

**Absolute and relative GFR and contrast medium dose/GFR ratio.
Corner stone's when predicting the risk of acute kidney injury**

Electronic supplementary material

Table S1. Studies evaluating contrast medium dose/GFR ratio as a significant and independent predictor of post contrast medium-induced acute kidney injury following percutaneous coronary angiography or interventions. Studies in upper part based on absolute GFR estimated by the Cockcroft-Gault equation (non-standardized creatinine assays) and lower part based on relative GFR estimated by equations using creatinine assays traceable to international standards except for 186-MDRD.

Table S2. Contrast medium dose/GFR ratio as a significant and independent predictor of post contrast medium-induced acute kidney injury following percutaneous coronary angiography or interventions. Weighted mean value with individual study sizes as weights calculated based on log-transformation of contrast-volume/GFR and gram-iodine/GFR ratio. Studies in upper part based on absolute GFR estimated by the Cockcroft-Gault equation (non-standardized creatinine assays) and lower part based on relative GFR estimated by equations using creatinine assays traceable to international standards except for 186-MDRD.

Table S1.

First author	Country	Year	Indication	Study design	AKI definition*	eGFR equations	Mean eGFR
Laskey (8)	USA	2007	PCI, unselected	Retrospective registry study	>0.5 mg/dL	Abs CG	87±38
Nyman (9)	Sweden	2008	PCI, STEMI	Retrospective	≥44.2 μmol/L	Abs CG	75 ±25
Amiri (28)	Iran	2018	PCA or PCI, elective w/o MetS	Prospective	≥0.5 mg/dL or ≥25%	Abs CG	82 ±25
Amiri (28)	Iran	2018	PCA or PCI, elective w. MetS	Prospective	≥0.5 mg/dL or ≥25%	Abs CG	82 ±26
Barbieri (29)	Italy	2016	PCA or PCI (48%)	Retrospective registry study	≥0.5 mg/dL or ≥25%	Abs CG	71
Khalil (30)	Egypt	2018	PCI, sCr <1,5 mg/dL	Retrospective	≥0.5 mg/dL or ≥25%	Abs CG	95
Liu (31)	China	2015	PCA or PCI, unselected	Prospective	>0.5 mg/dL	Abs CG	72 ±27
Worasuwannarak (32)	Thailand	2010	CC or PCI, elective diabetics	Prospective	≥0.5 mg/dL or ≥25%	Abs CG	61±27
Abe (33)	Japan	2014	PCI, stable angina	Retrospective registry study	≥0.5 mg/dL or ≥25%	Rel Jap MDRD	66±18
Ando (34)	Italy	2014	PCI, STEMI	Prospective	≥0.5 mg/dL or ≥25%	Rel MDRD	91 ±32
Celik (35)	Turkey	2015	PCI, STEMI	Prospective	≥0.3 mg/dL	Rel 175-MDRD	90.7
Kim (36)	Korea	2014	PCI, CKD	Retrospective registry study	≥0.5 mg/d or, ≥25%	Rel 175-MDRD	38.7
Nie (37)	China	2021	PCA or PCI (60%)	Prospective MC	≥0.5 mg/dL	Rel CKD-EPI	NR
Nozue (38)	Japan	2009	PCI, elective stable angina	Retrospective	>0.5 mg/dL, >25%	Rel Jap MDRD	55 ±22
Yoon (39)	Korea	2011	PCI, elective	Prospective	>0.5 mg/dL or >25%	Rel 186-MDRD	62.8

*Serum creatinine rise.

AKI = acute kidney injury, CC = cardiac catheterization, CKD = chronic kidney disease, MC = multicentre, MetS = metabolic syndrome, NR = not reported, PCA = percutaneous coronary angiography, PCI = percutaneous coronary intervention, sCr = serum creatinine, STEMI = ST-elevated myocardial infarction.

eGFR = estimated glomerular filtration rate, Abs = absolute GFR values in mL/min, Jap = Japanese, Rel = relative GFR values in mL/min/1.73 m², CG = Cockcroft-Gault, CKD-EPI = Chronic Kidney Disease Epidemiology Collaboration equation, MDRD = Modification of Diet in Renal Disease study equation with coefficient 175 (standardized) and 186 (non-standardized, respectively).

Table S2.

First author	Total number	PC-AKI incidence	CM volume/ GFR ratio	CM conc	Gram I/ GFR ratio	AUC	Sensitivity	Specificity	Adjusted odds ratio	PC-AKI <ratio	PC-AKI ≥ratio
Laskey (8)	3179	1.5%	3.7	350*	1.30§	0.690	65%	75%	3.84 (2.01-7.34)	NR	NR
Nyman (9)	391	16.6%	2.9	350	1.00	0.800	NR	NR	NR	3%	25%
Amiri (28)	125	14.4%	2.0#	320	0.63	0.729 (0.649-0.826)	72%	74%	3.92 (1.8-8.52)	6%	32%
Amiri (28)	130	39.2%	1.6#	320	0.51	0.738 (0.649-0.826)	68%	73%	3.92 (1.8-8.52)	22%	63%
Barbieri (29)	2308	12.2%	6.15	350*	2.15§	NR	34%	86%	1.81 (1.19-2.76)	9.7%	25%
Khalil (30)	314	10.8%	2.86	350*	1.00§	0.887	85.30	79.60	25.1 (8.5-74.2)	NR	NR
Liu (31)	3273	2.6%	2.44	370	0.90§	0.780	73%	70%	4.16 (2.45-7.06)	1.0%	6.3%
Worasu-wannarak (32)	248	5.2%	2.6	370*	0.98	NR	NR	NR	5.8 (1.7-19.4)	NR	NR
<i>Subtotal</i>	<i>9968</i>		<i>3.47†</i>			<i>1.24†</i>					
Abe (33)	1222	4.2%	3.0	350	1.05§	NR	NR	NR	2.07 (1.01-4.26)	3.1%	6.1%
Ando (34)	470	5.3%	2.5	385*	0.96§	0.77 (0.66-0.87)	72%	78%	5.6 (1.9-15.4)	NR	NR
Celik (35)	597	13.1%	2.0	350*	0.70§	0.786 (0.729-0.844)	70%	78%	5.9 (2.8-12.3)		
Kim (36)	297	18.5%	6.0	350*	2.10§	0.620	53%	72%	NR	NR	NR
Nie (37)	4254	1.7%	1.78	350*	0.62§	0.736 (0.670-0.803)	61%	75%	2.66 (1.50-4.72)	NR	NR
Nozue (38)	60	13.3%	5.1	370	1.89§	0.839	88%	75%	NR	NR	NR
Yoon (39)	226	7.1%	4.2#	335*	1.42	0.867	81%	80%	9.79 (3.40-28.2)	1.8%	24%
<i>Subtotal</i>	<i>7126</i>		<i>2.19†</i>			<i>0.77†</i>					
<i>Total</i>	<i>17094</i>		<i>2.86†</i>			<i>1.02†</i>					

*Anticipated mean concentration, #Calculated based upon CM concentration and reported gram-iodine/GFR ratio, §Calculated based upon CM concentration and reported CM-volume/GFR ratio, †Weighted mean value.

AUC = Receiver-operating characteristic curve analysis to determine the best cut-off point for CM-dose/GFR ratio to predict PC-AKI with area under the curve (AUC) as a measure of its accuracy. Adjusted odds ratio of CM-dose/GFR ratio as a predictor of PC-AKI.

CM = contrast medium, GFR = glomerular filtration rate, I = iodine, PC-AKI = post contrast medium-induced acute kidney injury.

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