Bijlagen cluster Beeldvormende diagnostiek

Eerste cyclus 2025

Inhoud

Bijlagen bij module 2.4.1 Hydratie en complicaties

Risk of bias table for intervention studies (randomized controlled trials; based on Cochrane risk of bias tool and suggestions by the CLARITY Group at McMaster University)

Question 1: hydration versus no hydration

Study reference (first author, publication year)	**Was the allocation sequence adequately generated?**	**Was the allocation adequately concealed?**	**Blinding: Was knowledge of the allocated** **interventions adequately prevented?** **Were patients blinded?** **Were healthcare providers blinded?** **Were data collectors blinded?** **Were outcome assessors blinded?** **Were data analysts blinded?**	**Was loss to follow-up (missing outcome data) infrequent?**	**Are reports of the study free of selective outcome reporting?**	**Was the study apparently free of other problems that could put it at a risk of bias?**	**Overall risk of bias** **If applicable/necessary, per outcome measure**

	Definitely yes Probably yes Probably no Definitely no	Definitely yes Probably yes Probably no Definitely no	Definitely yes Probably yes Probably no Definitely no	Definitely yes Probably yes Probably no Definitely no	Definitely yes Probably yes Probably no Definitely no	Definitely yes Probably yes Probably no Definitely no	**LOW** **Some concerns** **HIGH**
Chen, 2008	Probably no; Reason: Only reported that patients were randomly divided.	No information	No information	Probably yes; Reason: No loss to follow-up or missing data.	Probably yes; Reason: All relevant outcomes were reported.	Probably yes; Reason: No other problems noted.	**HIGH (all outcomes)**

Nijssen, 2017	Definitely yes; Reason: Randomisation was computer generated using the ALEA screening and enrolment application software.	Probably yes; Reason: Laboratory personnel processing samples for serum creatinine values were masked to treatment allocation, with samples being labelled with coded stickers only. Minimisation ensured that allocated treatment was unpredictable.	Probably no; Reason: Open label design because blinding patients or nursing and research staff was not feasible due to the obvious difference in treatment of hydrated and non-hydrated patients.	Probably no; Reason: Loss to follow-up was frequent but similar for intervention and control group.	Definitely yes Reason: All relevant outcomes were reported and matched with protocol.	Definitely yes; Reason: No other problems noted.	**LOW (dialysis, adverse events)** **Some concerns (PC-AKI, end-stage renal failure, residual decline in kidney function)**
Nijssen, 2018	Definitely yes; Reason: Randomisation was computer generated using the ALEA screening and enrolment application software.	Probably yes; Reason: Laboratory personnel processing samples for serum creatinine values were masked to treatment allocation, with samples being labelled with coded stickers only. Minimisation ensured that allocated treatment was unpredictable.	Probably no; Reason: Open label design because blinding patients or nursing and research staff was not feasible due to the obvious difference in treatment of hydrated and non-hydrated patients.	Probably no; Reason: No loss to follow-up for 1-year dialysis outcome. For long-term renal events, follow-up was frequent but almost similar for both groups.	Probably yes; Reason: All relevant outcomes were reported.	Definitely yes; Reason: No other problems noted.	**LOW (dialysis)** **Some concerns (end-stage renal failure, decline in kidney function)**
Timal, 2020	Definitely yes;	No information	Probably no;	Probably yes;	Probably yes;	Definitely yes;	**LOW (incidence of PC-AKI, end-stage renal**

	Reason: Randomization was performed using Project Manager Internet Server (PROMISE) web-based software		Reason: No blinding was performed but not feasible in this setting and probably no influence on outcomes.	Reason: Loss to follow-up was infrequent and missing data was similar in both groups except for the outcome persisting decline of renal function.	Reason: All relevant outcomes were reported and matched with protocol.	Reason: No other problems noted.	**failure, dialysis, adverse events)** **Some concerns (decrease in residual kidney function)**

Question 2: NaCl versus NaHCO3

Study reference (first author, publication year)	**Was the allocation sequence adequately generated?**	**Was the allocation adequately concealed?**	**Blinding: Was knowledge of the allocated** **interventions adequately prevented?** **Were patients blinded?** **Were healthcare providers blinded?** **Were data collectors blinded?** **Were outcome assessors blinded?** **Were data analysts blinded?** Definitely yes Probably yes Probably no	**Was loss to follow-up (missing outcome data) infrequent?**	**Are reports of the study free of selective outcome reporting?**	**Was the study apparently free of other problems that could put it at a risk of bias?**	**Overall risk of bias** **If applicable/necessary, per outcome measure**

	Definitely yes Probably yes Probably no Definitely no	Definitely yes Probably yes Probably no Definitely no	Definitely no	Definitely yes Probably yes Probably no Definitely no	Definitely yes Probably yes Probably no Definitely no	Definitely yes Probably yes Probably no Definitely no	**LOW** **Some concerns** **HIGH**
Boccalandro, 2021	Probably yes; Reason: Simple randomization based on an automated Excel database (Microsoft Corp.) was performed.	Probably yes; Reason: An allocation concealment technique was used.	Definitely yes; Reason: Double-blinded study (patients and investigators were blinded to the hydration regimen)	Definitely yes; Reason: Loss to follow-up was infrequent and similar for both groups.	Probably yes; Reason: All relevant outcomes were reported.	Probably yes; Reason: No other problems noted.	**LOW (all outcomes)**
Weisbord, 2018	Definitely yes; Reason: A computer-generated permuted-block plan was used.	Definitely yes; Reason: Central randomization was used.	Probably yes; Reason: Patients and trial investigators were unaware of trial-group assignments.	Probably yes; Reason: No loss to follow-up or missing data.	Probably yes; Reason: All relevant outcomes were reported and matched with protocol.	Probably yes; Reason: No other problems noted.	**LOW (all outcomes)**

Question 3: Prehydration versus pre- and posthydration

Study reference (first author, publication year)	**Was the allocation sequence adequately generated?**	**Was the allocation adequately concealed?**	**Blinding: Was knowledge of the allocated**	**Was loss to follow-up (missing outcome data) infrequent?**	**Are reports of the study free of selective outcome reporting?**	**Was the study apparently free of other problems that could put it at a risk of bias?**	**Overall risk of bias** **If applicable/necessary, per outcome measure**

			interventions adequately prevented? **Were patients blinded?** **Were healthcare providers blinded?** **Were data collectors blinded?** **Were outcome assessors blinded?** **Were data analysts blinded?** Definitely yes Probably yes Probably no Definitely no				
	Definitely yes Probably yes Probably no	Definitely yes Probably yes Probably no Definitely no		Definitely yes Probably yes Probably no	Definitely yes Probably yes Probably no	Definitely yes Probably yes Probably no Definitely no	**LOW** **Some concerns**

	Definitely no			Definitely no	Definitely no		**HIGH**
Kooiman, 2018	Definitely yes; Reason: Randomization was performed in a 1: 1 ratio using a computer generated allocation sequence using block randomization by a certified online program.	Definitely no; Reason: Open-label design.	Definitely no; Reason: Open-label design.	Probably yes; Reason: Loss to follow-up was infrequent and similar in both groups. Same for missing data.	Probably yes; Reason: All relevant outcomes were reported.	Probably yes; Reason: No other problems noted.	**LOW (all outcomes)**
Van Mourik, 2018	Definitely yes; Reason: Randomisation was performed electronically, and block randomization was used.	Definitely no; Reason: Open-label trial.	Definitely no; Reason: Unblinded open-label trial.	Probably yes; Reason: Loss to follow-up was infrequent and similar in both groups.	Probably yes; Reason: All relevant outcomes were reported.	Probably yes; Reason: No other problems noted.	**LOW (all outcomes)**

Risk of bias table for interventions studies (cohort studies based on risk of bias tool by the CLARITY Group at McMaster University)

Question 2: NaCl versus NaHCO3

Author, year	Selection of participants Was selection of exposed and non-exposed cohorts drawn from the same population?	Exposure Can we be confident in the assessment of exposure?	Outcome of interest Can we be confident that the outcome of interest was not present at start of study?	Confounding-assessment Can we be confident in the assessment of confounding factors?	Confounding-analysis Did the study match exposed and unexposed for all variables that are associated with the outcome of interest or did the statistical analysis adjust for these confounding variables?	Assessment of outcome Can we be confident in the assessment of outcome?	Follow up Was the follow up of cohorts adequate? In particular, was outcome data complete or imputed?	Co-interventions Were co-interventions similar between groups?	Overall Risk of bias
	Definitely yes, probably yes,	Definitely yes, probably yes,	Definitely yes, probably yes,	Definitely yes, probably yes,	Definitely yes, probably yes,	Definitely yes, probably yes,	Definitely yes, probably yes,	Definitely yes, probably yes,	Low, Some concerns, High

	probably no, definitely no	probably no, definitely no	probably no, definitely no	probably no, definitely no	probably no, definitely no	probably no, definitely no	probably no, definitely no	probably no, definitely no	
Garcia, 2018	Definitely yes; Reason: Participants were selected from the same study.	Definitely yes; Reason: Derived from previous study.	Definitely yes; Reason: Outcome related to intervention.	Probably yes; Reason: Derived from previous study.	Probably yes; Reason: Exploratory analyses were performed.	Probably yes; Reason: Derived from previous study and pre-defined.	No information; Reason: Only lost to follow-up reported for total group, not for subgroup	Probably yes; Reason: Co-interventions were similar.	**Low (all outcomes**

5

Table of excluded studies

Reference	Reason for exclusion
Ahmed K, McVeigh T, Cerneviciute R, Mohamed S, Tubassam M, Karim M, Walsh S. Effectiveness of contrast-associated acute kidney injury prevention methods; a systematic review and network meta-analysis. BMC Nephrol. 2018 Nov 13;19(1):323. doi: 10.1186/s12882-018-1113-0. PMID: 30424723; PMCID: PMC6234687.	Wrong population: no impaired renal function
Aktürk E, Aşkın L, Taşolar H, Kurtoğlu E, Türkmen S, Tanrıverdi O, Uzel KE. Evaluation of contrast nephropathy in percutaneous treatment of chronic total occlusions. Interv Med Appl Sci. 2019 Jun;11(2):95-100. doi: 10.1556/1646.11.2019.15. PMID: 32148912; PMCID: PMC7044539.	Wrong population: excluded eGFR <60
Ali-Hasan-Al-Saegh S, Mirhosseini SJ, Ghodratipour Z, Sarrafan-Chaharsoughi Z, Rahimizadeh E, Karimi-Bondarabadi AA, Haddad F, Shahidzadeh A, Mahdavi P, Dehghan AM, Tahernejad M, Shahidzadeh A, Dehghan H, Ghanei A, Lotfaliani M, Weymann A, Zeriouh M, Popov AF, Sabashnikov A. Strategies Preventing Contrast-Induced Nephropathy After Coronary Angiography: A Comprehensive Meta-Analysis and Systematic Review of 125 Randomized Controlled Trials. Angiology. 2017 May;68(5):389-413. doi: 10.1177/0003319716661445. Epub 2016 Aug 1. PMID: 27485363.	Wrong population: no impaired renal function
Alonso P, Sanz J, García-Orts A, Reina S, Jiménez S, Osca J, Cano O, Andrés A, Sancho-Tello MJ, Martínez L. Usefulness of Sodium Bicarbonate for the Prevention of Contrast-Induced Nephropathy in Patients Undergoing Cardiac Resynchronization Therapy. Am J Cardiol. 2017 Nov 1;120(9):1584-1588. doi: 10.1016/j.amjcard.2017.07.058. Epub 2017 Aug 1. PMID: 28844518.	Wrong population: no impaired renal function
Birmpili P, Pearson T, Zywicka EM, Jackson J, Chandrasekar R. Effect of contrast administration on the renal function of predialysis patients undergoing fistuloplasty. J Vasc Surg. 2022 Oct;76(4):1066-1071. doi: 10.1016/j.jvs.2022.06.003. Epub 2022 Jun 13. PMID: 35709861.	Observational study

Bottinor W, Chawla R, Danyi P, Patel K, Turlington J, Sangal K, Hong W, Perera RA, Jovin IS. Intravenous Fluid Therapy Is Associated with a Reduced Incidence of Contrast-Induced Nephropathy but not with a Reduced Long-Term Incidence of Renal Dysfunction After Cardiac Catheterization. Cardiovasc Revasc Med. 2020 Jan;21(1):20-23. doi: 10.1016/j.carrev.2019.07.020. Epub 2019 Jul 24. PMID: 31378387.	Wrong population: no impaired renal function
Cai Q, Jing R, Zhang W, Tang Y, Li X, Liu T. Hydration Strategies for Preventing Contrast-Induced Acute Kidney Injury: A Systematic Review and Bayesian Network Meta-Analysis. J Interv Cardiol. 2020 Feb 11;2020:7292675. doi: 10.1155/2020/7292675. PMID: 32116474; PMCID: PMC7036123.	No studies after search date (2017)
Chen F, Lu J, Yang X, Liu D, Wang Q, Geng X, Xiao B, Zhang J, Liu F, Gu G, Cui W. Different hydration methods for the prevention of contrast-induced nephropathy in patients with elective percutaneous coronary intervention: a retrospective study. BMC Cardiovasc Disord. 2023 Jun 24;23(1):323. doi: 10.1186/s12872-023-03358-w. PMID: 37355592; PMCID: PMC10290803.	Wrong population: no impaired renal function
Giacoppo D, Gargiulo G, Buccheri S, Aruta P, Byrne RA, Cassese S, Dangas G, Kastrati A, Mehran R, Tamburino C, Capodanno D. Preventive Strategies for Contrast-Induced Acute Kidney Injury in Patients Undergoing Percutaneous Coronary Procedures: Evidence From a Hierarchical Bayesian Network Meta-Analysis of 124 Trials and 28 240 Patients. Circ Cardiovasc Interv. 2017 May;10(5):e004383. doi: 10.1161/CIRCINTERVENTIONS.116.004383. PMID: 28487354.	No additional studies after search date previous guideline (2017)
Hagikura A, Goto K, Takebayashi H, Kikuta Y, Kobayashi K, Sato K, Taniguchi M, Hiramatsu S, Kawai Y, Kohno H, Kusuyama T, Haruta S. The Role of Saline and Sodium Bicarbonate Preprocedural Hydration to Prevent Mid-term Renal Insufficiency in Patients with Chronic Kidney Disease Undergoing Percutaneous Coronary Intervention. Intern Med. 2019 Apr 15;58(8):1057-1065. doi: 10.2169/internalmedicine.1442-18. Epub 2018 Dec 18. PMID: 30568126; PMCID: PMC6522405.	Retrospective study

Jiang Y, Chen M, Zhang Y, Zhang N, Yang H, Yao J, Zhou Y. Meta-analysis of prophylactic hydration versus no hydration on contrast-induced acute kidney injury. Coron Artery Dis. 2017 Dec;28(8):649-657. doi: 10.1097/MCA.0000000000000514. PMID: 28692484.	No additional studies after search date previous guideline (2017)
Khan MI, Naseem M, Ullah S, Ahmed S, Khattak IQ, Khan MR. IMPACT OF CONTRAST-INDUCED NEPHROPATHY PREVENTION STRATEGIES ON PCI OUTCOMES IN HIGH-RISK PAKISTANI PATIENTS. Journal of Population Therapeutics and Clinical Pharmacology. 2024;31(6):3066-3071	No comparison between hydration and no hydration for CKD group
Khan SU, Khan MU, Rahman H, Khan MS, Riaz H, Novak M, Opoku-Asare I, Kaluski E. A Bayesian network meta-analysis of preventive strategies for contrast-induced nephropathy after cardiac catheterization. Cardiovasc Revasc Med. 2019 Jan;20(1):29-37. doi: 10.1016/j.carrev.2018.06.005. Epub 2018 Jun 12. PMID: 30757995.	Wrong population: no impaired renal function
Liu Y, Hong D, Wang AY, Guo R, Smyth B, Liu J, Sun G, Chen S, Tan N, Jardine M, Brieger D, Shaman A, Islam S, Chen J, Gallagher M. Effects of intravenous hydration on risk of contrast induced nephropathy and in-hospital mortality in STEMI patients undergoing primary percutaneous coronary intervention: a systematic review and meta-analysis of randomized controlled trials. BMC Cardiovasc Disord. 2019 Apr 8;19(1):87. doi: 10.1186/s12872-019-1054-y. PMID: 30961544; PMCID: PMC6454772.	Wrong population: no impaired renal function
Locham S, Rodriguez A, Balceniuk MD, Mix D, Newhall K, Doyle A, Glocker R, Ellis J, Stoner M. Contrast-Associated Acute Kidney Injury in High-Risk Patients Undergoing Peripheral Vascular Interventions. Vasc Endovascular Surg. 2023 Aug;57(6):583-591. doi: 10.1177/15385744231162941. Epub 2023 Mar 7. PMID: 36880982.	Observational study
Miao S, Xue ZK, Zhang YR, Zhang H, Che JJ, Liu T, Tao HY, Li G, Chen KY. Comparison of Different Hydration Strategies in Patients with Very Low-Risk Profiles of Contrast-Induced Nephropathy. Med Sci Monit. 2021 Apr 30;27:e929115. doi: 10.12659/MSM.929115. PMID: 33927176; PMCID: PMC8095087.	Wrong population: eGFR >60 mL/min/1.73 m2

Michel P, Amione-Guerra J, Sheikh O, Jameson LC, Bansal S, Prasad A. Meta-analysis of intravascular volume expansion strategies to prevent contrast-associated acute kidney injury following invasive angiography. Catheter Cardiovasc Interv. 2021 Nov 15;98(6):1120-1132. doi: 10.1002/ccd.29387. Epub 2020 Nov 13. PMID: 33185335.	Kooiman 2018 and Weisbord 2018 included in search; no other studies after search date
Nijssen EC, Nelemans PJ, Rennenberg RJ, Theunissen RA, van Ommen V, Wildberger JE. Prophylaxis in High-Risk Patients With eGFR < 30 mL/min/1.73 m2: Get the Balance Right. Invest Radiol. 2019 Sep;54(9):580-588. doi: 10.1097/RLI.0000000000000570. PMID: 31033672.	Observational study
Pakfetrat M, Malekmakan L, Salmanpour Z, Nikoo MH, Izadpanah P. Comparison of Normal Saline, Ringer's Lactate, and Sodium Bicarbonate for Prevention of Contrast-induced Nephropathy in Patients with Coronary Angiography: A Randomized Double-blind Clinical Trial. Indian J Nephrol. 2019 Jan-Feb;29(1):22-27. doi: 10.4103/ijn.IJN_48_17. PMID: 30814789; PMCID: PMC6375023.	Wrong population: no impaired renal function
Park S, Kim DK, Jung HY, Kim CD, Cho JH, Cha RH, Jeong JC, Kim S, Kim HJ, Ban TH, Chung BH, Lee JP, Park JT, Han SH, Yoo TH, Ryu DR, Moon SJ, Lee JE, Huh W, Kang EW, Chang TI, Joo KW. Efficacy and Safety of a Balanced Salt Solution Versus a 0.9% Saline Infusion for the Prevention of Contrast-Induced Acute Kidney Injury After Contrast-Enhanced Computed Tomography. Kidney Med. 2020 Feb 21;2(2):189-195. doi: 10.1016/j.xkme.2019.12.003. PMID: 32734238; PMCID: PMC7380376.	Wrong comparison
Shilbayeh SAR. Efficacy of sodium bicarbonate versus normal saline in the prevention of contrast-induced nephropathy among cardiac patients: a cohort study in Saudi Arabia. MMSL. 2022;91(1):18-28.	No subgroup for CKD
Su X, Xie X, Liu L, Lv J, Song F, Perkovic V, Zhang H. Comparative Effectiveness of 12 Treatment Strategies for Preventing Contrast-Induced Acute Kidney Injury: A Systematic Review and Bayesian Network Meta-analysis. Am J Kidney Dis. 2017 Jan;69(1):69-77. doi:	Wrong population: no impaired renal function

10.1053/j.ajkd.2016.07.033. Epub 2016 Oct 1. PMID: 27707552.	
Valette X, Desmeulles I, Savary B, Masson R, Seguin A, Sauneuf B, Brunet J, Verrier P, Pottier V, Orabona M, Samba D, Viquesnel G, Lermuzeaux M, Hazera P, Dutheil JJ, Hanouz JL, Parienti JJ, du Cheyron D. Sodium Bicarbonate Versus Sodium Chloride for Preventing Contrast-Associated Acute Kidney Injury in Critically Ill Patients: A Randomized Controlled Trial. Crit Care Med. 2017 Apr;45(4):637-644. doi: 10.1097/CCM.0000000000002267. PMID: 28181941.	Wrong population: no subgroup about chronic kidney disease; only stable renal function (unstable renal function defined as a serum creatinine increase greater than or equal to 0.3 mg/dL within the previous 48 hours or anuria within the previous 12 hours)
Walker H, Guthrie GD, Lambourg E, Traill P, Zealley I, Plumb A, Bell S. Systematic review and meta-analysis of prophylaxis use with intravenous contrast exposure to prevent contrast-induced nephropathy. Eur J Radiol. 2022 Aug;153:110368. doi: 10.1016/j.ejrad.2022.110368. Epub 2022 May 23. PMID: 35636024.	No additional studies after search date previous guideline (2017)
Wang Z, Song Y, A G, Li Y. Role of Hydration in Contrast-Induced Nephropathy in Patients Who Underwent Primary Percutaneous Coronary Intervention. Int Heart J. 2019 Sep 27;60(5):1077-1082. doi: 10.1536/ihj.18-725. Epub 2019 Aug 23. PMID: 31447466.	Wrong population
Yan P, Duan SB, Luo XQ, Zhang NY, Deng YH. Effects of intravenous hydration in preventing post-contrast acute kidney injury in patients with eGFR < 30 mL/min/1.73 m2. Eur Radiol. 2023 Dec;33(12):9434-9443. doi: 10.1007/s00330-023-09858-9. Epub 2023 Jun 27. PMID: 37368109.	Observational study
Zaki HA, Bashir K, Iftikhar H, Alhatemi M, Elmoheen A. Evaluating the Effectiveness of Pretreatment With Intravenous Fluid in Reducing the Risk of Developing Contrast-Induced Nephropathy: A Systematic Review and Meta-Analysis. Cureus. 2022 May 8;14(5):e24825. doi: 10.7759/cureus.24825. PMID: 35693368; PMCID: PMC9172963.	No additional studies after search date previous guideline (2017)

Literature search strategy

Cluster/richtlijn: Cluster Beeldvormende diagnostiek - UV1 Hydratie en complicaties

Uitgangsvraag/modules: Welke hydratiestrategie dient te worden toegepast bij patiënten die intravasculair jodiumhoudend contrastmiddel (CM)-toediening ondergaan en een hoog PC-AKI risico hebben?	
Database(s): Embase.com, Ovid/Medline	Datum: 21 oktober 2024
Periode: vanaf 2017	Talen: geen restrictie
Literatuurspecialist: Esther van der Bijl	Rayyan review: https://new.rayyan.ai/reviews/1198413/overview
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/ Deduplication: voor het ontdubbelen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen impaired renal function EN iodine-containing contrast media EN hydration. De sleutelartikelen worden gevonden met deze search.	
Te gebruiken voor richtlijntekst: In de databases Embase.com en Ovid/Medline is op 21 oktober 2024 systematisch gezocht naar systematische reviews, RCTs en observationele studies over hydratie bij patiënten die jodiumhoudend contrastmiddel toegediend krijgen en een hoog PC-AKI risico hebben. De literatuurzoekactie leverde 571 unieke treffers op.	

Zoekopbrengst 21 oktober 2024

	EMBASE	**OVID/MEDLINE**	**Ontdubbeld**
SR	90	62	94
RCT	231	144	261
Observationele studies	207	90	216
Totaal	528	296	**571***

in Rayyan

5 ***Zoekstrategie Embase.com 21 oktober 2024***

No.	***Query***	***Results***
#1	'kidney failure'/exp OR 'chronic kidney failure'/exp OR 'estimated glomerular filtration rate'/exp OR 'kidney disease'/de OR 'kidney function'/de OR (((kidney* OR renal*) NEAR/3 (disease* OR disorder* OR failure* OR insufficienc* OR injur* OR function*)):ti,ab,kw) OR 'nephropath*':ti,ab,kw OR egfr:ti,ab,kw OR gfr:ti,ab,kw OR 'estimated gfr':ti,ab,kw OR 'glomerular filtration rat*':ti,ab,kw OR 'glomerulofiltration rat*':ti,ab,kw OR 'glomerulus filtration rat*':ti,ab,kw OR ckd:ti,ab,kw OR nephrotoxicit*:ti,ab,kw OR 'aki':ti,ab,kw	1229889

#2	'contrast medium'/exp OR 'iodinated contrast medium'/exp OR 'percutaneous coronary intervention'/exp OR 'angiography'/exp OR 'arteriography'/exp OR (((contrast OR radiocontrast) NEAR/3 (agent* OR material* OR media OR medium OR iodinated OR iodine OR iodized OR administrat* OR dose OR doses OR dosage OR enhanced OR exposure)):ti,ab,kw) OR 'percutaneous coronary intervention':ti,ab,kw OR 'contrast-induc*':ti,ab,kw OR 'radiocontrast-induc*':ti,ab,kw OR 'angiograph*':ti,ab,kw OR 'arteriogram*':ti,ab,kw OR 'arteriograph*':ti,ab,kw OR aortogram*:ti,ab,kw OR aortograph*:ti,ab,kw OR iodinated*:ti,ab,kw OR iodine*:ti,ab,kw OR 'iodixanol'/exp OR 'cardiascan':ti,ab,kw OR 'du 6807':ti,ab,kw OR 'du6807':ti,ab,kw OR 'iodixanol':ti,ab,kw OR 'iodixlu':ti,ab,kw OR 'iodixonal':ti,ab,kw OR 'optiprep':ti,ab,kw OR 'visipaque':ti,ab,kw OR 'xanoimage':ti,ab,kw OR 'meglumine ioxaglate plus sodium ioxaglate'/exp OR 'ag 62 27':ti,ab,kw OR 'ag 6227':ti,ab,kw OR 'ag6227':ti,ab,kw OR 'hexabrix':ti,ab,kw OR 'iomeprol'/exp OR 'b 16880':ti,ab,kw OR 'b16880':ti,ab,kw OR 'imeron':ti,ab,kw OR 'iomeprol':ti,ab,kw OR 'iomeron':ti,ab,kw OR 'iopamidol'/exp OR 'angiotron':ti,ab,kw OR 'b 15000':ti,ab,kw OR 'b15000':ti,ab,kw OR 'gastromiro':ti,ab,kw OR 'iopamidol':ti,ab,kw OR 'iopamidole':ti,ab,kw OR 'iopamigita':ti,ab,kw OR 'iopamilu':ti,ab,kw OR 'iopamiro':ti,ab,kw OR 'iopamiron':ti,ab,kw OR 'iopasen':ti,ab,kw OR 'iopasentis':ti,ab,kw OR 'iopathek':ti,ab,kw OR 'ipobraz':ti,ab,kw OR 'isovue':ti,ab,kw OR 'jopamiro':ti,ab,kw OR 'jopamirol':ti,ab,kw OR 'jopamiron':ti,ab,kw OR 'livealthimage':ti,ab,kw OR 'lopamidol':ti,ab,kw OR 'niopam':ti,ab,kw OR 'pamimage':ti,ab,kw OR 'scanlux':ti,ab,kw OR 'solutrast':ti,ab,kw OR 'sq 13396':ti,ab,kw OR 'sq13396':ti,ab,kw OR 'iohexol'/exp OR 'accupaque':ti,ab,kw OR 'exypaque':ti,ab,kw OR 'hexoimage':ti,ab,kw OR 'hexopaque':ti,ab,kw OR 'iohexagita':ti,ab,kw OR 'iohexlu':ti,ab,kw OR 'iohexol':ti,ab,kw OR 'iovision':ti,ab,kw OR 'kopaq':ti,ab,kw OR 'myelo-kit':ti,ab,kw OR 'nioscan':ti,ab,kw OR 'nycodenz':ti,ab,kw OR 'omnipaque':ti,ab,kw OR 'omnitrast':ti,ab,kw OR 'oraltag':ti,ab,kw OR 'win 39424':ti,ab,kw OR 'win39424':ti,ab,kw OR 'ioversol'/exp OR 'ioversol':ti,ab,kw OR 'mp 328':ti,ab,kw OR 'mp328':ti,ab,kw OR 'optiimage':ti,ab,kw OR 'optiject':ti,ab,kw OR 'optiray':ti,ab,kw OR 'iopromide'/exp OR 'iopromide':ti,ab,kw OR 'mypromide':ti,ab,kw OR 'ultraimage':ti,ab,kw OR 'ultravist':ti,ab,kw OR 'zk 35760':ti,ab,kw OR 'zk35760':ti,ab,kw OR 'iobitridol'/exp OR 'iobitridol':ti,ab,kw OR 'xenetix':ti,ab,kw OR 'ioxaglic acid'/exp OR 'er 60':ti,ab,kw OR 'er 61':ti,ab,kw OR 'er60':ti,ab,kw OR 'er61':ti,ab,kw OR 'ioxaglamate sodium':ti,ab,kw OR 'ioxaglate':ti,ab,kw OR 'ioxaglate sodium':ti,ab,kw OR 'ioxaglic acid':ti,ab,kw OR 'ioxaglinic acid':ti,ab,kw OR 'p 286':ti,ab,kw OR 'p286':ti,ab,kw OR 'sodium ioxaglate':ti,ab,kw OR 'iosimenol'/exp OR 'iosimenol':ti,ab,kw OR 'iosmin':ti,ab,kw	1089925
#3	#1 AND #2	66977

#4	'contrast induced nephropathy'/exp OR (('rc-induc*' OR 'contrast induc*' OR 'radiocontrast induc*') NEAR/4 (nephropath* OR nephrotoxicit* OR renal OR kidney*)):ti,ab,kw) OR 'ci-aki':ti,ab,kw OR 'pc-aki':ti,ab,kw	8800
#5	#3 OR #4	67543
#6	'sodium chloride'/exp OR 'alcathion':ti,ab,kw OR 'dendritis':ti,ab,kw OR 'flexivial':ti,ab,kw OR 'gingivyl':ti,ab,kw OR 'halite':ti,ab,kw OR 'hypersal':ti,ab,kw OR 'hyposaline*':ti,ab,kw OR 'natrium chloride':ti,ab,kw OR 'physiological solution':ti,ab,kw OR 'purex':ti,ab,kw OR 'saline*':ti,ab,kw OR 'salt':ti,ab,kw OR 'sodium chloride':ti,ab,kw OR 'sodiumchloride':ti,ab,kw OR 'isotonic saline'/exp OR 'bicarbonate'/exp OR 'baros':ti,ab,kw OR 'bicarbonate*':ti,ab,kw OR 'colevac':ti,ab,kw OR 'dicarbonate*':ti,ab,kw OR 'hydrocarbonate*':ti,ab,kw OR 'meylon':ti,ab,kw OR 'neut':ti,ab,kw OR 'thamicarb':ti,ab,kw OR 'hydration'/exp OR 'hydrat*':ti,ab,kw OR 'prehydrat*':ti,ab,kw OR 'posthydrat*':ti,ab,kw	752534
#7	#5 AND #6	4063
#8	#7 AND [2017-2025]/py NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	878
#9	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*':ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR ((((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynthes*:ti,ab OR 'meta synthes*':ti,ab	1071220
#10	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	4127462
#11	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative	8454461

	study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	
#12	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4 clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (scor* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR (('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR 'cross sectional*':ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk ratio*':ab OR 'relative risk*':ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR ((('or' OR 'rr') NEAR/6 ci):ab)))	15474998
#13	#8 AND #9 - SR	90
#14	#8 AND #10 NOT #13 - RCT	231
#15	#8 AND (#11 OR #12) NOT (#13 OR #14) - Observationeel	207
#16	#13 OR #14 OR #15 - Totaal	528

Zoekstrategie Ovid/Medline 21 oktober 2024

#	Searches	Results
1	exp Renal Insufficiency/ or exp Kidney Failure, Chronic/ or exp Glomerular Filtration Rate/ or *Kidney Diseases/ or ((kidney* or renal*) adj3 (disease* or disorder* or failure* or insufficienc* or injur* or function*)).ti,ab,kf. or nephropath*.ti,ab,kf. or egfr.ti,ab,kf. or gfr.ti,ab,kf. or estimated gfr.ti,ab,kf. or glomerular filtration rat*.ti,ab,kf. or glomerulofiltration rat*.ti,ab,kf. or glomerulus filtration rat*.ti,ab,kf. or ckd.ti,ab,kf. or nephrotoxicit*.ti,ab,kf. or aki.ti,ab,kf.	680591
2	exp Contrast Media/ or exp Percutaneous Coronary Intervention/ or exp Angiography/ or ((contrast or radiocontrast) adj3 (agent* or material* or media or medium or iodinated or iodine or iodized or administrat* or dose or doses or dosage or enhanced or exposure)).ti,ab,kf. or percutaneous coronary intervention.ti,ab,kf. or contrast-induc*.ti,ab,kf. or radiocontrast-induc*.ti,ab,kf. or angiograph*.ti,ab,kf. or arteriogram*.ti,ab,kf. or arteriograph*.ti,ab,kf. or aortogram*.ti,ab,kf. or aortograph*.ti,ab,kf. or iodinated*.ti,ab,kf. or iodine*.ti,ab,kf. or cardiascan.ti,ab,kf. or du 6807.ti,ab,kf. or du6807.ti,ab,kf. or iodixanol.ti,ab,kf. or iodixlu.ti,ab,kf. or iodixonal.ti,ab,kf. or optiprep.ti,ab,kf. or visipaque.ti,ab,kf. or xanoimage.ti,ab,kf. or exp Ioxaglic Acid/ or ag 62 27.ti,ab,kf. or ag 6227.ti,ab,kf. or ag6227.ti,ab,kf. or hexabrix.ti,ab,kf. or b 16880.ti,ab,kf. or b16880.ti,ab,kf. or imeron.ti,ab,kf. or iomeprol.ti,ab,kf. or iomeron.ti,ab,kf. or exp Iopamidol/ or angiotron.ti,ab,kf. or b 15000.ti,ab,kf. or b15000.ti,ab,kf. or gastromiro.ti,ab,kf. or iopamidol.ti,ab,kf. or iopamidole.ti,ab,kf. or iopamigita.ti,ab,kf. or iopamilu.ti,ab,kf. or iopamiro.ti,ab,kf. or iopamiron.ti,ab,kf. or iopasen.ti,ab,kf. or iopasentis.ti,ab,kf. or iopathek.ti,ab,kf. or ipobraz.ti,ab,kf. or isovue.ti,ab,kf. or jopamiro.ti,ab,kf. or jopamirol.ti,ab,kf. or jopamiron.ti,ab,kf. or livealthimage.ti,ab,kf. or Iopamidol.ti,ab,kf. or niopam.ti,ab,kf. or pamimage.ti,ab,kf. or scanlux.ti,ab,kf. or solutrast.ti,ab,kf. or sq 13396.ti,ab,kf. or sq13396.ti,ab,kf. or exp Iohexol/ or accupaque.ti,ab,kf. or exypaque.ti,ab,kf. or hexoimage.ti,ab,kf. or hexopaque.ti,ab,kf. or iohexagita.ti,ab,kf. or iohexlu.ti,ab,kf. or iohexol.ti,ab,kf. or iovision.ti,ab,kf. or kopaq.ti,ab,kf. or myelo-kit.ti,ab,kf. or nioscan.ti,ab,kf. or nycodenz.ti,ab,kf. or omnipaque.ti,ab,kf. or omnitrast.ti,ab,kf. or oraltag.ti,ab,kf. or win 39424.ti,ab,kf. or win39424.ti,ab,kf. or ioversol.ti,ab,kf. or mp 328.ti,ab,kf. or mp328.ti,ab,kf. or optiimage.ti,ab,kf. or optiject.ti,ab,kf. or optiray.ti,ab,kf. or iopromide.ti,ab,kf. or mypromide.ti,ab,kf. or ultraimage.ti,ab,kf. or ultravist.ti,ab,kf. or zk 35760.ti,ab,kf. or zk35760.ti,ab,kf. or iobitridol.ti,ab,kf. or xenetix.ti,ab,kf. or exp Ioxaglic Acid/ or er 60.ti,ab,kf. or er 61.ti,ab,kf. or er60.ti,ab,kf. or er61.ti,ab,kf. or ioxaglamate sodium.ti,ab,kf. or ioxaglate.ti,ab,kf. or ioxaglate sodium.ti,ab,kf. or ioxaglic acid.ti,ab,kf. or ioxaglinic acid.ti,ab,kf. or p 286.ti,ab,kf. or p286.ti,ab,kf. or sodium ioxaglate.ti,ab,kf. or iosimenol.ti,ab,kf. or iosmin.ti,ab,kf.	700016
3	1 and 2	27564

4	(((rc-induc* or contrast induc* or radiocontrast induc*) adj4 (nephropath* or nephrotoxicit* or renal or kidney*)) or ci-aki or pc-aki).ti,ab,kf.	3948
5	3 or 4	27592
6	exp Sodium Chloride/ or exp Bicarbonates/ or alcathion.ti,ab,kf. or dendritis.ti,ab,kf. or flexivial.ti,ab,kf. or gingivyl.ti,ab,kf. or halite.ti,ab,kf. or hypersal.ti,ab,kf. or hyposaline*.ti,ab,kf. or natrium chloride.ti,ab,kf. or physiological solution.ti,ab,kf. or purex.ti,ab,kf. or saline*.ti,ab,kf. or salt.ti,ab,kf. or sodium chloride.ti,ab,kf. or sodiumchloride.ti,ab,kf. or baros.ti,ab,kf. or bicarbonate*.ti,ab,kf. or colevac.ti,ab,kf. or dicarbonate*.ti,ab,kf. or hydrocarbonate*.ti,ab,kf. or meylon.ti,ab,kf. or neut.ti,ab,kf. or thamicarb.ti,ab,kf. or hydrat*.ti,ab,kf. or prehydrat*.ti,ab,kf. or posthydrat*.ti,ab,kf.	545558
7	5 and 6	1583
8	limit 7 to yr="2017 -Current"	485
9	8 not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	411
10	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	783100
11	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind$3 or mask$3)).tw. or Placebos/ or placebo*.tw.	2792904
12	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	4858135

13	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or match*))).ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or multicent* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or (("OR" or "RR") adj6 CI).ab.))	5813056
14	9 and 10 - SR	62
15	(9 and 11) not 14 - RCT	144
16	(9 and (12 or 13)) not (14 or 15) - Observationeel	90
17	14 or 15 or 16 - Totaal	296

5

Bijlagen bij module SGLT2 remmers

Risk of bias table for interventions studies (cohort studies based on risk of bias tool by the CLARITY Group at McMaster University)

Author, year	Selection of participants Was selection of exposed and non-exposed cohorts drawn from the same population?	Exposure Can we be confident in the assessment of exposure?	Outcome of interest Can we be confident that the outcome of interest was not present at start of study?	Confounding-assessment Can we be confident in the assessment of confounding factors?	Confounding-analysis Did the study match exposed and unexposed for all variables that are associated with the outcome of interest or did the statistical analysis adjust for these confounding variables?	Assessment of outcome Can we be confident in the assessment of outcome?	Follow up Was the follow up of cohorts adequate? In particular, was outcome data complete or imputed?	Co-interventions Were co-interventions similar between groups?	Overall Risk of bias
	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Definitely yes, probably yes, probably no, definitely no	Low, Some concerns, High
Çabuk, 2024	*Definitely yes* Reason: Participants were selected from same hospital.	*Probably yes* Reason: Derived from electronic medical records.	*Probably yes* Reason: Outcome related to intervention.	*Probably yes* Reason: Derived from medical records.	*Probably yes* Reason: Adjustment for confounding variables was performed.	*Probably yes* Reason: The outcome of interest was predefined.	*Probably yes* Reason: Follow-up was adequate and loss to follow-up was silimar in both groups. No missing data.	*No information* No information presented for the subgroup of patients with eGFR <60 mL/min/1.73m^2	**Low**

Chen, 2024	*Definitely yes* Reason: Participants were selected from a database.	*Probably yes* Reason: Derived from database.	*Probably yes* Reason: Outcome related to intervention.	*Probably yes* Reason: Confounding factors were retrieved from database.	*Probably yes* Reason: Overlap weighting was performed to adjust for the effect of confounders.	*Probably yes* Reason: The outcome of interest was predefined.	*Probably yes* Reason: Follow-up was adequate	*No information* No information presented for the subgroup of patients with high CKD risk	**Low**
Liu, 2023	*Definitely yes* Reason: Participants were selected from same hospital.	*Probably yes* Reason: Derived electronic medical records.	*Probably yes* Reason: Outcome related to intervention.	*Probably yes* Reason: Confounding factors were retrieved from electronic medical records.	*Probably yes* Reason: Propensity score-matching analysis was conducted.	*Probably yes* Reason: The outcome of interest was predefined.	*Probably yes* Reason: Follow-up was adequate	*No information* No information presented for the subgroup of patients with CKD stage G3a	**Low**
Paolisso, 2023	*Definitely yes* Reason: Participants were selected from a registry.	*Probably yes* Reason: Derived from registry.	*Probably yes* Reason: Outcome related to intervention.	*Probably yes* Reason: Participants characteristics were derived from registry.	*Probably yes* Reason: Multivariate analysis adjusted for confounding factors.	*Probably yes* Reason: The highest serum creatinine level within 72 hours after PCI was used to diagnose CI-AKI.	*Probably yes* Reason: Follow-up was adequate.	*Probably no* Reason: Glucose-lowering agents at admission and in-hospital glucose-lowering strategy were different between groups.	**Low**

Table of excluded studies

Reference	Reason for exclusion
Basutkar RS, Cutinha RM, Sathish V, Shahil A, Saneen Ck N. Impact of SGLT2 Inhibitors on Renal Function in Type 2 Diabetic Patients with Coronary Artery Disease Undergoing Percutaneous Intervention: A Systematic Review and Meta-Analysis. Curr Diabetes Rev. 2024 Jul 3. doi: 10.2174/0115733998301228240625065230. Epub ahead of print. PMID: 38963097.	Wrong population: with or without chronic kidney disease.
Cai D, Chen Q, Mao L, Xiao T, Wang Y, Gu Q, Wang Q, Ji Y, Sun L. Association of SGLT2 inhibitor dapagliflozin with risks of acute kidney injury and all-cause mortality in acute myocardial infarction patients. Eur J Clin Pharmacol. 2024 Apr;80(4):613-620. doi: 10.1007/s00228-024-03623-7. Epub 2024 Feb 6. PMID: 38319348; PMCID: PMC10937750.	Wrong population: no subgroup based on eGFR<60 ml/min/1.73m^2
Chang TY, Lu CT, Huang HL, Chou RH, Chang CC, Liu CT, Huang PH, Lin SJ. Association of Sodium-Glucose Cotransporter 2 (SGLT2) Inhibitor Use With Cardiovascular and Renal Outcomes in Type 2 Diabetes Mellitus Patients With Stabilized Acute Myocardial Infarction: A Propensity Score Matching Study. Front Cardiovasc Med. 2022 Apr 29;9:882181. doi: 10.3389/fcvm.2022.882181. PMID: 35571176; PMCID: PMC9098830.	Wrong population: no subgroup based on eGFR<60 ml/min/1.73m^2
Feitosa MPM, Lima EG, Abizaid AAC, Mehran R, Lopes NHM, de Assis Fischer Ramos T, Hideo-Kajita A, Filho RK, Junior CVS. The safety of SGLT-2 inhibitors in diabetic patients submitted to elective percutaneous coronary intervention regarding kidney function: SAFE-PCI pilot study. Diabetol Metab Syndr. 2023 Jun 26;15(1):138. doi: 10.1186/s13098-023-01107-9. PMID: 37365618; PMCID: PMC10291785.	Wrong population: no subgroup based on eGFR<60 ml/min/1.73m^2
Hitchen SA, Lan NSR, Rankin JM, Larbalestier R, Yeap BB, Fegan PG. Real-world barriers and safety of initiating sodium-glucose co-transporter 2 inhibitor treatment immediately following an acute cardiac event in people with diabetes. J Diabetes Complications. 2021 Dec;35(12):108057. doi: 10.1016/j.jdiacomp.2021.108057. Epub 2021 Sep 29. PMID: 34610888.	No comparison: barriers to initiating SGLT2 inhibitors
Hua R, Ding N, Guo H, Wu Y, Yuan Z, Li T. Contrast-Induced Acute Kidney Injury in Patients on SGLT2 Inhibitors Undergoing Percutaneous Coronary Interventions: A Propensity-Matched Analysis. Front Cardiovasc Med. 2022 Jun 20;9:918167. doi: 10.3389/fcvm.2022.918167. PMID: 35795364; PMCID: PMC9251334.	Wrong population: no subgroup based on eGFR<60 ml/min/1.73m^2
Jang J, Park S, Kim S, Kim SH, Oh YS, Sa YK, Hwang Y, Jang SW, Ihm SH, Choi Y. Clinical outcomes with the use of sodium-glucose cotransporter-2 inhibitors in patients with atrial fibrillation and type 2 diabetes mellitus: a multi-centre, real-world cohort study. Eur J Prev Cardiol. 2024 Feb 15;31(3):320-329. doi: 10.1093/eurjpc/zwad322. PMID: 37798123.	Unclear how chronic kidney disease was defined (no data about eGFR)

Jhund PS, Solomon SD, Docherty KF, Heerspink HJL, Anand IS, Böhm M, Chopra V, De Boer RA, Desai AS, Ge J, Kitakaze M, Merkley B, O'Meara E, Shou M, Tereshchenko S, Verma S, Vinh PN, Inzucchi SE, Køber L, Kosiborod MN, Martinez FA, Ponikowski P, Sabatine MS, Bengtsson O, Langkilde AM, Sjöstrand M, McMurray JJV. Efficacy of Dapagliflozin on Renal Function and Outcomes in Patients with Heart Failure with Reduced Ejection Fraction: Results of DAPA-HF. Circulation. 2021; 143 (4) :298-309	Wrong population: did not receive contrast media
Karakasis P, Fragakis N, Kouskouras K, Karamitsos T, Patoulias D, Rizzo M. Sodium-Glucose Cotransporter-2 Inhibitors in Patients With Acute Coronary Syndrome: A Modern Cinderella? Clin Ther. 2024 Jul 10:S0149-2918(24)00149-8. doi: 10.1016/j.clinthera.2024.06.010. Epub ahead of print. PMID: 38991865.	No systematic review
Kültürsay B, Yılmaz C, Güven B, Mutlu D, Karagöz A. Potential renoprotective effect of SGLT2 inhibitors against contrast-induced AKI in diabetic STEMI patients undergoing primary PCI. Kardiol Pol. 2024;82(1):29-36. doi: 10.33963/v.kp.98260. Epub 2024 Jan 17. PMID: 38230461.	Wrong population: no subgroup based on eGFR<60 ml/min/1.73m^2
Liu X, Wang W, Xing X. Effect of SGLT2 Inhibitors on Post-PCI Outcomes after Acute Myocardial Infarction in Diabetic Patients: A Systematic Review and Meta-Analysis. Heart Surgery Forum. 2024; 27 (4) :E414-E423	Review of poor quality
McMurray JJV, Wheeler DC, Stefánsson BV, Jongs N, Postmus D, Correa-Rotter R, Chertow GM, Greene T, Held C, Hou FF, Mann JFE, Rossing P, Sjöström CD, Toto RD, Langkilde AM, Heerspink HJL. Effect of Dapagliflozin on Clinical Outcomes in Patients With Chronic Kidney Disease, With and Without Cardiovascular Disease. Circulation. 2021; 143 (5) :438-448	Wrong population: eGFR between 25 and 75 mL·min–1·1.73 m–2, and
Meregildo-Rodriguez ED, Asmat-Rubio MG, Vásquez-Tirado GA. SGLT-2 inhibitors and prevention of contrast-induced nephropathy in patients with diabetes undergoing coronary angiography and percutaneous coronary interventions: systematic review and meta-analysis. Front Endocrinol (Lausanne). 2023 Dec 20;14:1307715. doi: 10.3389/fendo.2023.1307715. PMID: 38179307; PMCID: PMC10765513.	Unclear about reduced kidney function
Nardi G, Marchi E, Allinovi M, Lugli G, Biagiotti L, Di Muro FM, Valenti R, Muraca I, Tomberli B, Ciardetti N, Alterini B, Meucci F, Di Mario C, Mattesini A. Contrast-Induced Acute Kidney Injury in Patients with Heart Failure on Sodium-Glucose Cotransporter-2 Inhibitors Undergoing Radiocontrast Agent Invasive Procedures: A Propensity-Matched Analysis. J Clin Med. 2024 Apr 1;13(7):2041. doi: 10.3390/jcm13072041. PMID: 38610806; PMCID: PMC11012317.	Wrong population: no subgroup based on eGFR<60 ml/min/1.73m^2
Paolisso P, Bergamaschi L, Gragnano F, Gallinoro E, Cesaro A, Sardu C, Mileva N, Foà A, Armillotta M, Sansonetti A, Amicone S, Impellizzeri A, Esposito G, Morici N, Andrea OJ,	Wrong population: no subgroup based on eGFR<60 ml/min/1.73m^2

Casella G, Mauro C, Vassilev D, Galie N, Santulli G, Marfella R, Calabrò P, Pizzi C, Barbato E. Outcomes in diabetic patients treated with SGLT2-Inhibitors with acute myocardial infarction undergoing PCI: The SGLT2-I AMI PROTECT Registry. Pharmacol Res. 2023 Jan;187:106597. doi: 10.1016/j.phrs.2022.106597. Epub 2022 Dec 5. PMID: 36470546; PMCID: PMC9946774.	
Schechter M, Melzer-Cohen C, Rozenberg A, Yanuv I, Chodick G, Karasik A, Kosiborod M, Mosenzon O. Cardiorenal outcomes with sodium/glucose cotransporter-2 inhibitors in patients with type 2 diabetes and low kidney risk: real world evidence. Cardiovasc Diabetol. 2021 Aug 18;20(1):169. doi: 10.1186/s12933-021-01362-y. PMID: 34407822; PMCID: PMC8375057.	Wrong comparison: other glucose lowering agent
Tsukamoto S, Kobayashi K, Toyoda M, Tone A, Kawanami D, Suzuki D, Tsuriya D, Machimura H, Shimura H, Wakui H, Takeda H, Yokomizo H, Takeshita K, Chin K, Kanasaki K, Miyauchi M, Saburi M, Morita M, Yomota M, Kimura M, Hatori N, Nakajima S, Ito S, Murata T, Matsushita T, Furuki T, Hashimoto T, Umezono T, Muta Y, Takashi Y, Tamura K. Effect of preceding drug therapy on the renal and cardiovascular outcomes of combined sodium-glucose cotransporter-2 inhibitor and glucagon-like peptide-1 receptor agonist treatment in patients with type 2 diabetes and chronic kidney disease. Diabetes, Obesity and Metabolism. 2024; 26 (8) :3248-3260	Wrong study aim: to examine whether the composite renal outcome differed between those who received SGLT2 inhibitor treatment first and those who received a GLP-1RA first

Literature search strategy

Cluster/richtlijn: Beeldvormende diagnostiek - Veilig gebruik van contrastmiddelen - Module SGLT2 remmers	
Uitgangsvraag/modules: Wat is de waarde van SGLT-2 remmers bij patiënten met een verminderde nierfunctie die intravasculair contrastmiddel (CM) krijgen toegediend?	
Database(s): Embase.com, Ovid/Medline	Datum: 8 augustus 2024
Periode: vanaf 2015	Talen: geen restrictie
Literatuurspecialist: Esther van der Bijl	Rayyan review: https://rayyan.ai/reviews/1117417
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/ Deduplication: voor het ontdubbelen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen ((kidney failure AND iodinated contrast medium) OR contrast induced nephropathy) AND SGLT2. De sleutelartikelen worden gevonden met deze search.	
Te gebruiken voor richtlijntekst: In de databases Embase.com en Ovid/Medline is op 8 augustus 2024 systematisch gezocht naar systematische reviews, RCTs en observationele studies over de waarde van SGLT-2 remmers bij patiënten met een verminderde nierfunctie die intravasculair contrastmiddel krijgen toegediend. De literatuurzoekactie leverde 196 unieke treffers op.	

Zoekopbrengst 8 augustus 2024

	EMBASE	OVID/MEDLINE	Ontdubbeld
SR	28	3	28
RCT	82	11	87
Observationele studies	81	11	81
Totaal	191	25	**196***

in Rayyan

Zoekstrategie Embase.com 8 augustus 2024

No.	Query	Results
#1	'kidney failure'/exp OR 'chronic kidney failure'/exp OR 'estimated glomerular filtration rate'/exp OR 'kidney disease'/de OR 'kidney function'/de OR (((kidney* OR renal*) NEAR/3 (disease* OR disorder* OR failure* OR insufficienc* OR injur*)):ti,ab,kw) OR 'nephropath*':ti,ab,kw OR egfr:ti,ab,kw OR gfr:ti,ab,kw OR 'estimated gfr':ti,ab,kw OR 'glomerular filtration rat*':ti,ab,kw OR 'glomerulofiltration rat*':ti,ab,kw OR 'glomerulus filtration rat*':ti,ab,kw OR ckd:ti,ab,kw OR 'kidney function':ti,ab,kw OR nephrotoxicit*:ti,ab,kw OR 'aki':ti,ab,kw	1179169
#2	'contrast medium'/exp OR 'iodinated contrast medium'/exp OR 'percutaneous coronary intervention'/exp OR 'arteriography'/exp OR 'ioversol'/exp OR 'iobitridol'/exp OR (((contrast OR radiocontrast) NEAR/3 (agent* OR material* OR media OR medium OR iodinated OR iodine OR iodized OR administrat* OR dose OR doses OR dosage OR enhanced OR exposure)):ti,ab,kw) OR 'percutaneous coronary intervention':ti,ab,kw OR 'contrast-induc*':ti,ab,kw OR 'radiocontrast-induc*':ti,ab,kw OR 'arter* angiograph*':ti,ab,kw OR 'arteriogram*':ti,ab,kw OR 'arteriograph*':ti,ab,kw OR hexabrix:ti,ab,kw OR iomeron:ti,ab,kw OR iopamiro:ti,ab,kw OR omnipaque:ti,ab,kw OR optiray:ti,ab,kw OR ultravist:ti,ab,kw OR xenetix:ti,ab,kw OR iodixanol:ti,ab,kw OR ioxaglate:ti,ab,kw OR iomeprol:ti,ab,kw OR iopamidol:ti,ab,kw OR iosimenol:ti,ab,kw OR iohexol:ti,ab,kw OR ioversol:ti,ab,kw OR iopromide:ti,ab,kw OR iobitridol:ti,ab,kw	567884
#3	#1 AND #2	46000
#4	'contrast induced nephropathy'/exp OR ((('rc-induc*' OR 'contrast induc*' OR 'radiocontrast induc*') NEAR/4 (nephropath* OR nephrotoxicit* OR renal OR kidney*)):ti,ab,kw) OR 'ci-aki':ti,ab,kw	8636
#5	#3 OR #4	46731
#6	'sodium glucose cotransporter 2 inhibitor'/exp OR sglt2:ti,ab,kw OR 'sglt 2':ti,ab,kw OR 'gliflozin*':ti,ab,kw OR 'sodium dependent glucose cotransporter 2':ti,ab,kw OR 'sodium glucose co-transporter 2':ti,ab,kw OR 'sodium glucose cotransporter 2':ti,ab,kw OR 'sodium-glucose transporter 2':ti,ab,kw OR 'sodium dependent glucose cotransporter2':ti,ab,kw OR 'sodium glucose co-transporter2':ti,ab,kw OR 'sodium glucose cotransporter2':ti,ab,kw OR 'sodium-glucose transporter2':ti,ab,kw OR 'canagliflozin'/exp OR 'canagliflocin':ti,ab,kw OR 'canagliflozin':ti,ab,kw OR 'canaglu':ti,ab,kw OR 'invokana':ti,ab,kw OR 'jnj 28431754':ti,ab,kw OR 'jnj28431754':ti,ab,kw OR 'sulisent':ti,ab,kw OR 'ta 7284':ti,ab,kw OR	34147

	'ta7284':ti,ab,kw OR 'dapagliflozin'/exp OR 'andatang':ti,ab,kw OR 'bms 512148':ti,ab,kw OR 'bms512148':ti,ab,kw OR 'ckd 380':ti,ab,kw OR 'ckd380':ti,ab,kw OR 'dapagliflozin':ti,ab,kw OR 'dwp 16001':ti,ab,kw OR 'dwp16001':ti,ab,kw OR 'edistride':ti,ab,kw OR 'farxiga':ti,ab,kw OR 'forxiga':ti,ab,kw OR 'hgp 1602':ti,ab,kw OR 'hgp 1812':ti,ab,kw OR 'hgp1602':ti,ab,kw OR 'hgp1812':ti,ab,kw OR 'lyn 045':ti,ab,kw OR 'lyn045':ti,ab,kw OR 'oxra':ti,ab,kw OR 'empagliflozin'/exp OR 'bi 10773':ti,ab,kw OR 'bi10773':ti,ab,kw OR 'ckd 398':ti,ab,kw OR 'ckd398':ti,ab,kw OR 'empagliflozin':ti,ab,kw OR 'gibtulio':ti,ab,kw OR 'jardiance':ti,ab,kw OR 'oboravo':ti,ab,kw OR 'ertugliflozin'/exp OR 'ertugliflozin':ti,ab,kw OR 'mk 8835':ti,ab,kw OR 'mk8835':ti,ab,kw OR 'pf 04971729':ti,ab,kw OR 'pf 04971729 00':ti,ab,kw OR 'pf 04971729-00':ti,ab,kw OR 'pf 4971729':ti,ab,kw OR 'pf 4971729 00':ti,ab,kw OR 'pf 4971729-00':ti,ab,kw OR 'pf04971729':ti,ab,kw OR 'pf04971729 00':ti,ab,kw OR 'pf04971729-00':ti,ab,kw OR 'pf4971729':ti,ab,kw OR 'pf4971729 00':ti,ab,kw OR 'pf4971729-00':ti,ab,kw OR 'steglatro':ti,ab,kw	
#7	#5 AND #6	375
#8	#7 AND [2015-2024]/py NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	292
#9	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR metaanaly*:ti,ab OR 'meta analy*':ti,ab OR metanaly*:ti,ab OR 'systematic review'/de OR 'cochrane database of systematic reviews'/jt OR prisma:ti,ab OR prospero:ti,ab OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab) OR ((systemic* NEAR/1 review*):ti,ab) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab) OR (((literature NEAR/3 review*):ti,ab) AND (search*:ti,ab OR database*:ti,ab OR 'data base*':ti,ab)) OR (('data extraction':ti,ab OR 'data source*':ti,ab) AND 'study selection':ti,ab) OR ('search strategy':ti,ab AND 'selection criteria':ti,ab) OR ('data source*':ti,ab AND 'data synthesis':ti,ab) OR medline:ab OR pubmed:ab OR embase:ab OR cochrane:ab OR (((critical OR rapid) NEAR/2 (review* OR overview* OR synthes*)):ti) OR ((((critical* OR rapid*) NEAR/3 (review* OR overview* OR synthes*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynthes*:ti,ab OR 'meta synthes*':ti,ab	1051754
#10	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	4083147
#11	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	8351280

#12	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4 clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (scor* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR (('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR 'cross sectional*':ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk ratio*':ab OR 'relative risk*':ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR ((('or' OR 'rr') NEAR/6 ci):ab)))	15298363
#13	#8 AND #9 – SR's	28
#14	#8 AND #10 NOT #13 – RCT's	82
#15	#8 AND (#11 OR #12) NOT (#13 OR #14) – Observationele studies	81
#16	#13 OR #14 OR #15	191

Zoekstrategie Ovid/Medline 8 augustus 2024

#	Searches	Results
1	exp Renal Insufficiency/ or exp Kidney Failure, Chronic/ or exp Glomerular Filtration Rate/ or *Kidney Diseases/ or ((kidney* or renal*) adj3 (disease* or disorder* or failure* or insufficienc* or injur*)).ti,ab,kf. or nephropath*.ti,ab,kf. or egfr.ti,ab,kf. or gfr.ti,ab,kf. or estimated gfr.ti,ab,kf. or glomerular filtration rat*.ti,ab,kf. or glomerulofiltration rat*.ti,ab,kf. or glomerulus filtration rat*.ti,ab,kf. or ckd.ti,ab,kf. or kidney function.ti,ab,kf. or nephrotoxicit*.ti,ab,kf. or aki.ti,ab,kf.	626742
2	exp Contrast Media/ or exp Percutaneous Coronary Intervention/ or exp Angiography/ or ((contrast or radiocontrast) adj3 (agent* or material* or media or medium or iodinated or iodine or iodized or administrat* or dose or doses or dosage	535473

	or enhanced or exposure)).ti,ab,kf. or percutaneous coronary intervention.ti,ab,kf. or contrast-induc*.ti,ab,kf. or radiocontrast-induc*.ti,ab,kf. or arter* angiograph*.ti,ab,kf. or arteriogram*.ti,ab,kf. or arteriograph*.ti,ab,kf. or hexabrix.ti,ab,kf. or iomeron.ti,ab,kf. or iopamiro.ti,ab,kf. or omnipaque.ti,ab,kf. or optiray.ti,ab,kf. or ultravist.ti,ab,kf. or xenetix.ti,ab,kf. or iodixanol.ti,ab,kf. or ioxaglate.ti,ab,kf. or iomeprol.ti,ab,kf. or iopamidol.ti,ab,kf. or iosimenol.ti,ab,kf. or iohexol.ti,ab,kf. or ioversol.ti,ab,kf. or iopromide.ti,ab,kf. or iobitridol.ti,ab,kf.	
3	1 and 2	21770
4	(((rc-induc* or contrast induc* or radiocontrast induc*) adj4 (nephropath* or nephrotoxicit* or renal or kidney*)) or ci-aki).ti,ab,kf.	3838
5	3 or 4	21795
6	exp Sodium-Glucose Transporter 2 Inhibitors/ or exp Canagliflozin/ or sglt2.ti,ab,kf. or sglt 2.ti,ab,kf. or gliflozin*.ti,ab,kf. or sodium dependent glucose cotransporter 2.ti,ab,kf. or sodium glucose co-transporter 2.ti,ab,kf. or sodium glucose cotransporter 2.ti,ab,kf. or sodium-glucose transporter 2.ti,ab,kf. or sodium dependent glucose cotransporter2.ti,ab,kf. or sodium glucose co-transporter2.ti,ab,kf. or sodium glucose cotransporter2.ti,ab,kf. or sodium-glucose transporter2.ti,ab,kf. or canagliflocin.ti,ab,kf. or canagliflozin.ti,ab,kf. or canaglu.ti,ab,kf. or invokana.ti,ab,kf. or jnj 28431754.ti,ab,kf. or jnj28431754.ti,ab,kf. or sulisent.ti,ab,kf. or ta 7284.ti,ab,kf. or ta7284.ti,ab,kf. or andatang.ti,ab,kf. or bms 512148.ti,ab,kf. or bms512148.ti,ab,kf. or ckd 380.ti,ab,kf. or ckd380.ti,ab,kf. or dapagliflozin.ti,ab,kf. or dwp 16001.ti,ab,kf. or dwp16001.ti,ab,kf. or edistride.ti,ab,kf. or farxiga.ti,ab,kf. or forxiga.ti,ab,kf. or hgp 1602.ti,ab,kf. or hgp 1812.ti,ab,kf. or hgp1602.ti,ab,kf. or hgp1812.ti,ab,kf. or "lyn 045".ti,ab,kf. or lyn045.ti,ab,kf. or oxra.ti,ab,kf. or bi 10773.ti,ab,kf. or bi10773.ti,ab,kf. or ckd 398.ti,ab,kf. or ckd398.ti,ab,kf. or empagliflozin.ti,ab,kf. or gibtulio.ti,ab,kf. or jardiance.ti,ab,kf. or oboravo.ti,ab,kf. or ertugliflozin.ti,ab,kf. or mk 8835.ti,ab,kf. or mk8835.ti,ab,kf. or "pf 04971729".ti,ab,kf. or "pf 04971729 00".ti,ab,kf. or pf 04971729-00.ti,ab,kf. or pf 4971729.ti,ab,kf. or "pf 4971729 00".ti,ab,kf. or pf 4971729-00.ti,ab,kf. or pf04971729.ti,ab,kf. or "pf04971729 00".ti,ab,kf. or pf04971729-00.ti,ab,kf. or pf4971729.ti,ab,kf. or "pf4971729 00".ti,ab,kf. or pf4971729-00.ti,ab,kf. or steglatro.ti,ab,kf.	14908
7	5 and 6	46
8	limit 7 to yr="2015 -Current"	46
9	8 not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	42
10	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	766213

11	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind$3 or mask$3)).tw. or Placebos/ or placebo*.tw.	2761650
12	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	4796824
13	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or match*))).ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or multicent* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or (("OR" or "RR") adj6 CI).ab.))	5756036
14	9 and 10 – SR's	3
15	(9 and 11) not 14 – RCT's	11
16	(9 and (12 or 13)) not (14 or 15) – Observationele studies	11
17	14 or 15 or 16	25

Bijlagen bij module 3 - MRI bij cerebrale aneurysmaclip

Risk of Bias tables
Niet van toepassing

Tabel van geëxcludeerde studies in 2024

Reference	Exclusie reden
Barnsley 2024	Enkel over screening om clips te vinden m.b.v. lage dosis CT
Courtman 2024	Enkel over screening om clips te vinden op CT beelden
De Silva 2016	Alleen correctie van auteurs
Hofman 2024	Narratieve review
Jin Han 2024	Niet over MRI veiligheid
Kim K 2023	Niet over MRI veiligheid
Noureddine 2018	Dit artikel gaat over 7T MRI
Noureddine 2019	Dit artikel gaat over 7T MRI
Panych 2020	Niet over cerebrale aneurysmaclips
Phalke 2020	Niet over cerebrale aneurysmaclips
Shaffer 2023	Dit artikel gaat over 7T MRI
Tsutsui 2022	Dit artikel gaat over 7T MRI
Uchikawa 2021	Niet over MRI veiligheid
Van Speybroeck 2021	Niet over cerebrale aneurysmaclips
Wei 2018	Niet over MRI veiligheid
Zhu 2024	Geen tekst over MRI beleid van cerebrale aneurysmaclip

Tabel van geëxcludeerde studies in 2016

Reference	Exclusie reden
Chandela 2011	Dit artikel gaat niet over MRI veiligheid bij clips.
Chen 2011	Dit artikel gaat niet over MRI veiligheid bij clips.
Dujovny 1996	Uitkomsten van specifieke tests van clips, die geen aanvullende informatie oplevert voor zoekvragen.
Dujovny 1997	Commentaar op een ander artikel (Kanal 1996). Bevat geen informatie over clips.

Ferris 2007	In deze studie inventariseerde men de wijze waarop in Australia screening op een aantal MRI contra-indicaties plaatsvindt. Bevat geen informatie relevant voor de zoekvragen.
Fleckenstein 1997	Commentaar op een ander artikel (Kanal 1996). Bevat geen informatie over clips.
Friedrich 2016	Studie naar het reduceren van MRI-artefacten (door keuzes bij MRI-sequentie), waarin alleen vermeld staat dat men enkel patiënten includeerde met MRI veilige clips. Derhalve niet relevant voor de zoekvragen.
Gold 1989	Dit paper gaat over chirurgische clips anders dan aneurysmaclips.
Gonner 2002	Dit paper behandelt de grootte van beeldartefacten van clips die MR veilig zijn. Derhalve niet relevant voor de zoekvragen.
Graf 2005	Dit paper behandelt beeldartefacten van allerlei implantaten waaronder clips. Niet relevant voor de zoekvragen.
Grieve 1999	Dit paper behandelt beeldartefacten van clips die MR veilig zijn. Derhalve niet relevant voor de zoekvragen.
Henrichs 2011	Dit paper behandelt voorzorgsmaatregelen voor intra-operatieve MRI-scans tijdens de resectie van hersentumoren.
Ho 1999	In dit paper karakteriseert men een paramagnetische legering (Elgiloy). Niet relevant voor de zoekvragen.
Joint 2008	Algemene beschrijving over hoe te komen tot een veilige omgeving rond de MRI-scanner, zonder specifieke aanknopingspunten m.b.t. de zoekvragen.
Kato 1996	Uitkomsten van specifieke tests van clips, niet conform ASTM-standaard uitgevoerd en zonder relevante, aanvullende inzichten m.b.t. de zoekvragen.
Kean 1985	In dit paper rapporteert men een beknopte test waarin werd vastgesteld dat acht typen aneurysmaclips ferro-magnetisch zijn. Deze informatie is niet nieuw en biedt geen nieuwe inzichten bij de zoekvragen.
Krayenbuhl 2011	In deze studie wordt de somatosensory evoked potential (SEP) vergeleken met post-operatieve ischemie vastgesteld met DWI MRI metingen. Geen relevante informatie voor de zoekvragen.
Laakman 1985	Dit paper behandelt beeldartefacten van allerlei implantaten op 0,3 T waarbij aneurysmaclips werden vermeden. Derhalve niet relevant voor de zoekvragen.

Lawton 1996	In deze studie heeft men gekeken naar mechanische eigenschappen, biocompatibiliteit en MRI-artefacten van titanium aneurysmaclips, waaruit men concludeert dat patiënten met een titanium clip veilig in een MRI-scanner kunnen. De studie biedt geen inzichten met betrekking tot de zoekvragen.
Marinho 2014	Dit artikel gaat niet over MRI.
Macfarlane 2008	In deze studie wordt enkel een lokaal initiatief beschreven voor het aanleggen van een database met informatie over MRI-compatibiliteit van implantaten.
Nagatani 1998	Dit artikel behandelt de mechanische eigenschappen van titanium clips en beeldartefacten. Geen relevante informatie voor zoekvragen.
Ont Health Technol Assess Ser 2006	Deze studie focust op de veiligheid van een embolisatieprocedure en biedt geen aanknopingspunten m.b.t. de zoekvragen.
Piepgras 1995	Dit paper biedt een beschrijving van de eerste klinische ervaringen bij het gebruik van titanium clips en biedt geen aanknopingspunten m.b.t. de zoekvragen.
Pirasteh 2016	Deze studie beschrijft een manier van online screening van patiënten op contra-indicaties voor MRI, maar biedt geen informatie over veiligheid en aneurysmaclips.
Pride 2000	In dit paper concludeert men op grond van een follow-up van 46 patiënten dat MRI veilig uitgevoerd kan worden bij patiënten met niet-ferromagnetische aneurysmaclips. Derhalve geen inzichten m.b.t. de zoekvragen.
Romner 1989	Studie bij 0.3 T waarin men concludeert dat niet-ferromagnetische aneurysmaclips veilig zijn bij de geteste veldsterkte en verder dat ferromagnetische clips resulteren in niet bruikbare MRI-beelden, zonder dat verder nog aandacht wordt besteed aan de veiligheid van het scannen van die clips. Derhalve geen inzichten m.b.t. de zoekvragen.
Shellock 1993	Dit paper biedt geen informatie relevant voor de zoekvragen, anders dan dat het stelt dat voorzichtigheid geboden is wanneer het type implantaat niet bekend is.
Shellock 1988	Dit paper geeft een overzicht van geteste implantanten waarvan de resultaten gezien de auteur verwerkt zullen zijn op MRIsafety.com, zodanig dat er geen nieuwe inzichten zijn voor wat betreft de zoekvragen.

Shellock 1988	Dit paper (eveneens uit 1988) geeft een overzicht van 36 geteste geteste implantanten waarvan de resultaten gezien de auteur verwerkt zullen zijn op MRIsafety.com, zodanig dat er geen nieuwe inzichten zijn voor wat betreft de zoekvragen.
Shellock 1991	Breed review paper over veiligheid van implantaten bij het doen van MRI onderzoeken zonder nieuwe informatie relevant voor de zoekvragen. Men beveelt aan ferromagnetische aneurysmaclips niet bloot te stellen aan het statische magneetveld van de MRI-scanner.
Shellock 1998	In deze studie werden 22 aneurysmaclips getest in de nabijheid van een 0,2T extremiteiten MRI-scanner, zodanig dat de clips aan heel andere velden worden blootgesteld dan relevant voor de zoekvragen.
Shellock 1998	Dit paper behandelt beeldartefacten op 1,5 T als gevolg van clips, maar behandelt geen zaken omtrent de veiligheid. Derhalve niet relevant voor de zoekvragen.
Shellock 2002	Dit paper geeft eveneens een overzicht van in dit geval 109 geteste implantanten bij 3 T waarvan de resultaten gezien de auteur verwerkt zullen zijn op MRIsafety.com, zodanig dat er geen nieuwe inzichten zijn voor wat betreft de zoekvragen.
Shellock 2002	In deze studie is een type MRI-scanner gebruikt anders dan de 1,5 en 3 T whole body systemen waarvoor deze richtlijn wordt opgesteld.
Steiger 1999	Deze studie gaat over de effectiviteit van een clip voor het behandelen van een aneurysma. Men constateert dat met een MRI-angiografie scan als gevolg van beeldartefacten niet te beoordelen valt of de chirurgie succesvol was. Derhalve geen aanvullende informatie relevant voor de zoekvragen.
Sutherland 2008	In dit paper beschrijft men de ontwikkeling van een nieuwe type clip van niet-ferromagnetisch materiaal. Het manuscript biedt geen nieuwe informatie voor wat betreft de zoekvragen.
Syms 2000	Deze studie gaat over een ander type implantaat dan aneurysmaclips.
Teitelbaum 1990	Deze studie gaat over een ander type implantaat dan aneurysmaclips bij andere veldsterktes dan waar deze richtlijn op focust.

Van Loon 1997	In dit paper beschrijft men een vergelijk tussen CT versus MRI-angiografie om het succes van het plaatsen van aneurysmaclips te bepalen, waarbij niet werd gekeken naar de veiligheid van het MRI-onderzoek zelf.
Weber 1991	Deze letter-to-the-editor biedt geen nieuwe inzichten relevant voor de zoekvragen.
Wichmann 1997	Dit artikel focust op artefacten in beeldvorming als gevolg van de clips en geeft als zodanig geen inzichten m.b.t. de zoekvragen.
Yang 2008	In dit paper is een chirurgische studie beschreven, zonder bevindingen relevant in het kader van MRI veiligheid.

Literatuur zoekstrategie

In 2016 is er een 'structured review' uitgevoerd van de wetenschappelijke literatuur, gebruik makend van de digitale databases in Pubmed en Sciencedirect, waaruit na voorselectie 63 relevant geachte artikelen zijn geselecteerd voor nadere bestudering op relevantie voor deze richtlijn door werkgroepleden. Deze zijn vervolgens door 2 personen bekeken.

Database	Zoektermen	Totaal
Pubmed	Magnetic resonance imaging or MRI Publication date > 1970/01/01 Safety Aneurysm Clip or clips	63
Pubmed	Magnetic resonance imaging or MRI Publication date > 1970/01/01 Aneurysm Clip or clips	
ScienceDirect	Magnetic resonance imaging or MRI Publication date > 1999/01/01 Safety Aneurysm Clip or clips And not surgery	

Van deze 63 artikelen zijn er 19 relevant voor de zoekvragen, en verwerkt in de samenvatting.

Algemene informatie

Cluster/richtlijn: Beeldvormende diagnostiek - UV5 MRI bij cerebrale aneurysmaclips V2	
Uitgangsvraag/modules: Wat zou het algemene beleid moeten zijn bij patiënten met een cerebrale aneurysmaclip die een MRI moeten ondergaan?	
Database(s): Embase.com, Ovid/Medline	Datum: 18 december 2024
Periode: vanaf 2016	Talen: geen restrictie
Literatuurspecialist: Esther van der Bijl	Rayyan review: https://new.rayyan.ai/reviews/1251447/overview
BMI-zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/ Deduplicatie: voor het ontdubbelen is gebruik gemaakt van http://dedupendnote.nl/	
Toelichting: Voor deze vraag is gezocht op de elementen 'cerebral aneurysm clips' EN 'MRI examination'. In overleg is besloten om de search smal op te zetten met een extra zoekblok 'safety'. Het sleutelartikel wordt gevonden met deze search.	
Te gebruiken voor richtlijntekst: A systematic literature search was performed by a medical information specialist using the following bibliographic databases: Embase.com and Ovid/Medline. Both databases were searched from 2016 to 18th of December 2024 for systematic reviews, RCTs and observational studies. Systematic searches were completed using a combination of controlled vocabulary/subject headings (e.g., Emtree-terms, MeSH) wherever they were available and natural language keywords. The overall search strategy was derived from three primary search concepts: (1) cerebral aneurysm clips; (2) MRI examination; (3) safety. Duplicates were removed using EndNote software. After deduplication a total of 213 records were imported for title/abstract screening.	

Zoekopbrengst 18 december 2024

	EMBASE	OVID/MEDLINE	Ontdubbeld
SR	14	3	15
RCT	19	3	21
Observationele studies	91	32	105
Overige studies	69	27	72
Totaal	193	65	**213***

****in Rayyan***

Zoekstrategie Embase.com 18 december 2024

No.	*Query*	*Results*

#1	'aneurysm clip'/exp OR 'aneurysm clipping'/exp OR (((aneurysm OR sugita OR yasargil OR mizuho OR aesculap OR phynox OR ferromagnetic* OR nonferromagnetic OR magnetic* OR iron OR steel OR ferrous OR titanium OR nickel OR chromium OR cobalt OR surg* OR operat*) NEAR/3 clip*):ti,ab,kw) OR (('intracranial aneurysm'/exp OR (((intracranial* OR cereb* OR brain* OR encephalon* OR intracerebra*) NEAR/3 aneurysm*):ti,ab,kw)) AND ('clipping'/exp OR 'clipping surgery'/exp OR clip*:ti,ab,kw)) OR 'neurosurgical clipping'/exp OR (((neurosurg* OR brain* OR cerebra* OR cerebrum OR encephalon OR cerebellar OR cerebellum OR intracerebral OR intracranial*) NEAR/3 clip*):ti,ab,kw)	15937
#2	'nuclear magnetic resonance imaging'/exp OR 'mri scanner'/exp OR ('magnetic resonance':ab,ti AND (image:ab,ti OR images:ab,ti OR imaging:ab,ti)) OR mri:ab,ti OR mris:ab,ti OR nmr:ab,ti OR mra:ab,ti OR mras:ab,ti OR zeugmatograph*:ab,ti OR 'mr tomography':ab,ti OR 'mr tomographies':ab,ti OR 'mr tomographic':ab,ti OR 'mr imag*':ti,ab,kw OR 'proton spin':ab,ti OR ((magneti*:ab,ti OR 'chemical shift':ab,ti) AND imaging:ab,ti) OR fmri:ab,ti OR fmris:ab,ti OR rsfmri:ti,ab,kw	1696717
#3	#1 AND #2	2561
#4	(('magnetic resonance imaging' OR mri OR mr) NEAR/7 clip* NEAR/7 (cereb* OR brain* OR intracran*)):ti,ab,kw	68
#5	(('magnetic resonance imaging' OR mri OR mr) NEAR/7 compatible NEAR/7 clip*):ti,ab,kw	22
#6	#3 OR #4 OR #5	2581
#7	'safety'/exp OR 'risk assessment'/exp OR 'risk management'/exp OR safe*:ti,ab,kw	3105091
#8	#6 AND #7	436
#9	#8 AND [2016-2025]/py NOT ('conference abstract'/it OR 'editorial'/it OR 'letter'/it OR 'note'/it) NOT (('animal'/exp OR 'animal experiment'/exp OR 'animal model'/exp OR 'nonhuman'/exp) NOT 'human'/exp)	193
#10	'meta analysis'/exp OR 'meta analysis (topic)'/exp OR 'systematic review'/exp OR 'systematic review (topic)'/exp OR 'scoping review'/exp OR 'rapid review'/exp OR 'umbrella review'/exp OR 'cochrane database of systematic reviews'/jt OR 'network meta-analysis'/exp OR 'networkmeta analy*':ti,ab,kw OR 'networkmetaanaly*':ti,ab,kw OR metaanaly*:ti,ab,kw OR 'meta analy*':ti,ab,kw OR metanaly*:ti,ab,kw OR prisma:ti,ab,kw OR prospero:ti,ab,kw OR metaanali*:ti,ab,kw OR 'meta anali*':ti,ab,kw OR metanali*:ti,ab,kw OR (((systemati* OR scoping OR umbrella OR 'structured literature') NEAR/3 (review* OR overview*)):ti,ab,kw) OR (((structured OR systemic*) NEAR/3 (review* OR overview* OR synth*) NEAR/3 literature):ti,ab,kw) OR ((systemic* NEAR/1 review*):ti,ab,kw) OR (((systemati* OR literature OR database* OR 'data base*') NEAR/10 search*):ti,ab,kw) OR (((structured OR comprehensive* OR systemic*) NEAR/3 search*):ti,ab,kw) OR (((literature NEAR/3 (review* OR overview*)):ti,ab,kw) AND (search*:ti,ab,kw OR database*:ti,ab,kw OR 'data base*':ti,ab,kw)) OR (('data extraction*':ti,ab,kw OR 'data source*':ti,ab,kw) AND ('study selection*':ti,ab,kw OR 'studies selection*':ti,ab,kw)) OR ('search strateg*':ti,ab,kw AND 'selection criteria*':ti,ab,kw) OR ('data source*':ti,ab,kw AND 'data synth*':ti,ab,kw) OR medline*:ti,ab,kw OR pubmed*:ti,ab,kw OR 'pub med*':ti,ab,kw OR embase:ti,ab,kw OR cochrane*:ti,ab,kw OR (((critical* OR rapid*) NEAR/2 (review* OR overview* OR synth*)):ti) OR ((((critical* OR rapid*) NEAR/3 (review* OR overview* OR synth*)):ab) AND (search*:ab OR database*:ab OR 'data base*':ab)) OR metasynth*:ti,ab,kw OR 'meta synth*':ti,ab,kw OR 'review* of review*':ti,ab,kw	1105020
#11	'clinical trial'/exp OR 'randomization'/exp OR 'single blind procedure'/exp OR 'double blind procedure'/exp OR 'crossover procedure'/exp OR 'placebo'/exp OR 'prospective study'/exp OR rct:ab,ti OR random*:ab,ti OR 'single blind':ab,ti OR 'randomised controlled trial':ab,ti OR 'randomized controlled trial'/exp OR placebo*:ab,ti	4171622
#12	'major clinical study'/de OR 'clinical study'/de OR 'case control study'/de OR 'family study'/de OR 'longitudinal study'/de OR 'retrospective study'/de OR 'prospective study'/de OR 'comparative study'/de OR 'cohort analysis'/de OR ((cohort NEAR/1 (study OR studies)):ab,ti) OR (('case control' NEAR/1 (study OR studies)):ab,ti) OR (('follow up' NEAR/1 (study OR studies)):ab,ti) OR (observational NEAR/1 (study OR studies)) OR ((epidemiologic NEAR/1 (study OR studies)):ab,ti) OR (('cross sectional' NEAR/1 (study OR studies)):ab,ti)	8559483

#13	'case control study'/de OR 'comparative study'/exp OR 'control group'/de OR 'controlled study'/de OR 'controlled clinical trial'/de OR 'crossover procedure'/de OR 'double blind procedure'/de OR 'phase 2 clinical trial'/de OR 'phase 3 clinical trial'/de OR 'phase 4 clinical trial'/de OR 'pretest posttest design'/de OR 'pretest posttest control group design'/de OR 'quasi experimental study'/de OR 'single blind procedure'/de OR 'triple blind procedure'/de OR (((control OR controlled) NEAR/6 trial):ti,ab,kw) OR (((control OR controlled) NEAR/6 (study OR studies)):ti,ab,kw) OR (((control OR controlled) NEAR/1 active):ti,ab,kw) OR 'open label*':ti,ab,kw OR (((double OR two OR three OR multi OR trial) NEAR/1 (arm OR arms)):ti,ab,kw) OR ((allocat* NEAR/10 (arm OR arms)):ti,ab,kw) OR placebo*:ti,ab,kw OR 'sham-control*':ti,ab,kw OR (((single OR double OR triple OR assessor) NEAR/1 (blind* OR masked)):ti,ab,kw) OR nonrandom*:ti,ab,kw OR 'non-random*':ti,ab,kw OR 'quasi-experiment*':ti,ab,kw OR crossover:ti,ab,kw OR 'cross over':ti,ab,kw OR 'parallel group*':ti,ab,kw OR 'factorial trial':ti,ab,kw OR ((phase NEAR/5 (study OR trial)):ti,ab,kw) OR ((case* NEAR/6 (matched OR control*)):ti,ab,kw) OR ((match* NEAR/6 (pair OR pairs OR cohort* OR control* OR group* OR healthy OR age OR sex OR gender OR patient* OR subject* OR participant*)):ti,ab,kw) OR ((propensity NEAR/6 (scor* OR match*)):ti,ab,kw) OR versus:ti OR vs:ti OR compar*:ti OR ((compar* NEAR/1 study):ti,ab,kw) OR ('major clinical study'/de OR 'clinical study'/de OR 'cohort analysis'/de OR 'observational study'/de OR 'cross-sectional study'/de OR 'multicenter study'/de OR 'correlational study'/de OR 'follow up'/de OR cohort*:ti,ab,kw OR 'follow up':ti,ab,kw OR followup:ti,ab,kw OR longitudinal*:ti,ab,kw OR prospective*:ti,ab,kw OR retrospective*:ti,ab,kw OR observational*:ti,ab,kw OR 'cross sectional*':ti,ab,kw OR cross?ectional*:ti,ab,kw OR multicent*:ti,ab,kw OR 'multi-cent*':ti,ab,kw OR consecutive*:ti,ab,kw) AND (group:ti,ab,kw OR groups:ti,ab,kw OR subgroup*:ti,ab,kw OR versus:ti,ab,kw OR vs:ti,ab,kw OR compar*:ti,ab,kw OR 'odds ratio*':ab OR 'relative odds':ab OR 'risk ratio*':ab OR 'relative risk*':ab OR 'rate ratio':ab OR aor:ab OR arr:ab OR rrr:ab OR ((('or' OR 'rr') NEAR/6 ci):ab)))	15652995
#14	#9 AND #10 - SR	14
#15	#9 AND #11 NOT #14 - RCT	19
#16	#9 AND (#12 OR #13) NOT (#14 OR #15) – Observationeel	91
#17	#9 NOT (#14 OR #15 OR #16) – Overig	69
#18	#14 OR #15 OR #16 OR #17 - Totaal	193

Zoekstrategie Ovid/Medline 18 december 2024

#	*Searches*	*Results*
1	((aneurysm or sugita or yasargil or mizuho or aesculap or phynox or ferromagnetic* or nonferromagnetic or magnetic* or iron or steel or ferrous or titanium or nickel or chromium or cobalt or surg* or operat*) adj3 clip*).ti,ab,kf. or ((exp Intracranial Aneurysm/ or ((intracranial* or cereb* or brain* or encephalon* or intracerebra*) adj3 aneurysm*).ti,ab,kf.) and clip*.ti,ab,kf.) or ((neurosurg* or brain* or cerebra* or cerebrum or encephalon or cerebellar or cerebellum or intracerebral or intracranial*) adj3 clip*).ti,ab,kf.	10321
2	exp magnetic resonance imaging/ or ("magnetic resonance" and (image or images or imaging)).ti,ab,kf. or mri.ti,ab,kf. or mris.ti,ab,kf. or nmr.ti,ab,kf. or mra.ti,ab,kf. or mras.ti,ab,kf. or zeugmatograph*.ti,ab,kf. or "mr tomography".ti,ab,kf. or "mr tomographies".ti,ab,kf. or "mr tomographic".ti,ab,kf. or 'mr imag*'.ti,ab,kf. or "proton spin".ti,ab,kf. or ((magneti* or "chemical shift") and imaging).ti,ab,kf. or fmri.ti,ab,kf. or fmris.ti,ab,kf. or rsfmri.ti,ab,kf.	1027786
3	1 and 2	1128
4	(('magnetic resonance imaging' or mri or mr) adj7 clip* adj7 (cereb* or brain* or intracran*)).ti,ab,kf.	39
5	(('magnetic resonance imaging' or mri or mr) adj7 compatible adj7 clip*).ti,ab,kf.	13
6	3 or 4 or 5	1138
7	exp Safety/ or exp Risk Assessment/ or Risk Management/ or safe*.ti,ab,kf.	1628932
8	6 and 7	168
9	limit 8 to yr="2016 -Current"	66
10	9 not (comment/ or editorial/ or letter/) not ((exp animals/ or exp models, animal/) not humans/)	65

11	meta-analysis/ or meta-analysis as topic/ or (metaanaly* or meta-analy* or metanaly*).ti,ab,kf. or systematic review/ or cochrane.jw. or (prisma or prospero).ti,ab,kf. or ((systemati* or scoping or umbrella or "structured literature") adj3 (review* or overview*)).ti,ab,kf. or (systemic* adj1 review*).ti,ab,kf. or ((systemati* or literature or database* or data-base*) adj10 search*).ti,ab,kf. or ((structured or comprehensive* or systemic*) adj3 search*).ti,ab,kf. or ((literature adj3 review*) and (search* or database* or data-base*)).ti,ab,kf. or (("data extraction" or "data source*") and "study selection").ti,ab,kf. or ("search strategy" and "selection criteria").ti,ab,kf. or ("data source*" and "data synthesis").ti,ab,kf. or (medline or pubmed or embase or cochrane).ab. or ((critical or rapid) adj2 (review* or overview* or synthes*)).ti. or (((critical* or rapid*) adj3 (review* or overview* or synthes*)) and (search* or database* or data-base*)).ab. or (metasynthes* or meta-synthes*).ti,ab,kf.	797532
12	exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind$3 or mask$3)).tw. or Placebos/ or placebo*.tw.	2820861
13	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or cohort.tw. or Cohort analy$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	4911524
14	Case-control Studies/ or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or comparative study/ or control groups/ or controlled before-after studies/ or controlled clinical trial/ or double-blind method/ or historically controlled study/ or matched-pair analysis/ or single-blind method/ or (((control or controlled) adj6 (study or studies or trial)) or (compar* adj (study or studies)) or ((control or controlled) adj1 active) or "open label*" or ((double or two or three or multi or trial) adj (arm or arms)) or (allocat* adj10 (arm or arms)) or placebo* or "sham-control*" or ((single or double or triple or assessor) adj1 (blind* or masked)) or nonrandom* or "non-random*" or "quasi-experiment*" or "parallel group*" or "factorial trial" or "pretest posttest" or (phase adj5 (study or trial)) or (case* adj6 (matched or control*)) or (match* adj6 (pair or pairs or cohort* or control* or group* or healthy or age or sex or gender or patient* or subject* or participant*)) or (propensity adj6 (scor* or match*))).ti,ab,kf. or (confounding adj6 adjust*).ti,ab. or (versus or vs or compar*).ti. or ((exp cohort studies/ or epidemiologic studies/ or multicenter study/ or observational study/ or seroepidemiologic studies/ or (cohort* or 'follow up' or followup or longitudinal* or prospective* or retrospective* or observational* or multicent* or 'multi-cent*' or consecutive*).ti,ab,kf.) and ((group or groups or subgroup* or versus or vs or compar*).ti,ab,kf. or ('odds ratio*' or 'relative odds' or 'risk ratio*' or 'relative risk*' or aor or arr or rrr).ab. or (("OR" or "RR") adj6 CI).ab.))	5862590
15	10 and 11 - SR	3
16	(10 and 12) not 15 - RCT	3
17	(10 and (13 or 14)) not (15 or 16) – Observationeel	32
18	10 not (15 or 16 or 17) – Overig	27
19	15 or 16 or 17 or 18 - Totaal	65

Zoekverantwoording Databases van Recalls en Events

Database	Zoektermen[1]	Totaal
FDA Recalls database[2] doorzocht op 14-3-2025	1 Reason for recall ('MR' OR 'magnetic') AND recall date from Jan. 25, 2019 (105) 2 betreft 'clip' (0)	

	= 0	
FDA Recalls database[2] doorzocht op 9-12-2022	1 Reason for recall ('MR' OR 'magnetic') AND recall date from Jan. 25, 2019 (264) 2 betreft implantaat en MRI (12) 3 betreft relevant implantaat voor deze module (0) = 0	0
FDA Recalls database[2] loopt vanaf 2002 doorzocht op 25-1-2019	1 Reason for recall 'MR' OR 'magnetic' (329) 2 betreft implantaat en MRI (9) 3 betreft relevant implantaat voor deze module (0) = 0	
IGJ database veiligheidsmeldingen[3] *meldingen vanaf 14-10-2022* doorzocht op 14-2-2025	1a 'MR' (30) 1b 'MRI' (33) 1c 'Magnetic' (8) 2 betreft implantaat en MRI (3) 3 betreft relevant implantaat voor deze module (0)	
IGJ database veiligheidsmeldingen[3, 9] *zonder restrictie op datum* doorzocht op 2-12-2022	1a 'MR' (93) 1b 'MRI' (99) 1c 'magnetic' (42) 2 betreft implantaat en MRI (5) 3 betreft relevant voor deze module (0) = 0	
IGJ database veiligheidsmeldingen[3] *meldingen vanaf 15-12-2015* doorzocht op 29-1-2019	1a 'MR' (22) 1b 'MRI' (15) 1c 'Magnetic' (11) 2 betreft implantaat en MRI (4) 3 betreft relevant implantaat voor deze module (0) = 0	
IGZ archief[4]	1a 'MR' (98) 1b 'MRI' (92)	

doorzocht op 17- en 29-1-2019	1c 'Magnetic' (27) 2 betreft implantaat en MRI (0) 3 betreft relevant implantaat voor deze module (0) = 0	
ICIJ database Implants[5] doorzocht op 18-1-2019	1a 'MR' (38) 1b 'MRI' (17) 2 betreft implantaat en MRI (0) 3 betreft relevant implantaat voor deze module (0) = 0	
ICIJ database Events[5] doorzocht op 25-1-2019	1a Data notes contains 'aneurysm' OR 'clips') AND Reason contains 'mr' OR 'magnetic' (0) = 0	
ICIJ database Events[5] doorzocht op 18 en 25-1-2019	1a 'MR' (603) 1b 'magnetic' (185) 2 beoordelen of de hits niet uit de FDA-database komen (0) = 0 *Deze database heeft overlap met de FDA database[2].*	
FDA MDR [6] (1984-1997) doorzocht op 22-10-2021	1a code ('LNH' AND 'clip') OR ('MRI' AND 'clip') (10) 1b code 'LNI' AND 'Clip' (0) 2 relevant voor deze richtlijn (4) = 4[10]	4
FDA Medsun database [7] 1-9-2021 tot 2025 doorzocht op 14-2-2025	1a Devicetype ='MRI' (1) 1b Devicetype='clip'(285) 1c Event 'MRI' (95) 2 relevant voor deze richtlijn (0) = 0	0
FDA Medsun database [7] vanaf 2006	1a Devicetype ='MRI' (61)	0

doorzocht op 22-10-2021	1b Devicetype='clip'(1023) 2 relevant voor deze richtlijn (0) = 0	
FDA MAUDE database [8] 2021-2025 doorzocht op 14-2-2025	1a melding bevat tekst 'aneurysm clip' AND 'MRI' (18) 2 relevant (6) 3 na ontdubbelen met vorige search (0) =0	0
FDA MAUDE database [8] vanaf 1992 doorzocht op 22-10-2021	1a melding bevat tekst 'aneurysm clip' AND 'MRI' (47) 2 relevant (12) = 12[11]	12

1 De databases hebben beperkte en onderling verschillende mogelijkheden om deze te doorzoeken. Gekozen is voor de zoek strategieën via MRI. Daarna zijn alle hits hierop na stap 1 gelezen en beoordeeld of ze een implantaat betreffen, en vervolgens of het implantaat relevant is voor deze module. Daarnaast hebben de databases beperkingen, een voorbeeld hiervan is dat een MRI gerelateerde melding van een implantaat uit de database van IGZ niet wordt gevonden in de FDA-database omdat aldaar de link naar MRI is weggevallen.

2 https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfres/res.cfm

3 https://www.igj.nl/onderwerpen/waarschuwingen-medische-hulpmiddelen/documenten

4 https://igj.archiefweb.eu/?subsite=igz#archive

5 https://medicaldevices.icij.org/

6 https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfmdr/search.CFM

7 https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/medsun/searchreporttext.cfm

8 https://www.fda.gov/medical-devices/mandatory-reporting-requirements-manufacturers-importers-and-device-user-facilities/about-manufacturer-and-user-facility-device-experience-maude

9 Het blijkt dat bij een query in de IGJ database uitgevoerd op 2 december 2022 met als datum tot=30 januari 2019 en als zoekterm=MRI méér hits gevonden worden dan met de query zoekterm=MRI uitgevoerd op 29 januari 2019. Kennelijk zijn er sindsdien nog meldingen toegevoegd met een datum eerder dan 30 januari 2019. De eerdere queries zijn daarom herhaald (zonder 'datum vanaf').

10 Jaartal en rapportnummer: 1992: M349790, M359096. 1993: M362942, M518365.

11 Jaartal en rapportnummer: 2016: 55750140, 5980600, 5895839, 7609598. 2017: 7289224. 2018: 255079248. 2021: 55750140, 5980600, 5895839, 7609598, 7289224, 255079248.