

Efectos en el manejo clínico de la Endocarditis Inf., al realizar RNM encefálica precoz .

Estudio prospectivo

Fundamentos

- Las **complicaciones neurológicas** de la End. Infecciosa influyen en el diagnóstico, en los planes terapéuticos y en el pronóstico

OBJETIVOS

- Analizar como la realización de una RNM precoz sistemática influye en el diagnóstico y tratamiento de la End. Infec. (E.I.) en pacientes adultos hospitalizados.

Diseño y escenario. Pacientes.

- Estudio prospectivo, realizado en un único Centro entre Junio 2005 y Octubre 2008.
- Gran Hospital terciario universitario en Francia.
- 130 pacientes con “ E. I. “.

Intervención y valoración .

- RNM del encéfalo –Angioresonancia incluida, dentro de la semana inicial de hospitalización y también antes de cualquier intervención quirúrgica.
- Conjuntamente, dos clínicos expertos en E.I. clasificaban diagnósticamente (criterios de Dukes modificados) y planificaban el trat. en cada caso , justo antes y después de la RNM.

Resultados

- E.I. clasificada como definitiva en 77 pacientes, posible en 50 y excluida en 3 pacientes. 16 presentaban síntomas neurológicos. La RNM detectó lesiones cerebrales en 106, incluidas lesiones isquémicas en 68, **microhemorragias** en 74 y aneurismas silentes en 10. Solo en base a RNM y excluidas **microhemorragias**, 17 casos de 53 sin diagnóstico definitivo pasaron a definitivo (14) o posible (3). El plan terapéutico se modificó en 24 de los 130 pacientes incluyendo las previsiones quirúrgicas (en 18). En total la RNM precoz llevo a modificar el diag. y el plan terapéutico en 36 pacientes.

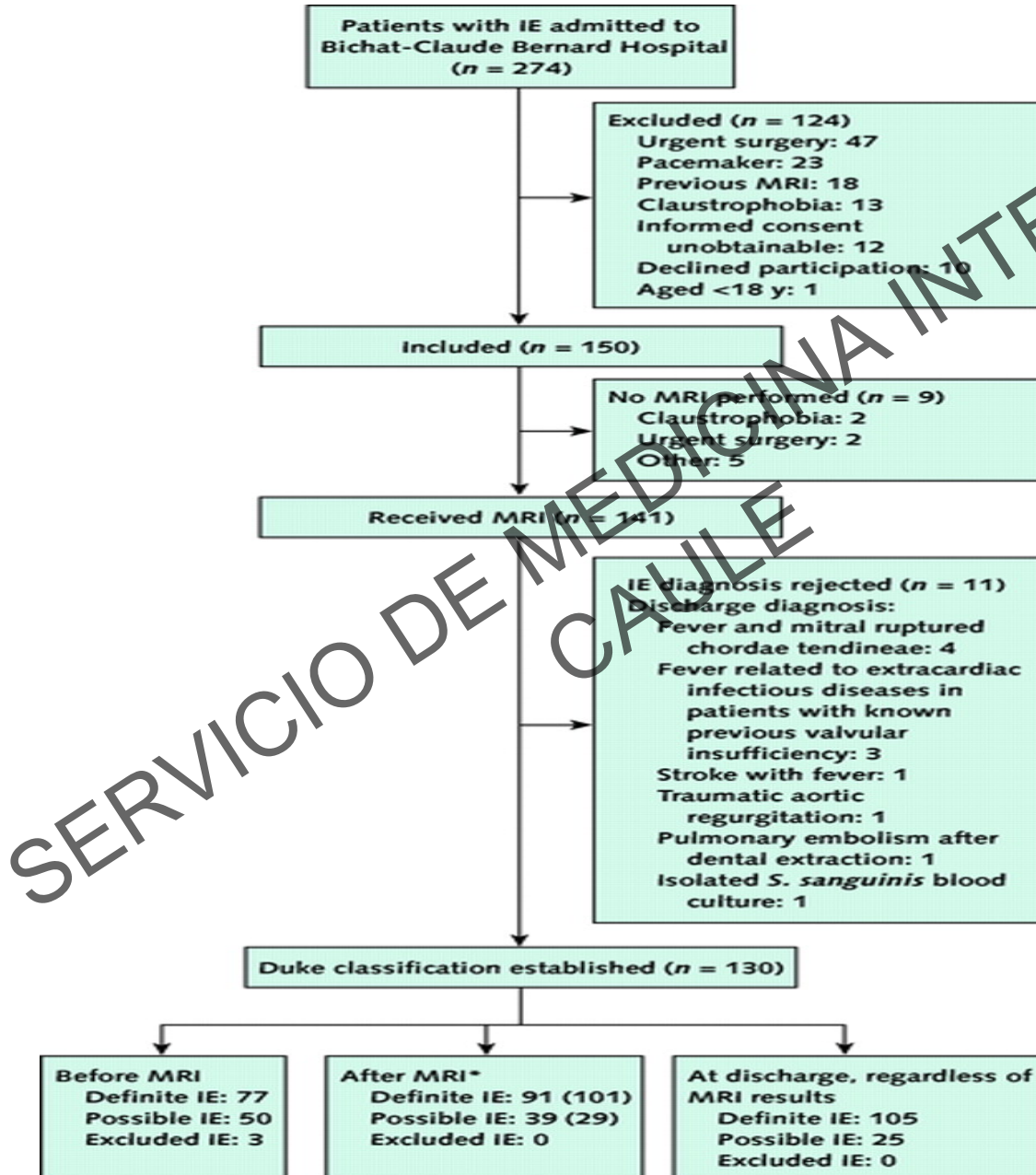
Limitaciones

- Los investigadores no valoraron si los cambios relacionados con la RNM (diagnostico- terapéuticos) mejoraban los resultados clínicos ..., supervivencia o llevaban a procedimientos innecesarios e incremento de los costes.

Conclusiones

- Por medio de la RNM encefálica fueron identificadas muchas lesiones asintomáticas en pacientes con E.I..
- Los hallazgos en la RNM afectan tanto al diagnóstico como al manejo clínico-tratamiento .

Study flow diagram. IE = infective endocarditis; MRI = magnetic resonance imaging; S.sanguinis= Streptococcus sanguinis.* Numbers in parentheses include microhemorrhages as vascular phenomena in the Duke modified classification.



Duval X et al. Ann Intern Med 2010;152:497-504

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Characteristics of Patients With IE Who Had Systematic Cerebral Magnetic Resonance Imaging Within 7 Days of Diagnosis.

Table 1. Characteristics of Patients With IE Who Had Systematic Cerebral Magnetic Resonance Imaging Within 7 Days of Diagnosis

Characteristic	Patients
Mean age (SD), y	59 (18)
Men, n (%)	93 (72)
Microorganism, n (%)	
Oral streptococci	31 (24)
Group D streptococci	10 (8)
Enterococci	8 (6)
Staphylococci	
<i>Staphylococcus aureus</i>	36 (28)
Coagulase-negative staphylococci	7 (5)
Other microorganisms or >1 organism	17 (13)
No microorganism identified	21 (16)
IE on native valve, n (%)	93 (72)
Aortic	21 (16)
Mitral	48 (32)
Aortic and mitral	11 (8)
Tricuspid	8 (6)
Other	5 (4)
IE on prosthetic valve, n (%)	37 (28)
Aortic	22 (17)
Mitral	11 (8)
Aortic and mitral	3 (2)
Tricuspid	1 (1)
IE on right valve only, n (%)	10 (8)
Echocardiography result	
Vegetation, n (%)	90 (69)
Mean vegetation length (SD), mm	12.7 (7.1)
Severe vegetation mobility, n (%)*	22 (17)
Cardiac abscess, n (%)	16 (12)
Dehiscence, n (%)	11 (8)
Regurgitation, n (%)*	105 (81)
Grade 1	18 (17)
Grade 2	32 (31)
Grade 3	26 (25)
Grade 4	29 (28)

IE = infective endocarditis.

* We categorized vegetation mobility as previously described and considered it severe if the vegetation prolapsed across the coaptation plane of the affected valve (16). We assessed valvular regurgitation semiquantitatively on a scale of 0 to 4.

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Cerebral Lesions Observed on Early Systematic Cerebral Magnetic Resonance Imaging in Patients With Infective Endocarditis.

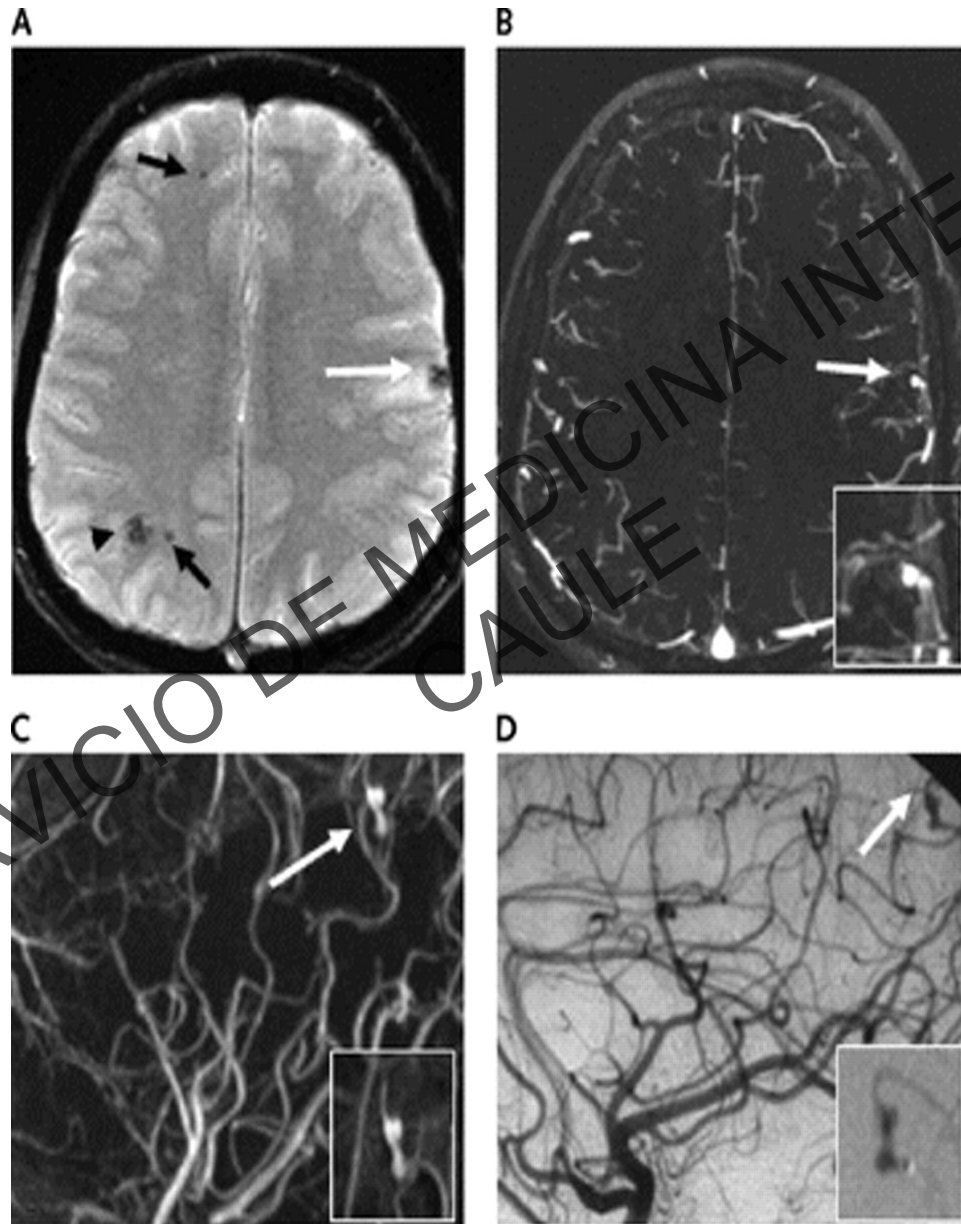
Table 2. Cerebral Lesions Observed on Early Systematic Cerebral Magnetic Resonance Imaging in Patients With Infective Endocarditis

Lesion Characteristic	All Patients (n = 130), n (%)	Patients With Neurologic Symptoms (n = 16), n (%)	Patients Without Neurologic Symptoms (n = 114), n (%)
≥1 lesion	106 (82)	16 (100)	90 (79)
>1 lesion	86 (66)	13 (81)	73 (64)
Ischemic lesion	68 (52)	14 (88)	54 (47)
Large systematized ischemic lesion*	33 (25)	9 (56)	24 (21)
Small ischemic lesion	35 (27)	5 (31)	30 (26)
Hemorrhagic lesion	79 (61)	10 (63)	69 (61)
Intraparenchymal hemorrhagic lesion	10 (8)	3 (19)	7 (6)
Microhemorrhage	69 (53)	7 (44)	62 (55)
Subarachnoidal hemorrhage	11 (8)	2 (13)	9 (8)
Unruptured aneurysm	10 (8)	1 (6)	9 (8)
Cerebral abscess	8 (6)	1 (6)	7 (6)

* Refers to infarction of a large arterial cortical or subcortical territory secondary to a proximal cerebral artery occlusion.

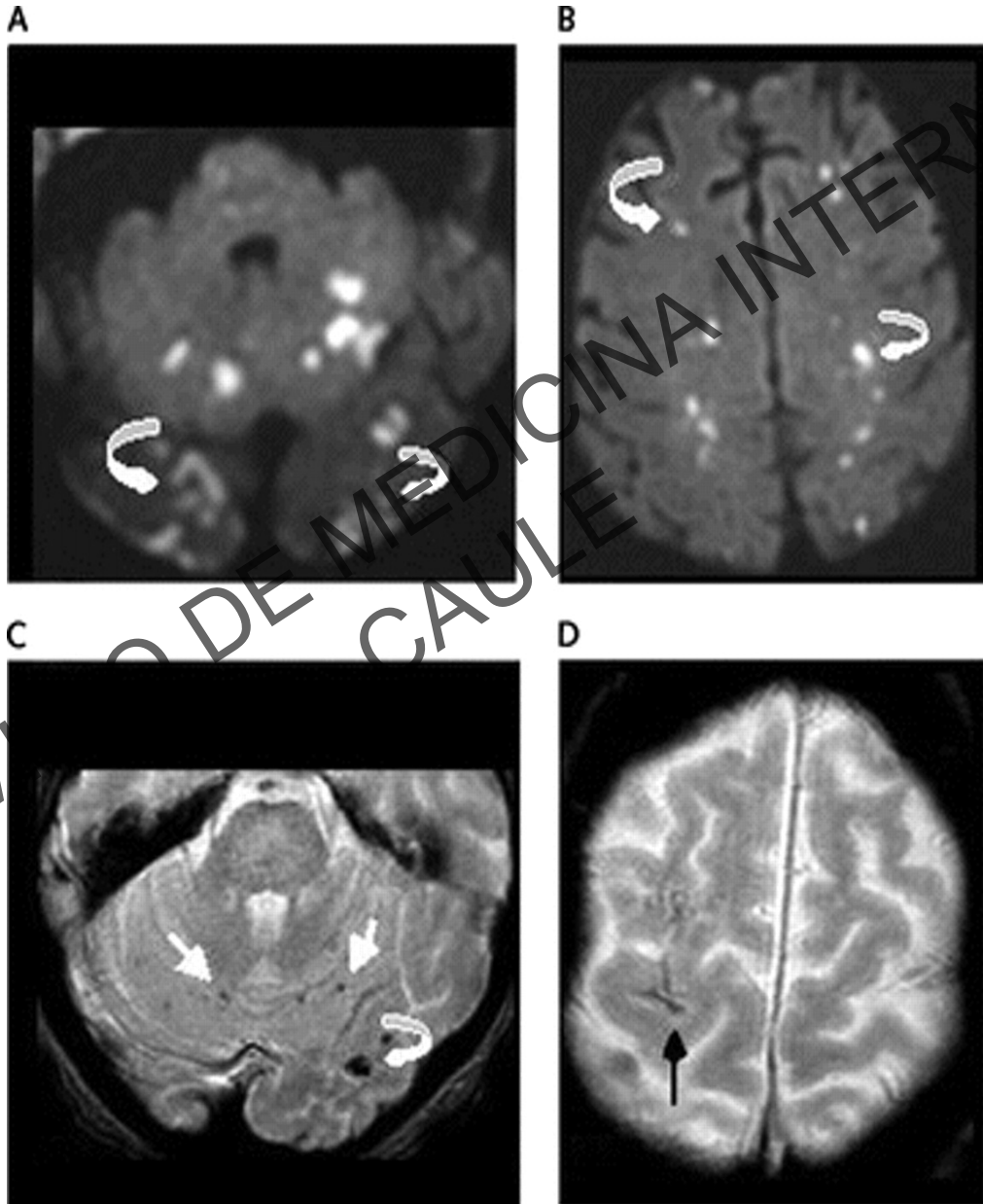
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2010;152:497-504**

Microhemorrhages and mycotic aneurysm. T2* cerebral magnetic resonance imaging shows corticomeningeal small black dots related to microhemorrhages (A). At the corresponding site of a left frontal microhemorrhage (white arrow), axial and sagittal magnetic resonance angiography views (B and C) suggest the presence of a fusiform mycotic aneurysm; arterial origin was confirmed by using cerebral angiography (D).



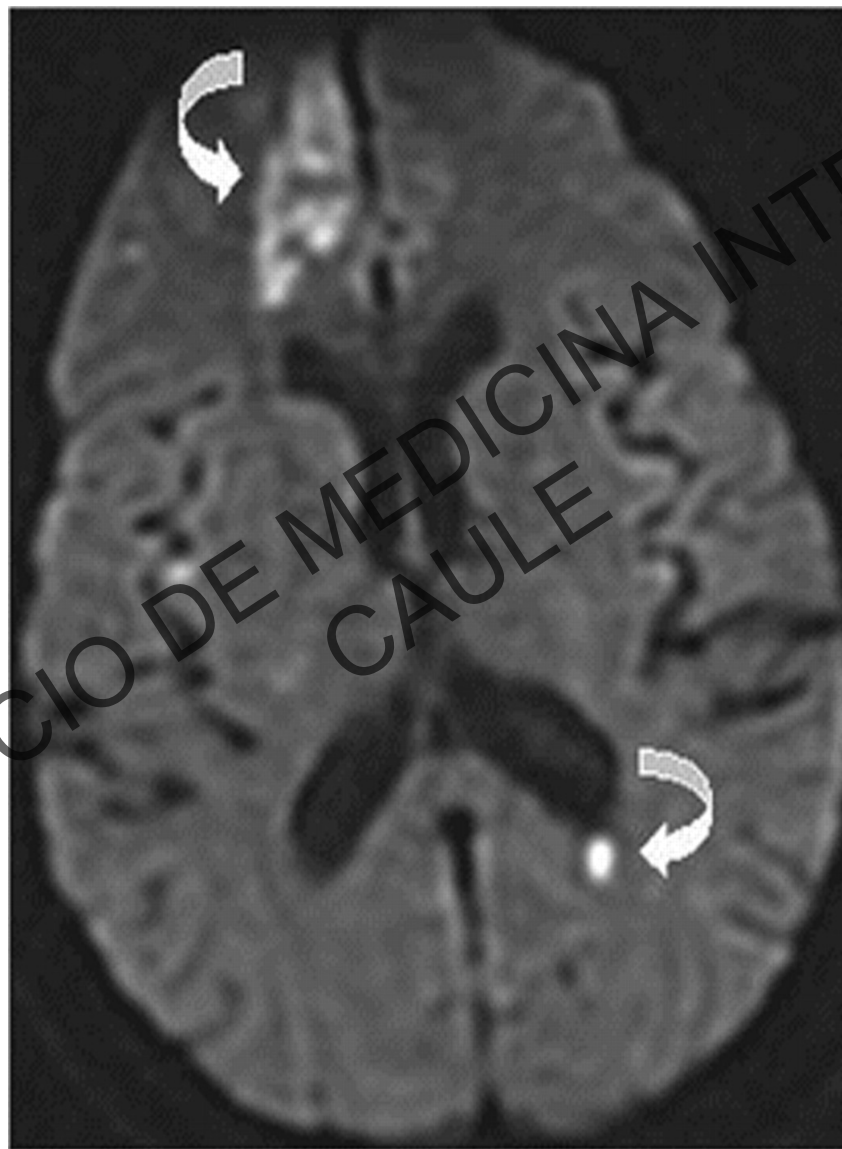
Infarcts and microhemorrhages.Disseminated acute small cerebellar (A) and hemispheric (B) infarcts with cortical and subcortical localizations (curved arrows) appear as hyperintensities on diffusion-weighted magnetic resonance imaging.

In the same patient, T2* gradient-recalled imaging sequences show microhemorrhages of varying size (C [straight and curved arrows]) and a subarachnoidal cortical hemorrhage (D [arrow]).



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Ischemic stroke and microinfarct. Diffusion-weighted magnetic resonance imaging shows acute hyperintense ischemic stroke in right cerebral frontal anterior territory (arrow) and a subcortical microinfarct on left hemisphere (arrow).



Effect of Systematic MRI on Infective Endocarditis Diagnosis.

Table 3. Effect of Systematic MRI on Infective Endocarditis Diagnosis*

Diagnosis After MRI	Diagnosis Before MRI†		
	Definite (n = 77)	Possible (n = 50)	Excluded (n = 3)
Definite (n = 91 [101])	77	14 [24]	–
Possible (n = 39 [29])	–	36 [26]	3
Excluded (n = 0)	–	–	0

MRI = magnetic resonance imaging.

* Evaluated through the reclassification of Duke modified criteria in 130 patients. Numbers in square brackets include microhemorrhages as vascular phenomena in the Duke modified classification.

† According to Duke modified classification.

Deaths During 6-Month Follow-up in Patients With Infective Endocarditis, by Findings on Early Systematic Cerebral Magnetic Resonance Imaging.

Table 4. Deaths During 6-Month Follow-up in Patients With Infective Endocarditis, by Findings on Early Systematic Cerebral Magnetic Resonance Imaging

Finding	All Patients, n/n	Patients With Neurologic Symptoms, n/n	Patients Without Neurologic Symptoms, n/n
Total deaths	20/130	5/16	15/114
≥1 lesion	17/106	5/16	12/90
Ischemic lesion			
Large systematized ischemic lesion*	7/33	3/9	4/24
Small ischemic lesion	13/60	5/14	8/46
Hemorrhagic lesion			
Intraparenchymal hemorrhagic lesion	2/10	1/3	1/7
Microhemorrhage	11/74	3/7	8/67
Subarachnoidal hemorrhage	4/11	1/2	3/9
Unruptured aneurysm	1/10	1/1	0/9
Cerebral abscess	1/8	0/1	1/7

* Refers to infarction of a large arterial cortical or subcortical territory secondary to a proximal cerebral artery occlusion.

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