

CQ 11-5 敗血症性 AKI の予防・治療目的にフロセミドの投与は行うか?

検索データベース

- MEDLINE (PubMed/Ovid)
- CENTRAL
- 医学中央雑誌
- その他 ()

検索式とヒット数

PubMed search strategy (検索日 2019 年 5 月 8 日)

#1	"sepsis"[Mesh] OR "Shock, Septic"[Mesh] OR sepsis[tiab] OR (septic[tiab] AND shock[tiab])	175525
#2	seps*[tiab] OR septicem*[tiab] OR septicaem*[tiab] OR "blood stream infection"[tiab] OR endotoxi*[tiab]	148487
#3	"Systemic Inflammatory Response Syndrome"[mesh] OR "Systemic Inflammatory Response Syndrome" [tiab] OR "SIRS"[tiab]	123959
#4	"Multiple Organ Failure"[mesh] OR "MOF"[tiab] OR "organ failure"[tiab] OR "organ dysfunction"[tiab]	37387
#5	"Critical Illness"[Mesh] OR "Critical Care"[Mesh] OR "Intensive Care Units"[Mesh] OR stressed[tiab] OR "critically ill"[tiab] OR "critical care"[tiab] OR "intensive care"[tiab]	262885
#6	#1 OR #2 OR #3 OR #4 OR #5	481239
#7	"Acute Kidney Injury"[mesh]	43007
#8	acute kidney failure[tiab] OR acute renal failure[tiab]	23815
#9	acute kidney injur*[tiab] OR acute renal injur*[tiab]	19373
#10	acute kidney insufficie*[tiab] or acute renal insufficie*[tiab]	1758
#11	acute tubular necrosis [tiab]	3226
#12	ARI[tiab] OR AKI[tiab] or ARF[tiab] or AKF[tiab] or ATN[tiab]	24881
#13	#7 OR #8 OR #9 OR #10 OR #11 OR #12	72946
#14	#6 OR #13	541635
#15	"Sodium Potassium Chloride Symporter Inhibitors" [mesh] OR "Sodium Potassium Chloride Symporter Inhibitors" [tiab]	924
#16	"Furosemide"[mesh] OR "Furosemide"[tiab]	16284
#17	loop diuretic* [tiab] OR loop diuretics [tiab]	2810
#18	"Frusemide"[tiab] OR "Fursemide"[tiab] OR "Frusemid"[tiab] OR "Fusid"[tiab] OR "Lasix"[tiab] OR "Furosemide	1710

	Monohydrochloride"[tiab] OR "Errolon"[tiab] OR "Furanthril"[tiab] OR "Furantral"[tiab] OR "Furosemide Monosodium Salt"[tiab]	
#19	#15 OR #16 OR #17 OR #18	18841
#20	randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR drug therapy[sh] OR randomly[tiab] OR trial[tiab] OR groups[tiab] NOT (animals [mh] NOT humans [mh])	3893704
#21	#14 AND #19 AND #20	657

CENTRAL search strategy(検索日 2019年 5月 8日)

#1	MeSH descriptor: [Sepsis] explode all trees	4028
#2	(sepsis):ti,ab,kw in Trials	10141
#3	MeSH descriptor: [Systemic Inflammatory Response Syndrome] explode all trees	4357
#4	(Systemic Inflammatory Response Syndrome):ti,ab,kw in Trials	1198
#5	(SIRS):ti,ab,kw in Trials	678
#6	MeSH descriptor: [Multiple Organ Failure] explode all trees	387
#7	(MOF):ti,ab,kw	141
#8	(MODS):ti,ab,kw	250
#9	MeSH descriptor: [Shock, Septic] explode all trees	784
#10	(septic):ti,ab,kw in Trials	4114
#11	(bacteremia OR endotoxemia OR septicemia):ti,ab,kw in Trials	3800
#12	(Pyemia OR Pyohemia):ti,ab,kw in Trials	6
#13	MeSH descriptor: [Critical Illness] explode all trees	1859
#14	MeSH descriptor: [Critical Care] explode all trees	1924
#15	MeSH descriptor: [Intensive Care Units] explode all trees	3288
#16	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15	22079
#17	MeSH descriptor: [Acute Kidney Injury] explode all trees	1214
#18	"acute kidney failure":ti,ab,kw OR "acute renal failure":ti,ab,kw in Trials	6525
#19	acute kidney injur*:ti,ab,kw OR acute renal injur*:ti,ab,kw in Trials	3455
#20	acute kidney insufficie*:ti,ab,kw OR acute renal insufficie*:ti,ab,kw in Trials	926

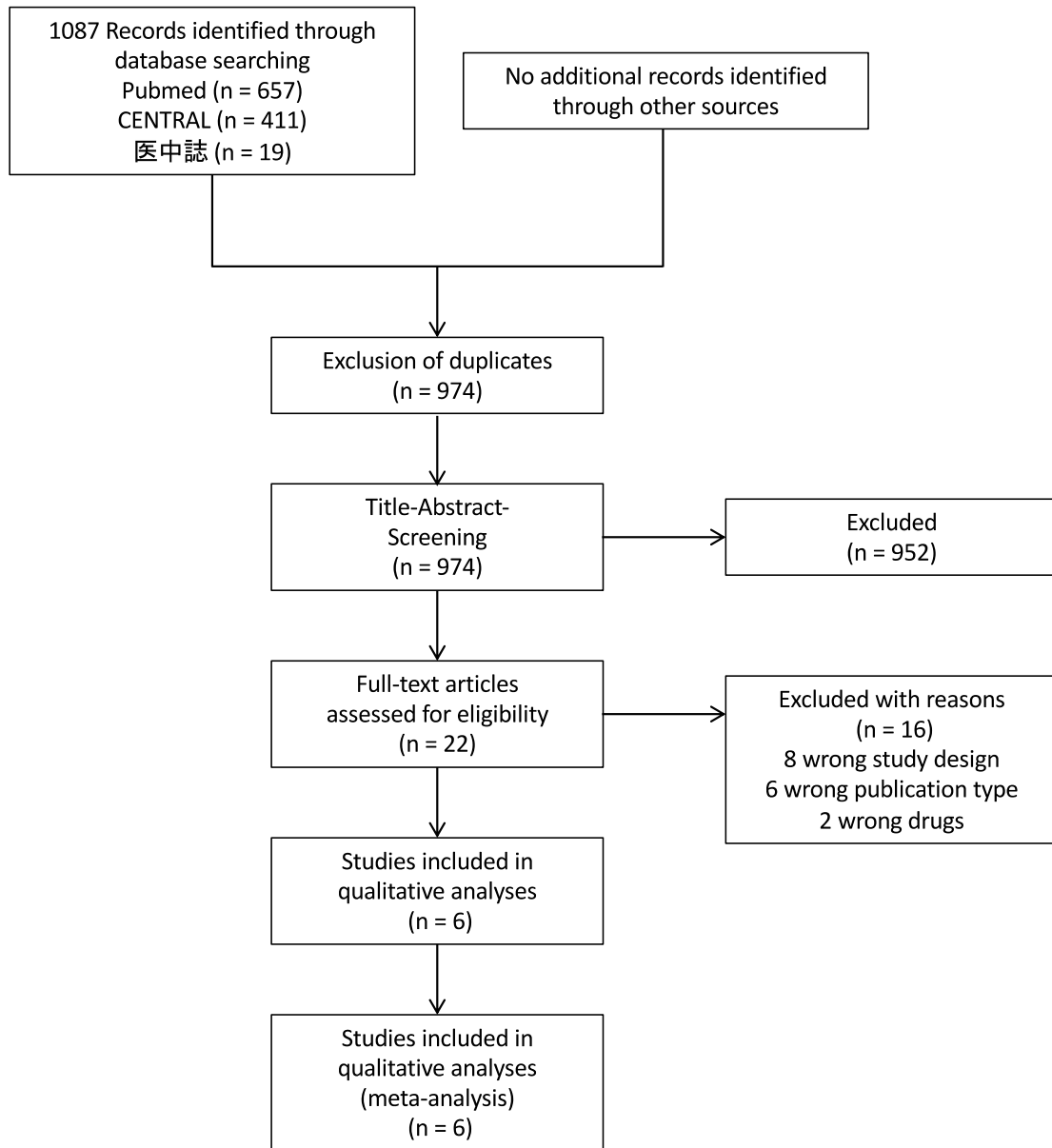
#21	acute tubular necrosis:ti,ab,kw in Trials	151
#22	ARF or AKF or ATN:ti,ab,kw in Trials	639
#23	#17 OR #18 OR #19 OR #20 OR #21 OR #22	8513
#24	MeSH descriptor: [Sodium Potassium Chloride Symporter Inhibitors] explode all trees	87
#25	(Sodium Potassium Chloride Symporter Inhibitors):ti,ab,kw in Trials	163
#26	("sodium potassium chloride" near/2 (cotransporter* or co- transporter* or symporter)):ti,ab,kw in Trials	87
#27	MeSH descriptor: [Furosemide] explode all trees in Trials	1099
#28	(furosemid* or frusemid* or fursemid* or furantral*):ti,ab,kw in Trials	2594
#29	(loop near/2 diuretic*):ti,ab,kw in Trials	717
#30	("furosemide" OR Frusemide OR Fursemide OR Frusemid OR Fusid OR Lasix OR "Furosemide Monohydrochloride" OR Errolon OR Furanthril OR Furantral OR "Furosemide Monosodium Salt"):ti,ab,kw in Trials	2593
#31	((("Na-K-CL Symporter" AND "Inhibitors") OR ("Na K CL Symporter" AND "Inhibitors") OR ("Symporter Inhibitors" AND "Na-K-CL") OR "Sodium Potassium Chloride Cotransporter Inhibitors" OR ("Loop" AND "Diuretics") OR "High Ceiling Diuretics" OR ("Ceiling Diuretics" AND "High") OR ("Diuretics" AND "High Ceiling"))):ti,ab,kw in Trials	506
#32	#24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31	3112
#33	#16 OR #23	29294
#34	#32 AND #33	411

医学中央雑誌 search strategy (検索日 2019年5月8日)

#1	(敗血症/TH or 敗血症/TA or セプシス/TA or sepsis/TA) and (PT= 会議録除く)	22679
#2	(ショック-敗血症性/TH or 敗血症性ショック/TA or "septic shock"/TA) and (PT=会議録除く)	6282
#3	(全身性炎症反応症候群/TH or 全身性炎症反応症候群/TA or "systemic inflammatory response syndrome"/TA or SIRS/TA) and (PT=会議録除く)	18008

#4	(多臓器不全/TH or 多臓器不全/TA or 多臓器障害/TA or 多臓器機能不全/TA or 多臓器機能障害/TA or "organ failure"/TA or "organ dysfunction"/TA or MOF/TA or MODS/TA) and (PT=会議録除く)	8061
#5	(内毒素血症/TH or エンドトキシン血症/TA) and (PT=会議録除く)	697
#6	#1 OR #2 OR #3 OR #4 OR #5	30860
#7	(急性腎障害/TH or 急性腎障害/TA or 急性腎傷害/TA or 急性腎不全/TA) and (PT=会議録除く)	10006
#8	(尿細管壊死-急性/TH or 急性尿細管壊死/TA) and (PT=会議録除く)	467
#9	#7 OR #8	10133
#10	(Furosemide/TH or フロセミド/TA or ラシックス/TA) and (PT=会議録除く)	3170
#11	("Sodium Potassium Chloride Symporter Inhibitors"/TH or ループ利尿薬/TA) and (PT=会議録除く)	3138
#12	#10 OR #11	3995
#13	(ランダム化比較試験/TH or 準ランダム化比較試験/TH or ランダム化/AL or 無作為化/AL or 比較試験/AL or 臨床試験/AL or プラゼボ/AL or 対照/AL or コントロール/AL or 臨床研究/AL) and (PT=会議録除く)	228798
#14	#6 OR #9	39966
#15	#12 AND #13 AND #14	19

PRISMA フロー図



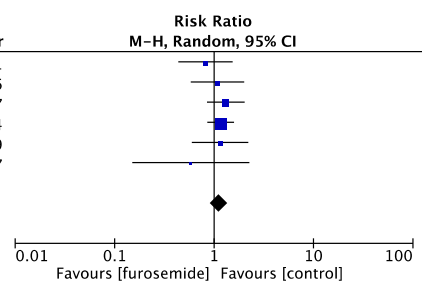
Risk of Bias サマリー

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias
Bagshaw 2017	+	+	+	+	+	+	+
Cantarovich 1971	?	?	?	+	+	?	?
Cantarovich 2004	?	+	?	+	+	?	?
Kleinknecht 1976	?	?	?	+	+	-	?
Shilliday 1997	?	?	?	+	+	?	-
van der Voort 2009	?	?	?	+	+	+	+

フォレストプロット

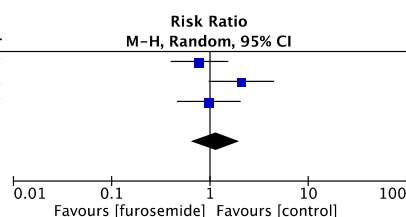
アウトカム① 死亡率

Study or Subgroup	furosemide		Control		Weight	Risk Ratio M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Cantarovich 1971	15	34	7	13	10.6%	0.82 [0.44, 1.54]	1971
Kleinknecht 1976	13	33	12	33	11.0%	1.08 [0.58, 2.01]	1976
Shilliday 1997	21	32	15	30	22.1%	1.31 [0.85, 2.03]	1997
Cantarovich 2004	59	166	50	164	44.2%	1.17 [0.86, 1.59]	2004
van der Voort 2009	13	36	11	35	9.8%	1.15 [0.60, 2.21]	2009
Bagshaw 2017	3	37	5	36	2.3%	0.58 [0.15, 2.27]	2017
Total (95% CI)		338		311	100.0%	1.12 [0.92, 1.38]	
Total events	124		100				
Heterogeneity: Tau ² = 0.00; Chi ² = 2.43, df = 5 (P = 0.79); I ² = 0%							
Test for overall effect: Z = 1.11 (P = 0.27)							



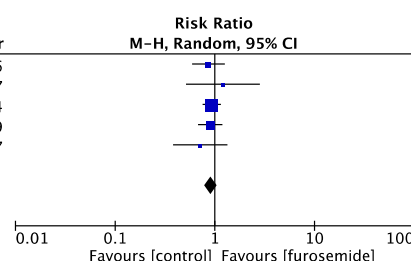
アウトカム② 腎代替療法

Study or Subgroup	furosemide		Control		Weight	Risk Ratio		Year
	Events	Total	Events	Total		M-H, Random, 95% CI		
Shilliday 1997	10	32	12	30	36.0%	0.78	[0.40, 1.54]	1997
van der Voort 2009	15	36	7	35	31.5%	2.08	[0.97, 4.49]	2009
Bagshaw 2017	10	37	10	36	32.5%	0.97	[0.46, 2.05]	2017
Total (95% CI)		105		101	100.0%	1.14	[0.64, 2.04]	
Total events		35	29					
Heterogeneity: Tau ² = 0.12; Chi ² = 3.77, df = 2 (P = 0.15); I ² = 47%								
Test for overall effect: Z = 0.45 (P = 0.65)								



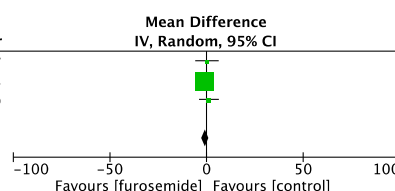
アウトカム③ AKIからの回復

Study or Subgroup	furosemide		Control		Weight	Risk Ratio		Year
	Events	Total	Events	Total		M-H, Random, 95% CI		
Kleinknecht 1976	19	33	22	33	15.1%	0.86	[0.59, 1.26]	1976
Shilliday 1997	9	32	7	30	3.0%	1.21	[0.51, 2.83]	1997
Cantarovich 2004	82	166	87	164	49.0%	0.93	[0.75, 1.15]	2004
van der Voort 2009	25	36	27	35	27.4%	0.90	[0.68, 1.19]	2009
Bagshaw 2017	11	37	15	36	5.5%	0.71	[0.38, 1.34]	2017
Total (95% CI)		304		298	100.0%	0.91	[0.78, 1.05]	
Total events		146	158					
Heterogeneity: Tau ² = 0.00; Chi ² = 1.11, df = 4 (P = 0.89); I ² = 0%								
Test for overall effect: Z = 1.31 (P = 0.19)								



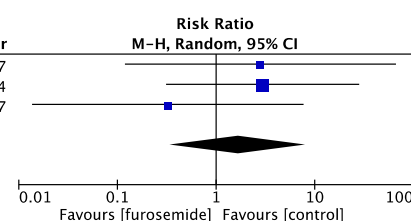
アウトカム④ AKIの罹病期間(腎代替療法期間)

Study or Subgroup	furosemide			Control			Weight	Mean Difference		Year
	Mean	SD	Total	Mean	SD	Total		IV, Random, 95% CI		
Shilliday 1997	13.4	13.7	32	13.2	10.7	30	7.6%	0.20	[-5.90, 6.30]	1997
Cantarovich 2004	11.4	8.6	166	12.4	8.7	164	81.6%	-1.00	[-2.87, 0.87]	2004
van der Voort 2009	8.2	12	36	7	10	35	10.8%	1.20	[-3.93, 6.33]	2009
Total (95% CI)			234			229	100.0%	-0.67	[-2.36, 1.01]	
Heterogeneity: Tau ² = 0.00; Chi ² = 0.71, df = 2 (P = 0.70); I ² = 0%										
Test for overall effect: Z = 0.78 (P = 0.44)										



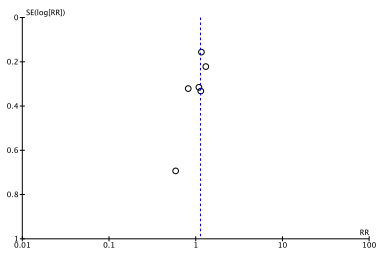
アウトカム⑤ 合併症(聴力障害)

Study or Subgroup	furosemide		Control		Weight	Risk Ratio		Year
	Events	Total	Events	Total		M-H, Random, 95% CI		
Shilliday 1997	1	32	0	30	25.2%	2.82	[0.12, 66.62]	1997
Cantarovich 2004	3	166	1	164	49.7%	2.96	[0.31, 28.20]	2004
Bagshaw 2017	0	37	1	36	25.1%	0.32	[0.01, 7.71]	2017
Total (95% CI)		235		230	100.0%	1.68	[0.34, 8.22]	
Total events		4	2					
Heterogeneity: Tau ² = 0.00; Chi ² = 1.38, df = 2 (P = 0.50); I ² = 0%								
Test for overall effect: Z = 0.64 (P = 0.52)								

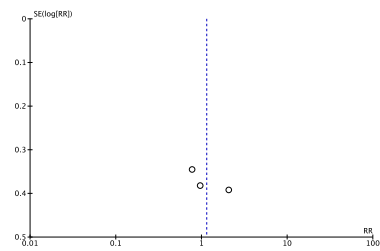


ファンネルプロット

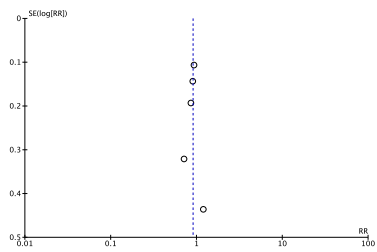
① 死亡率



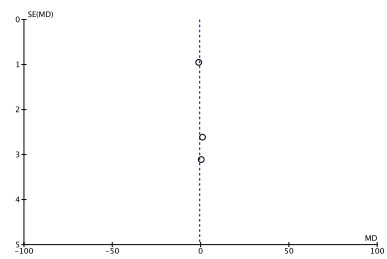
② 腎代替療法



③ ΔKIからの回復



④ ΔKI 悪化期間 (腎代替療法期間)



⑤ 合併症 (死亡除外)

