Critical Appraisal of RCTs

BASED ON SIGN CRITICAL APPRAISAL CHECKLIST

	Schmutzhard 1995	Marhoum 1993	Girgis 1988	Zavala 1988	Bryan 1985	Johansson 1982	Roine 2000	Odio 1999	Scholz 1998	Klugman 1995	Saez-Llorens 1995
Appropriate and clear question	y	y	y	y	y	y	y	y	y	y	y
Randomised assignment	y	y	y	y	y	y	y	y	y	y	y
Adequate concealment method	Not given	Not given	Not given	Not given	No	Unclear	y	debatable	Not given	y	No clear
Treatment and control group similar	Imbalance of sex	Imbalance of sex, difference in rate of bacterio. Proven BM	Imbalance of sex	Imbalance of sex	y	y	y	y	y	No, more seizures in the mero group	y
Subjects and investigators kept blind	no	no	no	no	no	No	no	Investigator blinded	no	No	no
Relevant outcomes measured in a standard reliable way	y	few clinical, neuro/audio parameters	very few clinical, audio/neuro parameters	very few clinical parameters	y	y	y	y	y	y	y
Groups equally treated	y	y	IV in adults IM in children	y	y	y	Y	y	Y	y	y
Percentage of patients recruited included in the analysis (>80%)	80%	100%	100%	96%	88%	75%	98%	60%	83%	95%	87%
Subjects analysed in their randoml group	y	y	y	y	y	Y	y	y	y	y	y
Results homogeneous between sites	probably regarding to inclusion criteria	1 site	1site	1site	1site	Unknown 7 sites, 1 country	1site	No	unknown	unknown (4 countries)	1 site
OVERALL ASSESSMENT											
How well was the study done to minimise bias	no data on randomisation few patients in 6 countries	no data on randomisation Few clinical parameters	no data on randomisation and duration of R/ Few clinical parameters	no data on randomisation Few clinical parameters	no data on randomisation	no clear randomisation	well	debatable randomisation inhomogeneous data between sites	no data on randomisation	well	No clear data on randomisation
What is the likely direction in which bias affect the study results	Type II error underpowered	Type II error underpowered	Type II error underpowered	Type II error underpowered	Type II error underpowered	Type II error underpowered	Type II error underpowered	Low impact suspected	Type II error underpowered	Type II error underpowered	Type II error underpowered
Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention	y	Y	Y	No	Y	Y	Y	Y	Y	Y	y

	Schmutzhard 1995	Marhoum 1993	Girgis 1988	Zavala 1988	Bryan 1985	Johansson 1982	Roine 2000	Odio 1999	Scholz 1998	Klugman 1995	Saez-Llorens 1995
Are the results directly applicable to the patient group targeted	y	Y	Y	No	Y	Y	Y	Y	Y	Y	y
DESCRIPTION OF THE STUDY											
What intervention evaluated?	Mero/C3	ceftriax/peni *N. Meningitidis*	ceftriax/AMCHL	ceftriax/AM/ AMCHL	ceftriax/ AMCHL	cefurox vs AMCHL	ceftriax 4d vs 7d	Mero/cefotax	Ceftriax/cefotax	Mero/cefotax	cefep/cefotax
What outcome measures used?	Clinical Microbio Neuro/audio Safety	Clinical Microbio	Clinical Microbio	Clinical +/- Microbio Safety	Clinical Microbiol safety	Clinical Microbio Neuro Safety	Clinical Neuro/audio Safety	Clinical Neuro/audio Microbio Safety	Clinical Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Neuro/audio Microbio Safety
How many patients participate?	45 (29bacterio+)	36	100	25	46	50 (40 bacterio+)	100	154 (139 bacterio+)	99 (82 bacterio +)	190 (139 bacterio +)	90
What was the scale and direction of the measured effect?	Equally effective	Equally effective (no severe BM)	Equally effective	Duration therapy < and normalisation CSF earlier in CFX	Equally effective	Equally effective and safe	Equally effective (! Severe meningitis excluded)	Equally effective and safe	Equally effective	Equally effective	Equally effective
Is any statistical measure of uncertainty given?	No	Y	No	Few	Y	No	Y	Y	few	Y	few
What are the characteristics of the study setting?	Multicenter	1 center	1 center	1 center (complicated BM!)	1center	Multicenter	1center	Multicenter	Multicenter	Multicenter	
What are the characteristics of the study population?	Cfr table Adults	Cfr table Adults	Cfr table 30 adults + 70 children	Cfr table Adults	Cfr table Adults	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table
How many groups/sites are there in the study	6 countries, 15 centers	1	1	1	1	7 sites 1 country	1 center	5 sites 3 countries	1 country 7 sites	4 countries, ? sites	1 site
Are there specific issues raised by this study?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
QUALITY SCORE	HR	HR	HR	HR	HR	HR	VLR	LR	HR	VLR	LR

	Martin 1990	Schaad 1990	Kavaliotis 1989	Peltola 1989	Haffejee 1988	Rodriguez 1986	Marks 1986	Odio 1986	Lin 1985	Shann 1985
Appropriate and clear question	y	y	y	y	y	y	y	y	y	y
Randomised assignment	y	y	y	y	Y	y	y	y	y	y
Adequate concealment method	debatable	y	y	y	not given	y	y	debatable	y	y
Treatment and control group similar	y	Y	y	y	y	y	No: longer prodromes and per oral AB in cefur group	y	y	Difference in days of illness before admission
Subjects and investigators kept blind	no	No	no	no	Single blinded (not explained)	no	no	no	no	no
Relevant outcomes measured in a standard reliable way	y	Y	y	y	y	y	y	y	y	No: only mortality and major impairment
Groups equally treated	y	y	y	y	Y	y	y	y	y	y
Percentage of patients recruited included in the analysis (>80%)	77%	93%	100%	90%	93%	75%	84%	100%	69%	100%
Subjects analysed in their randomly group	y	Y	y	y	Y	y	y	y	y	y
Results homogeneous between sites	unknown	unknown	1center	unknown	1 center	1 center	unknown	1 center	1 center	unknown
OVERALL ASSESSMENT										
How well was the study done to minimise bias	well	well	well	well	No data on randomization few patients	well	well	Debatable randomization	well	Only gross endpoints. No follow-up. No data about pathogen distribution
What is the likely direction in which bias affect the study results	Type II error underpowered	Type II error underpowered	Type II error underpowered	Type II error underpowered	Type II error underpowered	Type II error underpowered	Type II error underpowered	Unknown Type II error underpowered	Type II error underpowered	not enough discriminant Type II error underpowered
	y	y	y	y	Y	y	y	y	y	y
Are the results directly applicable to the patient group targeted	Y	Y	Y	y	y	Y	y	y	y	No
DESCRIPTION OF THE STUDY										
What intervention evaluated?	ceftriax short (4.6.7) vs full course (8.12.14d)	ceftriax vs cefurox	ceftriax short vs full course (4.6.7vs8.12. 14d)	CL vs AMCHL vs ceftriax vs cefotax	Peni/CL vs CEFOTAX	Cefta vs AMCHL	Cefurox vs AMCHL	AMCHL vs CEFOTAX	CFX7d *N. menin* 7 vs 10d for *H. infl* and *S. pneum.*	Chloram vs chloram +peni (im, po)

	Martin 1990	Schaad 1990	Kavaliotis 1989	Peltola 1989	Haffejee 1988	Rodriguez 1986	Marks 1986	Odio 1986	Lin 1985	Shann 1985
What outcome measures used?	Clinical, Neuro/audio Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Microbio Neuro Safety	Clinical Neuro Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Neuro/audio Microbio Safety	Few clinical data Microbio
How many patients participate?	92/119	106/114 (106 bacterio+)	52 (52 bacterio+)	197/220 (193 bacterio +)	31/33 (31 bacterio+)	75/100 (75 bacterio + who survived > 24h)	107/136 (107 bacterio+)	85/85	79/115 (79 bacterio +) (9 *N. menin*)	367 (181 bacterio +)
What was the scale and direction of the measured effect?	Equally effective and safe	Trend in favour of ceftriax (↓delay sterilization, ↓hearing loss) Ceftriax: pseudolithiasis	Equally effective	CL less effective Earlier CSF sterility with C3 Ceftriax: more diarrheae	Equally effective Trend earlier sterility in cefotax	Equally effective	Equally effective (trend to ↑ delay of CSF sterilization in cefur with *H.infl*)	More neuro sequelae in AMCHL at discharge but NS at 4 months, more days of fever and delay in developmental landmarks	Equally effective and safe Longer hospi in 10 d group.	Equally effective (high mortality rate)
Is any statistical measure of uncertainty given?	y	Y	Y	y	Y	No	Y	Y	Y	Y
What are the characteristics of the study setting?	Multicenter	Multicenter	1 center	Multicenter	1 center	1 center	Multicenter	1 center	2 centers	Multicenter
What are the characteristics of the study population?	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table
How many groups/sites are there in the study	14 sites	3 centers 1 country	1 center	12 centers 1 country	1 center	1 center	5 centers 1 country	1 center	2 centers 1 city	3 centers 1 country
Are there specific issues raised by this study?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
QUALITY SCORE	LR	VLR	LR	VLR	HR	LR	LR	LR	LR	HR

	Barson 1985	Jacobs 1985	Congeni 1984	Aronoff 1984	Wells 1984	De Los Del Rio 1983	Steele 1983	Overturf 1997
Appropriate and clear question	y	y	y	Y	y	y	Y	y
Randomised assignment	y	y	y	Y	y	y	Y	y
Adequate concealment method	y	No	No	No	No	No	No	No
Treatment and control group similar	y	y	y	Imbalance of severe cases	y	?	Y	y
Subjects and investigators kept blind	no	no	no	No	No	No	No	No
Relevant outcomes measured in a standard reliable way	y	y	Few clinical assessments	Few clinical assessments	y	Y	Y	y
Groups equally treated	y	y	Y	Y	Y	Y	Y	y
Percentage of patients recruited included in the analysis (>80%)	93%	100%	80%	89%	81%	84%	100%	89%
Subjects analysed in their randomly group	y	y	y	Y	Y	Y	Y	y
Results homogeneous between sites	1center	1 center	1center	1 center	1 center	y	1center	1 center
OVERALL ASSESSMENT								
How well was the study done to minimise bias	well	No data on randomization	no data on randomization Relevant outcomes. Few patients	no data on randomization, few patients, imbalance in cases severity	No data on randomisation Few patients	no data on randomisation	no data on randomisation few patients	No data on randomisation
What is the likely direction in which bias affect the study results		Type II error	Type II error underpowered	Type II error, underpowered	Type II error Underpowered	Type II error	Type II error Underpowered	Type II error
Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention	y	y	y	Y	y	y	Y	y
Are the results directly applicable to the patient group targeted	Y	Y	y	No	y	y	Y	No (carbenicillin)
DESCRIPTION OF THE STUDY								
What intervention evaluated?	ceftriax vs AMCHL	cefotaxvs AMCHL	ceftriaxvs AMCHL	ceftriaxvs AMCHL	cefotaxvs AMCHL	ceftriaxvs AMCHL	ceftriax vs AMCHL	ampi vs carbenicillin
What outcome measures used?	Clinical Neuro/audio Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Audio Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Neuro/audio Microbio Safety	Clinical Microbio Safety	Clinical (neuro/audio) Microbio Safety	Clinical Neuro Microbio Safety
How many patients participate?	50 /54 (50 bacterio+)	50 (50 bacterio +)	45/56	14/19 (14 bacterio +)	30/37 (30 bacterio+)	72/92	30 (30 bacterio+)	86 (77 bacterio +)
What was the scale and direction of the measured effect?	Equally effective Trend<neuro sequelae in CFX (more mild diarrhoae)	Equally effective and safe	Equally effective	Equally effective	Equally effective	Equally effective More Diarrhea CFX	Equally effective Fever shorter in ceftriax group	Equally effective

	Barson 1985	Jacobs 1985	Congeni 1984	Aronoff 1984	Wells 1984	De Los Del Rio 1983	Steele 1983	Overturf 1997
Is any statistical measure of uncertainty given?	Y	Y	No	No	No	Y	few	No
What are the characteristics of the study setting?	1 center	1 center	1 center	1 center	1 center	1country 2 centers	1 center	1 center
What are the characteristics of the study population?	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table	Cfr table
How many groups/sites are there in the study	1 center	1 center	1 center	1 center	1 center	2 centers	1 center	1 center
Are there specific issues raised by this study?	Y	Y	Y	No	Y	Y	Y	y
QUALITY SCORE	LR	HR	HR	HR	HR	HR	HR	HR