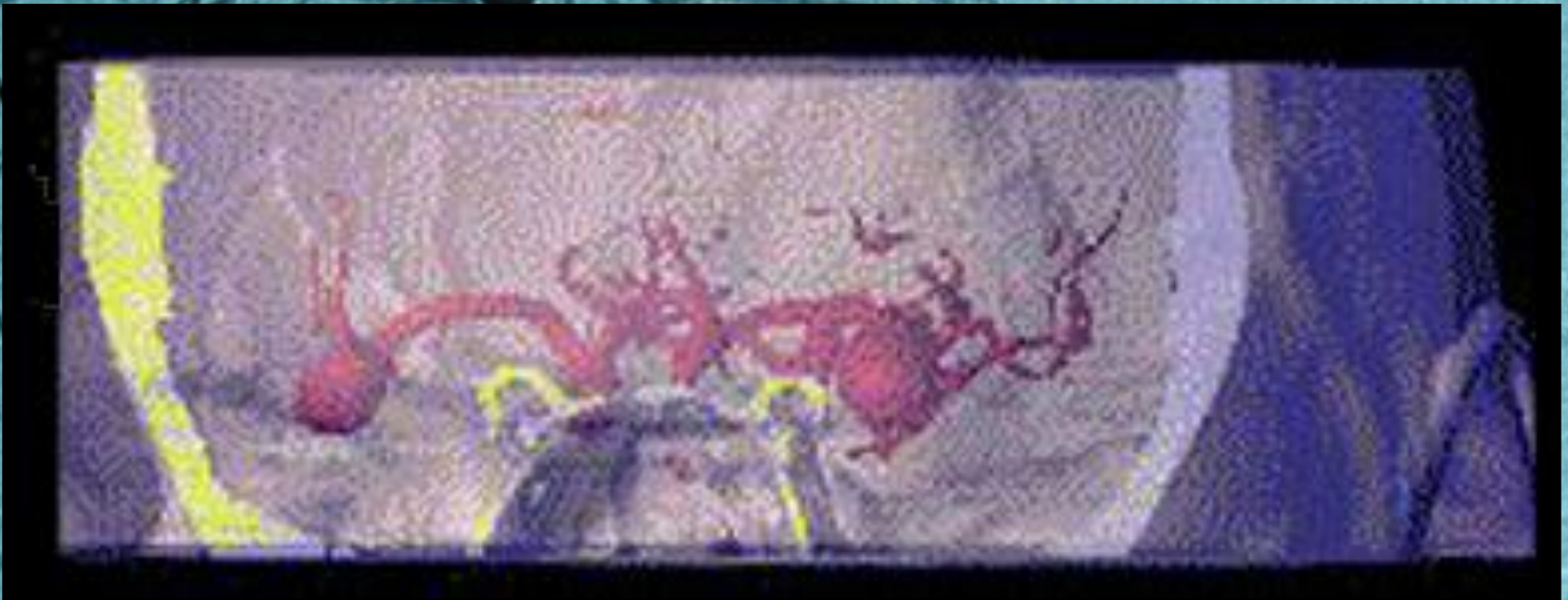
The background of the slide is a medical image of a brain, likely a CT or MRI scan, showing a complex network of blood vessels. A large, dark, rounded mass is visible, which is an aneurysm, a localized swelling of a blood vessel. The text is overlaid on this image in a bright yellow color.

A estratégia do tratamento dos aneurismas deve ser individualizada, tomando em consideração a idade, o estado neurológico, a co-morbilidade, localização e arquitectura do aneurisma (dimensões, relação saco/colo, geometria, calcificação, trombo), bem como a opção do doente e ainda as disponibilidades e experiências de cada Centro



obrigado

ANEURISMAS SEM ROTURA



ANEURISMAS CEREBRAIS

The background of the slide is a medical image showing a complex network of cerebral blood vessels. A large, dark, rounded aneurysm is visible, protruding from one of the vessels. The vessels are rendered in a dark, almost black color against a lighter, textured blue background.

- Treatment of unruptured intracranial aneurysms since the ISAT: practice utilizing clip ligation and coil embolization as individual or complementary therapies

Lanzino G, et al

J Neurosurg. 2006; 104(3):344-9.

- 100 doentes consecutivos após ISAT
- Avaliação por neurocirurgião “embolizador”
- 47 clip
- 41 coil
- 12 coil + clip

ANEURISMAS CEREBRAIS



- Treatment of unruptured intracranial aneurysms since the ISAT: practice utilizing clip ligation and coil embolization as individual or complementary therapies

Lanzino G, et al

J Neurosurg. 2006; 104(3):344-9.

- Um excelente resultado funcional pode ser conseguido com uma prática de avaliação individual e se as duas modalidades terapêuticas são utilizadas isoladamente, ou, quando necessário, em conjunto

ANEURISMAS CEREBRAIS

The background of the slide is a cerebral angiogram, a medical image showing the blood vessels of the brain. The vessels are dark against a lighter, textured background. A prominent feature is a large, rounded aneurysm (a bulge in the vessel wall) located in the center of the image, where a major vessel branches. Other smaller vessels and potential micro-aneurysms are visible throughout the network.

- **Unruptured intracranial aneurysms - risk of rupture and risks of surgical intervention. International Study of Unruptured Intracranial Aneurysms Investigators**

N Engl J Med. 1998 Dec 10;339(24):1725-33.

- **Taxa anual de rotura de aneurismas < 10 mm**
 - Grupo 1 – 0,05%**
 - Grupo 2 – 0,5%**

ANEURISMAS CEREBRAIS



HUC (desde 2000)

356 doentes com 433 aneurismas com HSA

295 < 10mm (68,1%)

138 ≥ 10mm (31,9%)

ANEURISMAS CEREBRAIS

The background of the slide is a cerebral angiogram, a medical image showing the blood vessels of the brain. The vessels are dark against a lighter, textured background. A prominent feature is a large, dark, rounded aneurysm (a bulge in the vessel wall) located in the center of the image, where a major vessel branches. Other smaller vessels and potential aneurysms are visible throughout the network.

Prevalence and risk rupture of intracranial aneurysms: a systematic review

Rinkel GJE, et al

Stroke, 1998;29:251-56

- 1145 anos de follow-up em doentes com aneurismas assintomáticos e sem HSA prévia - taxa anual de rotura de 0,1% a 0,2% para aneurismas com < 10mm
- Taxa 20 a 40x superior à do ISUIA (grupo 1)

ANEURISMAS CEREBRAIS

The background of the slide is a medical image showing a complex network of cerebral blood vessels. A prominent, dark, rounded aneurysm is visible in the center-left area, where a vessel has bulged out. The rest of the image shows a dense web of smaller, branching vessels.

- CTA and MRA in the detection of intracranial aneurysms: a prospective, blinded comparison in a large patient cohort

White PM, et al

Radiology 2001;219:739-49.

- 61% dos aneurismas que romperam tinham dimensões ≤ 5 mm.

ANEURISMAS CEREBRAIS



- Risk of rupture of unruptured intracranial aneurysms in relation to patient and aneurysm characteristics: an updated meta-analysis

Wermer MJ, Rinkel GJ, et al

Stroke 2007 Apr;38(4):1404-10. Epub 2007 Mar 1

- 19 estudos com 4705 doentes - 6556 aneurismas não rotos (follow-up 26 122 anos/doentes)
- Risco anual de rotura 1.2% (follow-up <5 anos), 0.6% (follow-up 5 a 10 anos), e 1.3% (follow-up >10 anos)

ANEURISMAS CEREBRAIS



- Risk of rupture of unruptured intracranial aneurysms in relation to patient and aneurysm characteristics: an updated meta-analysis

Wermer MJ, Rinkel GJ, et al

Stroke 2007 Apr;38(4):1404-10. Epub 2007 Mar 1

- **Análise univariável**
idade >60 anos
sexo feminino
dimensões >5 mm
aneurisma da circulação posterior
aneurisma sintomático
- **Análise multivariável com resultados inconsistentes**

ANEURISMAS CEREBRAIS

- The aspect ratio (dome/neck) of ruptured and unruptured aneurysms

Bryce Weir, et al

J Neurosurg 99:447-451; 2003

- Análise retrospectiva 774 aneurismas (532 doentes)
comparação da relação aneurisma rotos e não rotos
comparação dimensão “ “ “ “

- 177 doentes com aneurismas não rotos

290 “ “ rotos

115 “ “ rotos e não rotos

ANEURISMAS CEREBRAIS

- The aspect ratio (dome/neck) of ruptured and unruptured aneurysms

Bryce Weir, et al

J Neurosurg 99:447-451; 2003

- Quanto maior a dimensão e a relação maior o risco de romper
- Dimensão média não rotos 7mm, rotos 8mm
- Relação média 1,8 e 3,4 respectivamente
- Risco de rotura 20x se relação $> 3,47$ comparada com $\leq 1,38$
- Relação pode ser útil na decisão para tratar um aneurisma não roto, independentemente da sua dimensão

ANEURISMAS CEREBRAIS

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- **Unruptured intracranial aneurysms: natural history, clinical outcome, and risks of surgical intervention and endovascular intervention**

**International Study of Unruptured Intracranial Aneurysms
Investigators.**

Lancet 2003; 362:103-10

- **Prospectivo**
- **Multiplos factores envolvidos:
dimensões, localização, idade, sintomas**

ANEURISMAS CEREBRAIS

The background of the slide is a medical image showing a complex network of cerebral blood vessels. A large, dark, rounded aneurysm is clearly visible, protruding from one of the main vessels. The overall image has a blueish tint.

(cont.)

- 4060 doentes
- 1692 sem tratamento (1077 gr1; 615 gr2)
- Risco cumulativo de rotura aos 5 anos
- 1917 com cirurgia; 451 com coils
- Comparação de resultados com as 2 técnicas

ANEURISMAS CEREBRAIS

(cont.)

	<7 mm		7-12 mm	13-24 mm	≥25 mm
	Group 1	Group 2			
Cavernous carotid artery (n=210)	0	0	0	3-0%	6-4%
AC/MC/IC (n=1037)	0	1-5%	2-6% (0,5%)	14-5%	40%
Post-P comm (n=445)	2-5% (0,5%)	3-4%	14-5%	18-4%	50%

AC=anterior communicating or anterior cerebral artery. IC=internal carotid artery (not cavernous carotid artery). MC=middle cerebral artery. Post-P comm=vertebrobasilar, posterior cerebral arterial system, or the posterior communicating artery.

Table 4: 5-year cumulative rupture rates according to size and location of unruptured aneurysm

ANEURISMAS CEREBRAIS

(cont.)

51% oclusão completa; 21% parcial; 23% sem obliteração; 5% status desconhecido

	Open surgical		Endovascular	
	Group 1 (n=1591)	Group 2 (n=326)	Group 1 (n=409)	Group 2 (n=42)
At 30 days				
Surgery-related death	28 (1.8%)	1 (0.3%)	8 (2.0%)	0
Disability				
Rankin score of 3–5 only	48 (3.0%)	7 (2.1%)	9 (2.2%)	1 (2.4%)
Impaired cognitive status only	68 (4.3%)	21 (6.4%)	13 (3.2%)	2 (4.8%)
Rankin score of 3–5 and impaired cognitive status	74 (4.7%)	7 (2.1%)	8 (2.0%)	0 (0.0%)
Overall morbidity and mortality for all patients	218 (13.7%)	36 (11.0%)	38 (9.3%)	3 (7.1%)
At 1 year				
Surgery-related death	43 (2.7%)	2 (0.6%)	14 (3.4%)	0
Disability				
Rankin score of 3–5 only	22 (1.4%)	3 (0.9%)	4 (1.0%)	0
Impaired cognitive status only	87 (5.5%)	23 (7.1%)	13 (3.2%)	3 (7.1%)
Both Rankin score of 3–5 and impaired cognitive status	48 (3.0%)	5 (1.5%)	9 (2.2%)	0 (0.0%)
Overall morbidity and mortality* for all patients	200 (12.6%)	33 (10.1%)	40 (9.8%)	3 (7.1%)

*Overall morbidity and mortality includes death, and one of both Rankin score 3–5 and impaired cognitive status.

Table 5: **Outcome 30 days and 1 year after surgery**

ANEURISMAS CEREBRAIS

The background of the slide is a cerebral angiogram, a medical image showing the blood vessels of the brain. The vessels are dark against a lighter, textured background. A prominent feature is a large, dark, rounded aneurysm (a bulge in the vessel wall) located in the central part of the image. The vessels branch out in various directions, creating a complex, tree-like structure.

(cont.)

- Grupos não equilibrados
- Coil poderá ser melhor
> 50 anos
aneurismas na circulação posterior
(se anatomia for propícia)
- < 50 anos com aneurismas na circulação anterior situação não clarificada

ANEURISMAS CEREBRAIS



- **Surgical Clipping May Lead to Better Results than Coil Embolization: Results from a Series of 101 Consecutive Unruptured Intracranial Aneurysms**

Raftopoulos C., et al

Neurosurgery. 52(6):1280-1290, June 2003

- **Estudo prospectivo**, institucional, de colaboração, em doentes com aneurismas não rotos cuja primeira opção de tratamento era a da embolização. Cirurgia só se não fossem considerados para coil ou se este tratamento falhasse.

ANEURISMAS CEREBRAIS

The background of the slide is a grayscale angiogram of the brain's vasculature. A large, dark, bulbous aneurysm is clearly visible in the center-left area, protruding from a major vessel. The surrounding vessels form a complex, branching network.

- (cont.)

- **RESULTADOS:**

- coil em 38 doentes (41 aneurismas, 83% na circulação anterior)

- clip em 39 doentes (59 aneurismas, incluindo 6 após falhar coil, 96.5% na circulação anterior)

- Coil - obliteração total 56.1%, sub-total 14.6%, 29.3% falência**

- Clip - obliteração total 93.2%, sub-total 1.7%, 5.1% de falência (wrapping).**

ANEURISMAS CEREBRAIS

- (cont.)

- **RESULTADOS**

Coil – complicações transitórias 10%
permanentes 7.5%

Clip – complicações transitórias 16.3%
permanentes 1.7%

- **CONCLUSÃO:** a clipagem pode oferecer melhores resultados que o coil em doentes com aneurismas não rotos na circulação anterior. O coil como primeira linha de tratamento deve ser reservado para doentes com aneurismas com uma relação fundo/colo $\geq 2,5$

ANEURISMAS CEREBRAIS

The background of the slide is a cerebral angiogram, a medical image showing the blood vessels of the brain. The vessels are dark against a lighter, textured background. A prominent feature is a large, dark, rounded aneurysm (a bulge in the vessel wall) located in the upper-middle part of the image. The vessels branch out in various directions, creating a complex network.

- Procedural morbidity and mortality of elective coil treatment of unruptured intracranial aneurysms

van Rooij Wj, et al

AJNR 27(8):1678-80, 2006

- Mortalidade – 1,3%

- Morbilidade – 2,6%

ANEURISMAS CEREBRAIS

The background of the slide is a medical image showing a complex network of cerebral blood vessels. A prominent, dark, rounded aneurysm is visible in the center, where a vessel has bulged out. The vessels are rendered in a dark, almost black color against a lighter, blue-tinted background.

- Quality of life after treatment of unruptured intracranial aneurysms by neurosurgical clipping or by embolisation with coils: a prospective, observational study

Brilsta EH et al

Cerebrovascular Diseases 17(1):44-52, 2004

- Estado funcional – Rankin Scale
- Qualidade de vida – SF-36, EuroQol
- Ansiedade e depressão – HADS

ANEURISMAS CEREBRAIS

The background of the slide is a medical image showing a complex network of cerebral blood vessels. A prominent, dark, rounded aneurysm is visible in the center-left area, protruding from a larger vessel. The rest of the image shows a dense web of smaller, branching vessels.

- Quality of life after treatment of unruptured intracranial aneurysms by neurosurgical clipping or by embolisation with coils: a prospective, observational study

Brilsta EH et al

Cerebrovascular Diseases 17(1):44-52, 2004

- 19 coils; 32 clip
- Clip - mortalidade 0%, morbidade 12%, exclusão 97%
- Coil - mortalidade 5,3%, “ 0%, “ 84%
(>90% do saco)

ANEURISMAS CEREBRAIS



- Quality of life after treatment of unruptured intracranial aneurysms by neurosurgical clipping or by embolisation with coils: a prospective, observational study

Brilsta EH et al

Cerebrovascular Diseases 17(1):44-52, 2004

- A cirurgia tem um impacto considerável no aspecto funcional e da qualidade de vida aos 3 meses, que se atenua ao longo do 1º ano mas em que a recuperação é incompleta
- A embolização com coils não afecta estes parâmetros