

Supplementary materials

Table S1. Search strategies

Database	Search strategy	Results	
1)PubMed (To March 10,2023)	#1	<p>((((((((((((((("Diabetic Nephropathies"[Mesh]) OR (Nephropathies, Diabetic[Title/Abstract])) OR (Nephropathy, Diabetic[Title/Abstract])) OR (Diabetic Nephropathy[Title/Abstract])) OR (Diabetic Kidney Disease[Title/Abstract])) OR (Diabetic Kidney Diseases[Title/Abstract])) OR (Kidney Disease, Diabetic[Title/Abstract])) OR (Kidney Diseases, Diabetic[Title/Abstract])) OR (Diabetic Glomerulosclerosis[Title/Abstract])) OR (Glomerulosclerosis, Diabetic[Title/Abstract])) OR (Intracapillary Glomerulosclerosis[Title/Abstract])) OR (Nodular Glomerulosclerosis[Title/Abstract])) OR (Glomerulosclerosis, Nodular[Title/Abstract])) OR (Kimmelstiel-Wilson Syndrome[Title/Abstract])) OR (Kimmelstiel Wilson Syndrome[Title/Abstract])) OR (Syndrome, Kimmelstiel-Wilson[Title/Abstract])) OR (Kimmelstiel-Wilson Disease[Title/Abstract])) OR (Kimmelstiel Wilson Disease[Title/Abstract]))</p>	38957
	#2	<p>((((((((((((((((((((((((((((((("Magnetic Resonance Imaging"[Mesh]) OR (Imaging, Magnetic Resonance[Title/Abstract])) OR (NMR Imaging[Title/Abstract])) OR (Imaging, NMR[Title/Abstract])) OR (Tomography, NMR[Title/Abstract])) OR (Tomography, MR[Title/Abstract])) OR (MR Tomography[Title/Abstract])) OR (NMR Tomography[Title/Abstract])) OR (Steady-State Free Precession MRI[Title/Abstract])) OR (Steady State Free Precession MRI[Title/Abstract])) OR (Zeugmatography[Title/Abstract])) OR (Imaging, Chemical Shift[Title/Abstract])) OR (Chemical Shift Imagings[Title/Abstract])) OR (Imagings, Chemical Shift[Title/Abstract])) OR (Shift Imaging, Chemical[Title/Abstract])) OR (Shift Imagings, Chemical[Title/Abstract])) OR (Chemical Shift Imaging[Title/Abstract])) OR (Magnetic Resonance Image[Title/Abstract])) OR (Image, Magnetic Resonance[Title/Abstract])) OR (Magnetic Resonance</p>	561426

		Images[Title/Abstract])) OR (Resonance Image, Magnetic[Title/Abstract])) OR (Magnetization Transfer Contrast Imaging[Title/Abstract])) OR (MRI Scans[Title/Abstract])) OR (MRI Scan[Title/Abstract])) OR (Scan, MRI[Title/Abstract])) OR (Scans, MRI[Title/Abstract])) OR (Tomography, Proton Spin[Title/Abstract])) OR (Proton Spin Tomography[Title/Abstract])) OR (fMRI[Title/Abstract])) OR (MRI, Functional[Title/Abstract])) OR (Functional MRI[Title/Abstract])) OR (Functional MRIs[Title/Abstract])) OR (MRIs, Functional[Title/Abstract])) OR (Functional Magnetic Resonance Imaging[Title/Abstract])) OR (Magnetic Resonance Imaging, Functional[Title/Abstract])) OR (Spin Echo Imaging[Title/Abstract])) OR (Echo Imaging, Spin[Title/Abstract])) OR (Echo Imagings, Spin[Title/Abstract])) OR (Imaging, Spin Echo[Title/Abstract])) OR (Imagings, Spin Echo[Title/Abstract])) OR (Spin Echo Imagings[Title/Abstract]))	
	#3	#1 AND #2	182
2) Embase (To March 10,2023)	#1	'diabetic nephropathies'/exp OR 'diabetic nephropathies' OR 'nephropathies, diabetic' OR 'nephropathy, diabetic'/exp OR 'nephropathy, diabetic' OR 'diabetic nephropathy'/exp OR 'diabetic nephropathy' OR 'diabetic kidney disease'/exp OR 'diabetic kidney disease' OR 'diabetic kidney diseases' OR 'kidney disease, diabetic' OR 'kidney diseases, diabetic' OR 'diabetic glomerulosclerosis'/exp OR 'diabetic glomerulosclerosis' OR 'glomerulosclerosis, diabetic'/exp OR 'glomerulosclerosis, diabetic' OR 'intracapillary glomerulosclerosis' OR 'nodular glomerulosclerosis'/exp OR 'nodular glomerulosclerosis' OR 'glomerulosclerosis, nodular' OR 'kimmelstiel-wilson syndrome'/exp OR 'kimmelstiel-wilson syndrome' OR 'kimmelstiel wilson syndrome'/exp OR 'kimmelstiel wilson syndrome' OR 'syndrome, kimmelstiel-wilson' OR 'kimmelstiel-wilson disease'/exp OR 'kimmelstiel-wilson disease' OR 'kimmelstiel wilson disease'/exp OR 'kimmelstiel wilson disease'	60503
	#2	'magnetic resonance imaging'/exp OR 'magnetic resonance imaging' OR 'imaging, magnetic resonance' OR 'nmr imaging or imaging, nmr' OR 'tomography, nmr or tomography, mr' OR 'mr tomography' OR 'nmr	1237031

		tomography' OR 'steady-state free precession mri' OR 'steady state free precession mri' OR 'zeugmatography' OR 'imaging, chemical shift' OR 'chemical shift imagings' OR 'imagings, chemical shift' OR 'shift imaging, chemical' OR 'shift imagings, chemical' OR 'chemical shift imaging'/exp OR 'chemical shift imaging' OR 'magnetic resonance image' OR 'image, magnetic resonance' OR 'magnetic resonance images' OR 'resonance image, magnetic' OR 'magnetization transfer contrast imaging' OR 'mri scans' OR 'mri scan' OR 'scan, mri' OR 'scans, mri' OR 'tomography, proton spin' OR 'proton spin tomography' OR 'fmri'/exp OR 'fmri' OR 'mri, functional' OR 'functional mri'/exp OR 'functional mri' OR 'functional mris' OR 'mris, functional' OR 'functional magnetic resonance imaging'/exp OR 'functional magnetic resonance imaging' OR 'magnetic resonance imaging, functional'/exp OR 'magnetic resonance imaging, functional' OR 'spin echo imaging'/exp OR 'spin echo imaging' OR 'echo imaging, spin' OR 'echo imagings, spin' OR 'imaging, spin echo' OR 'imagings, spin echo' OR 'spin echo imagings'	
	#3	#1 AND #2	781
3) Cochrane Library (To March 10,2023)	#1	MeSH descriptor: [Diabetic Nephropathies] explode all trees OR (Nephropathies, Diabetic OR Nephropathy, Diabetic OR Diabetic Nephropathy OR Diabetic Kidney Disease OR Diabetic Kidney Diseases OR Kidney Disease, Diabetic OR Kidney Diseases, Diabetic OR Diabetic Glomerulosclerosis OR Glomerulosclerosis, Diabetic OR Intracapillary Glomerulosclerosis OR Nodular Glomerulosclerosis OR Glomerulosclerosis, Nodular OR Kimmelstiel-Wilson Syndrome OR Kimmelstiel Wilson Syndrome OR Syndrome, Kimmelstiel-Wilson OR Kimmelstiel-Wilson Disease OR Kimmelstiel Wilson Disease):ti,ab,kw	6848
	#2	MeSH descriptor: [Magnetic Resonance Imaging] explode all trees OR (Imaging, Magnetic Resonance OR NMR Imaging OR Imaging, NMR OR Tomography, NMR OR Tomography, MR OR MR Tomography OR NMR Tomography OR Steady-State Free Precession MRI OR Steady State Free Precession MRI OR Zeugmatography OR Imaging, Chemical Shift OR Chemical Shift Imagings OR Imagings, Chemical Shift OR Shift Imaging, Chemical OR Shift Imagings, Chemical OR Chemical Shift Imaging OR	47669

		Magnetic Resonance Image OR Image, Magnetic Resonance OR Magnetic Resonance Images OR Resonance Image, Magnetic OR Magnetization Transfer Contrast Imaging OR MRI Scans OR MRI Scan OR Scan, MRI OR Scans, MRI OR Tomography, Proton Spin OR Proton Spin Tomography OR fMRI OR MRI, Functional OR Functional MRI OR Functional MRIs OR MRIs, Functional OR Functional Magnetic Resonance Imaging OR Magnetic Resonance Imaging, Functional OR Spin Echo Imaging OR Echo Imaging, Spin OR Echo Imagings, Spin OR Imaging, Spin Echo OR Imagings, Spin Echo OR Spin Echo Imagings):ti,ab,kw	
		#1 AND #2	84
4) Web of science (To March 10,2023)	#1	TS=(Diabetic Nephropathies OR Nephropathies, Diabetic OR Nephropathy, Diabetic OR Diabetic Nephropathy OR Diabetic Kidney Disease OR Diabetic Kidney Diseases OR Kidney Disease, Diabetic OR Kidney Diseases, Diabetic OR Diabetic Glomerulosclerosis OR Glomerulosclerosis, Diabetic OR Intracapillary Glomerulosclerosis OR Nodular Glomerulosclerosis OR Glomerulosclerosis, Nodular OR Kimmelstiel-Wilson Syndrome OR Kimmelstiel Wilson Syndrome OR Syndrome, Kimmelstiel-Wilson OR Kimmelstiel-Wilson Disease OR Kimmelstiel Wilson Disease)	82733
	#2	TS=(Magnetic Resonance Imaging OR Imaging, Magnetic Resonance OR NMR Imaging OR Imaging, NMR OR Tomography, NMR OR Tomography, MR OR MR Tomography OR NMR Tomography OR Steady-State Free Precession MRI OR Steady State Free Precession MRI OR Zeugmatography OR Imaging, Chemical Shift OR Chemical Shift Imagings OR Imagings, Chemical Shift OR Shift Imaging, Chemical OR Shift Imagings, Chemical OR Chemical Shift Imaging OR Magnetic Resonance Image OR Image, Magnetic Resonance OR Magnetic Resonance Images OR Resonance Image, Magnetic OR Magnetization Transfer Contrast Imaging OR MRI Scans OR MRI Scan OR Scan, MRI OR Scans, MRI OR Tomography, Proton Spin OR Proton Spin Tomography OR fMRI OR MRI, Functional OR Functional MRI OR Functional MRIs OR MRIs, Functional OR Functional Magnetic Resonance Imaging OR Magnetic Resonance Imaging, Functional OR Spin Echo Imaging OR Echo Imaging, Spin OR Echo Imagings, Spin OR Imaging, Spin Echo OR	915214

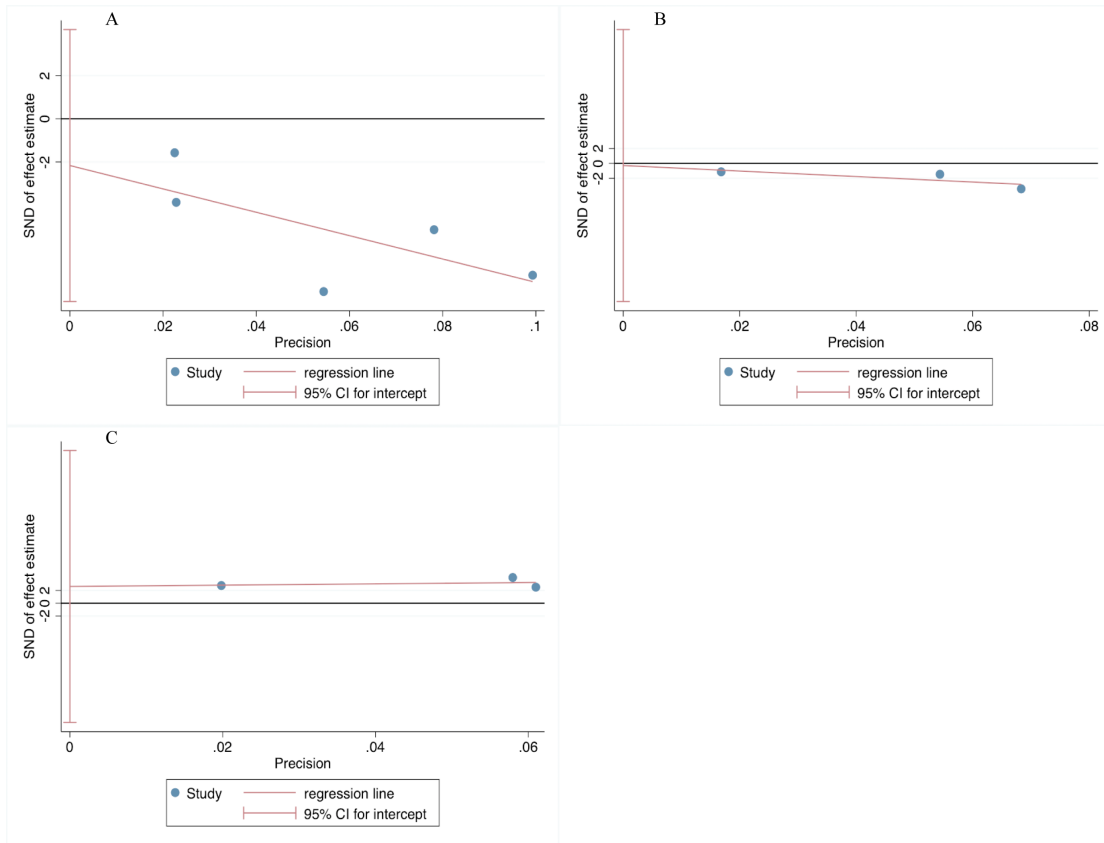
		Imagings, Spin Echo OR Spin Echo Imagings)	
	#3	#1 AND #2	615

Figure S2. Quality assessment of the included studies

Study	Selection			Comparability		Outcome			Scores
	Adequate definition of cases	Representativeness of the cases	Selection of controls	Definition of controls	Control for important factor	Ascertainment of outcome	Same method of ascertainment for cases and controls	Non-response rate	
Brown 2020	1	1	0	1	2	1	1	1	8
Cakmak 2014	1	1	0	1	1	1	1	1	7
Chen 2014	1	1	1	1	2	1	1	1	9
Chen 2018	1	1	1	1	2	1	1	1	9
Deng 2018	1	1	0	1	1	1	1	1	7
Feng 2018	1	1	1	1	2	1	1	1	9
Feng 2020	1	1	1	1	2	1	1	1	9
Jiang 2015	1	1	0	1	1	1	1	1	7
Laursen 2022	1	1	1	1	1	1	1	1	8
Liu 2017	1	1	0	1	2	1	1	1	8
Lu 2011	1	1	1	1	1	1	1	1	8
Makvandi 2022	1	1	1	1	1	1	1	1	8
Min 2021	1	1	0	1	2	1	1	1	8
Mohamed Osman 2021	1	1	1	1	1	1	1	1	8
Mora-Gutiérrez 2017	1	1	0	1	1	1	1	1	7
Mrđanin 2021	1	1	0	1	1	1	1	1	7
Panduranga 2022	1	1	0	1	2	1	1	1	8
Saini 2018	1	1	0	1	2	1	1	1	8
Seah 2022	1	1	1	1	1	1	1	1	8
Wang 2011	1	1	0	1	1	1	1	1	7
Wang 2018	1	1	1	1	2	1	1	1	9
Wei 2022	1	1	1	1	2	1	1	1	9
Ye 2019	1	1	1	1	1	1	1	1	8
Zhang 2022	1	1	0	1	2	1	1	1	8

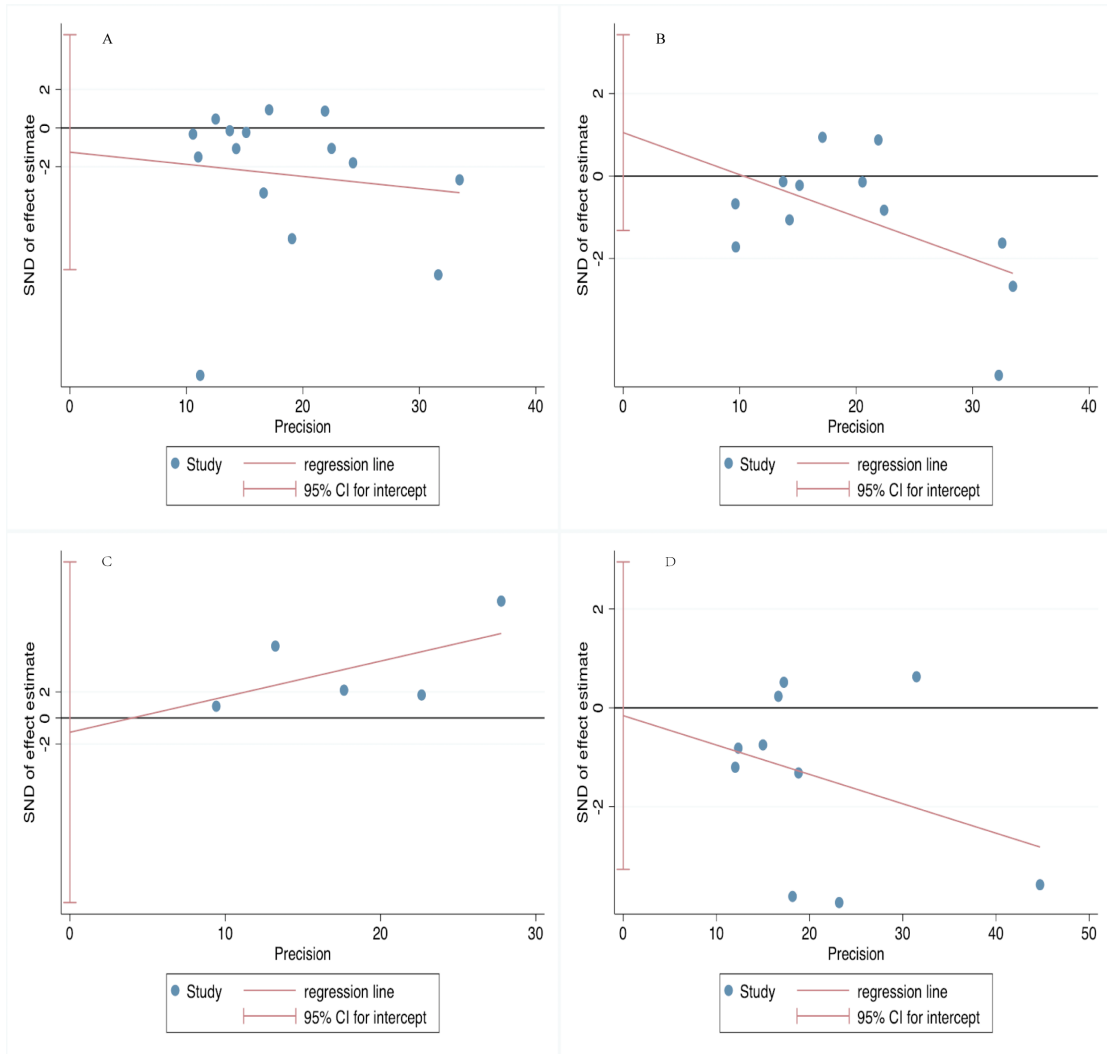
Figure S3. Published risk of bias chart

RBF:



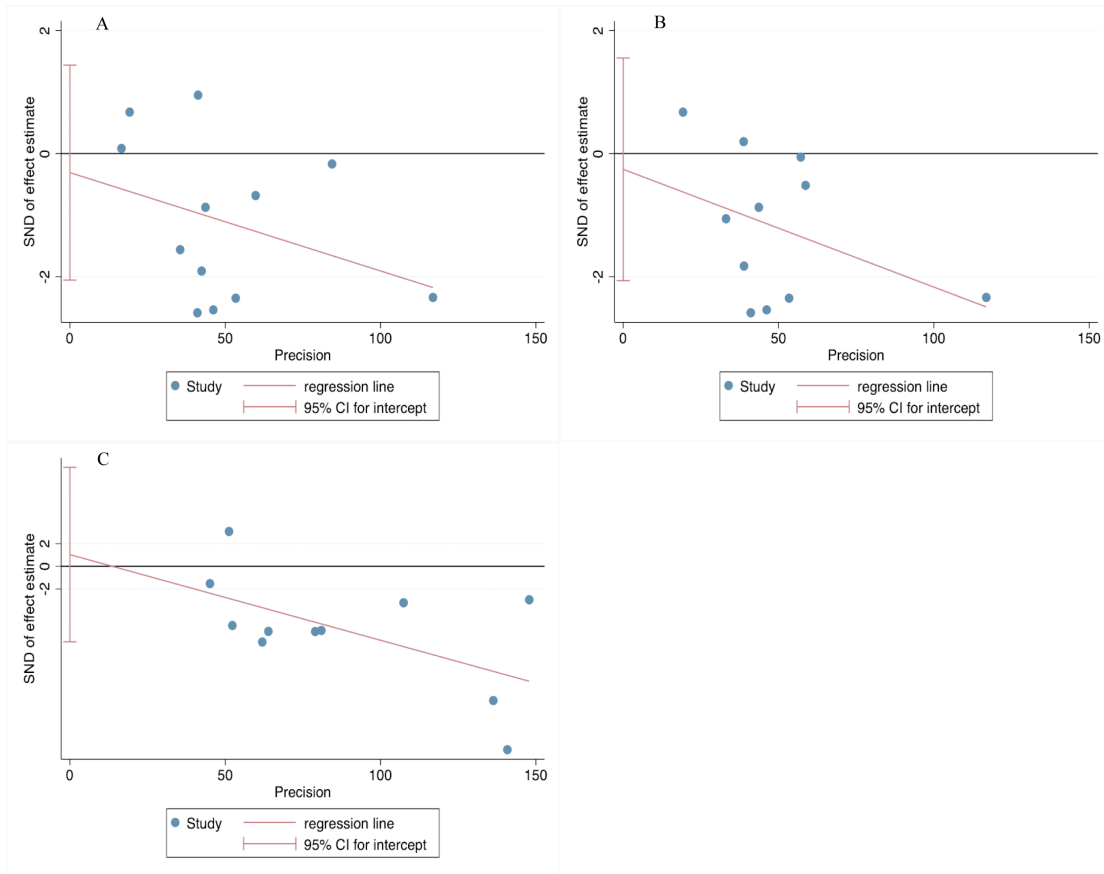
A: DKD versus HV; B: Microalbuminuria DKD versus HV; C:DKD group with eGFR ≥ 60 ml/min/1.73m² versus DKD group with eGFR < 60 ml/min/1.73m²

ADC:



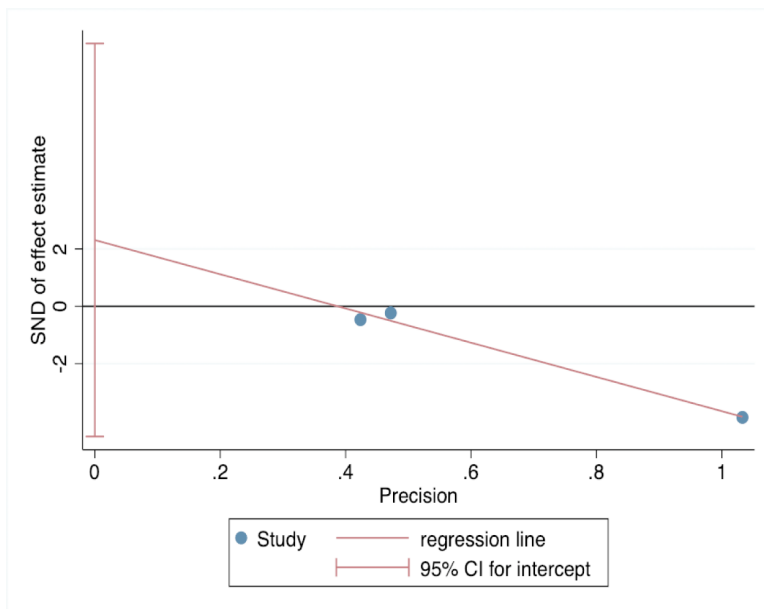
A: DKD versus HV; B:DKD versus simple DM; C: DKD group with eGFR ≥ 60 ml/min/1.73m² versus DKD group with eGFR < 60 ml/min/1.73m²; D: DKD versus HV in renal cortex

FA:



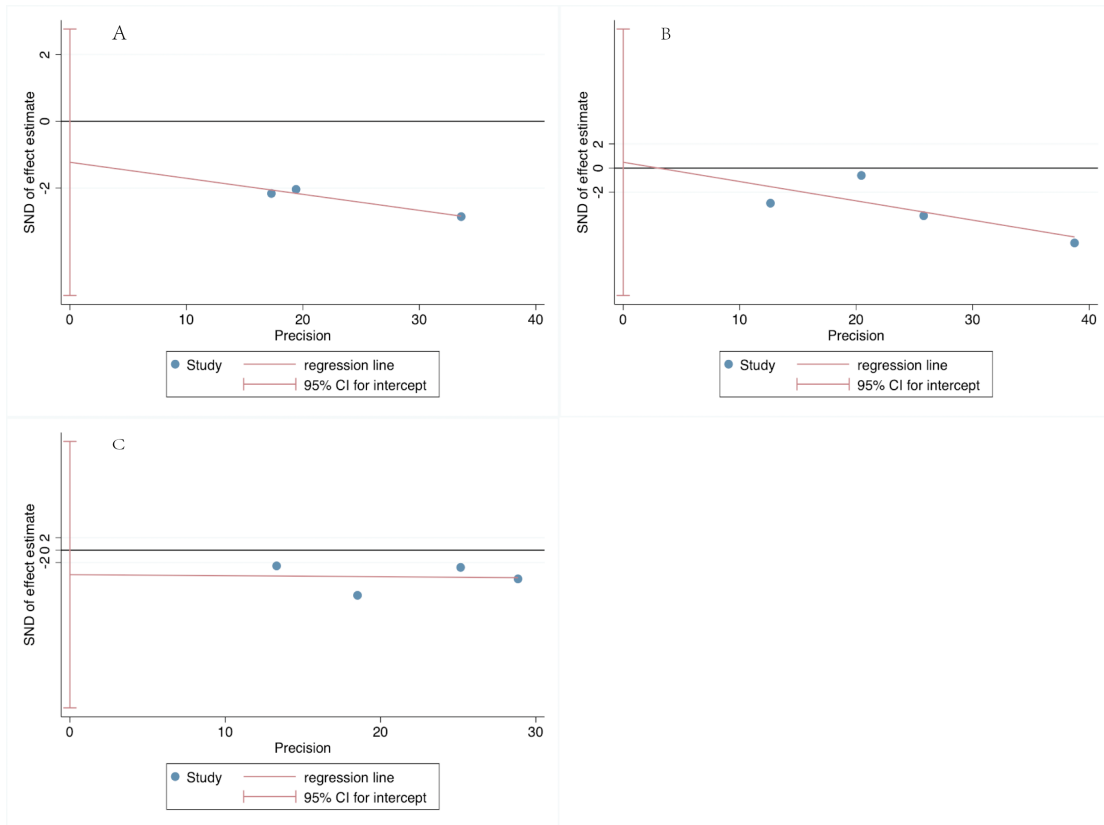
A: DKD versus HV; B: Microalbuminuria DKD versus HV; C: DKD versus HV in renal medulla

f:



DKD versus simple DM

D:

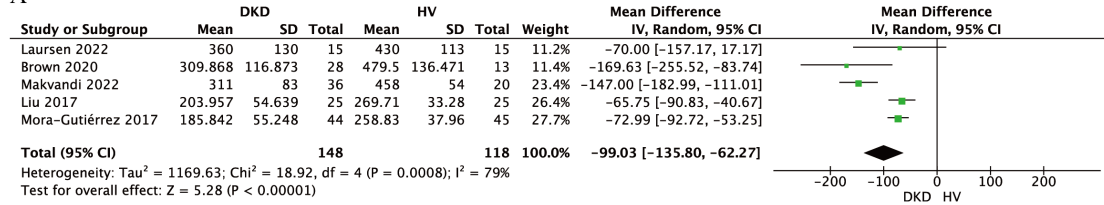


A: DKD versus simple DM; B: DKD group with eGFR \geq 60 ml/min/1.73m 2 versus DKD group with eGFR<60 ml/min/1.73m 2 ; C: DKD versus HV in renal cortex

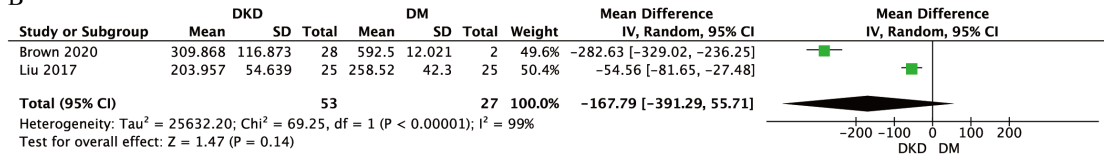
Figure S5. Forest Plots

RBF:

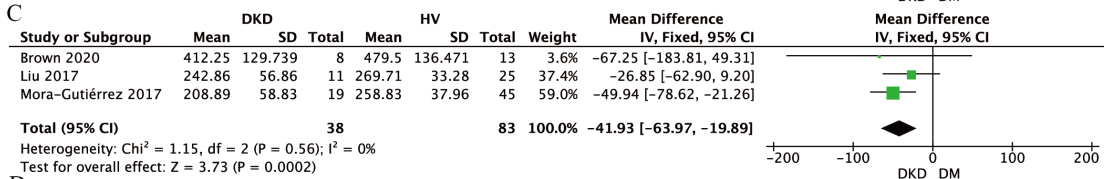
A



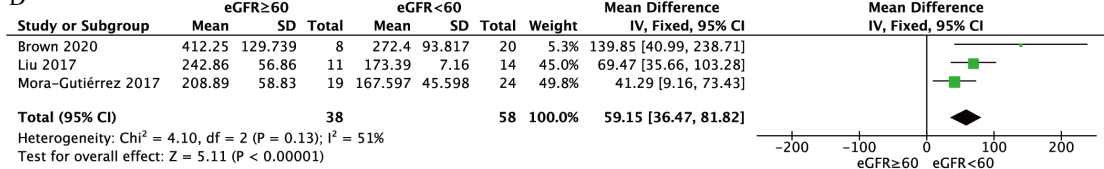
B



C

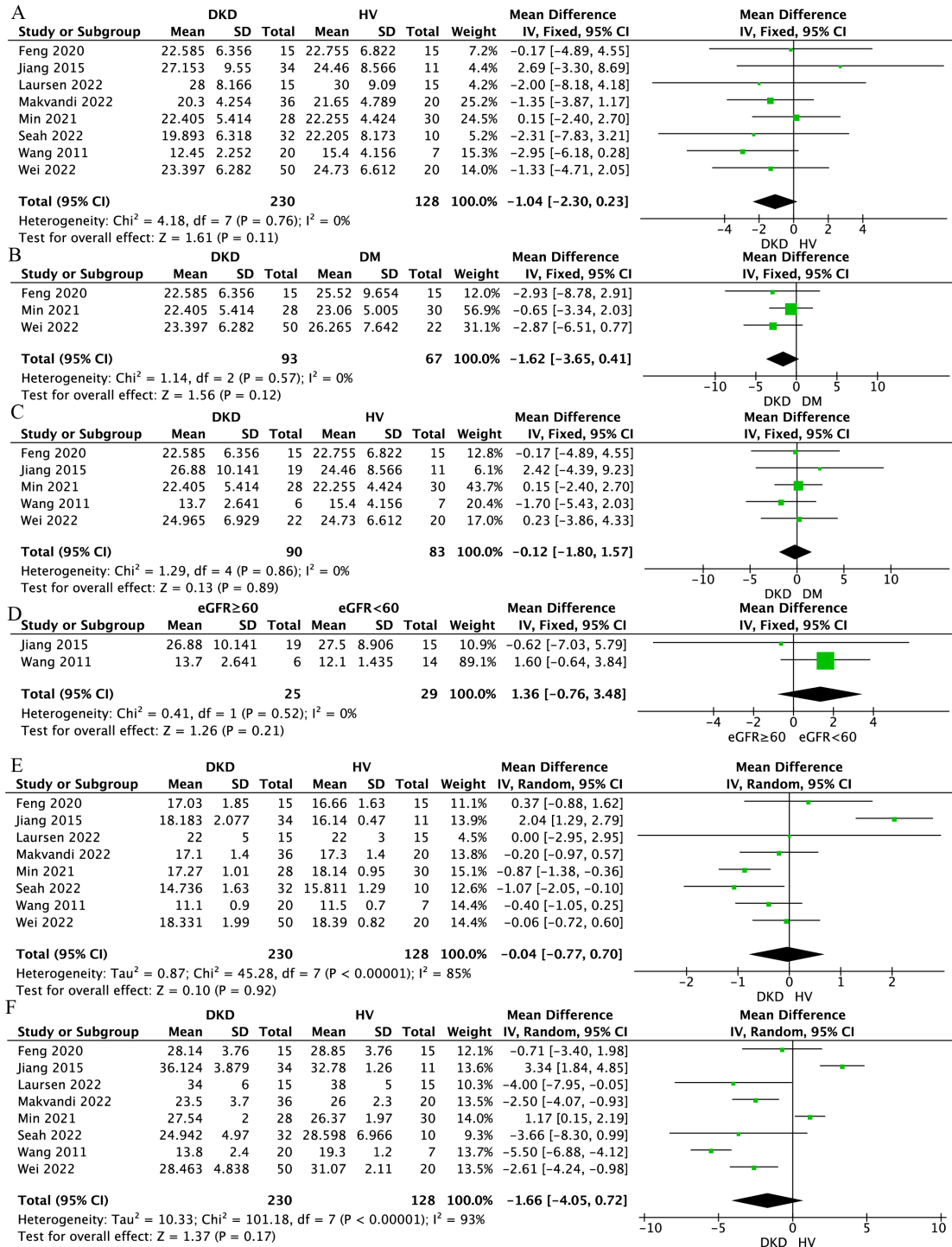


D



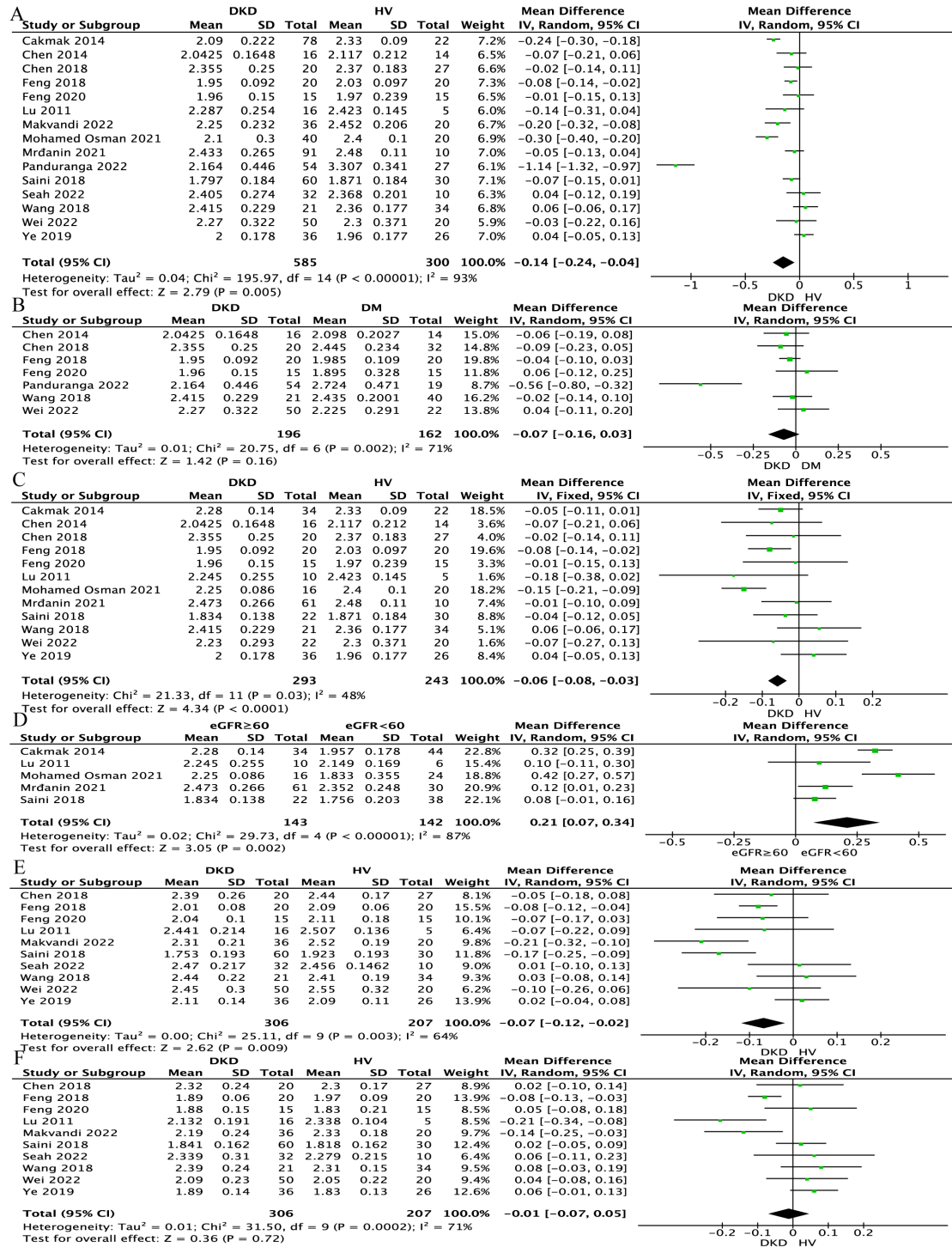
A: DKD versus HV; B: DKD versus simple DM; C: Microalbuminuria DKD versus HV; D: DKD group with eGFR≥60 ml/min/1.73m² versus DKD group with eGFR<60 ml/min/1.73m²

R2*:



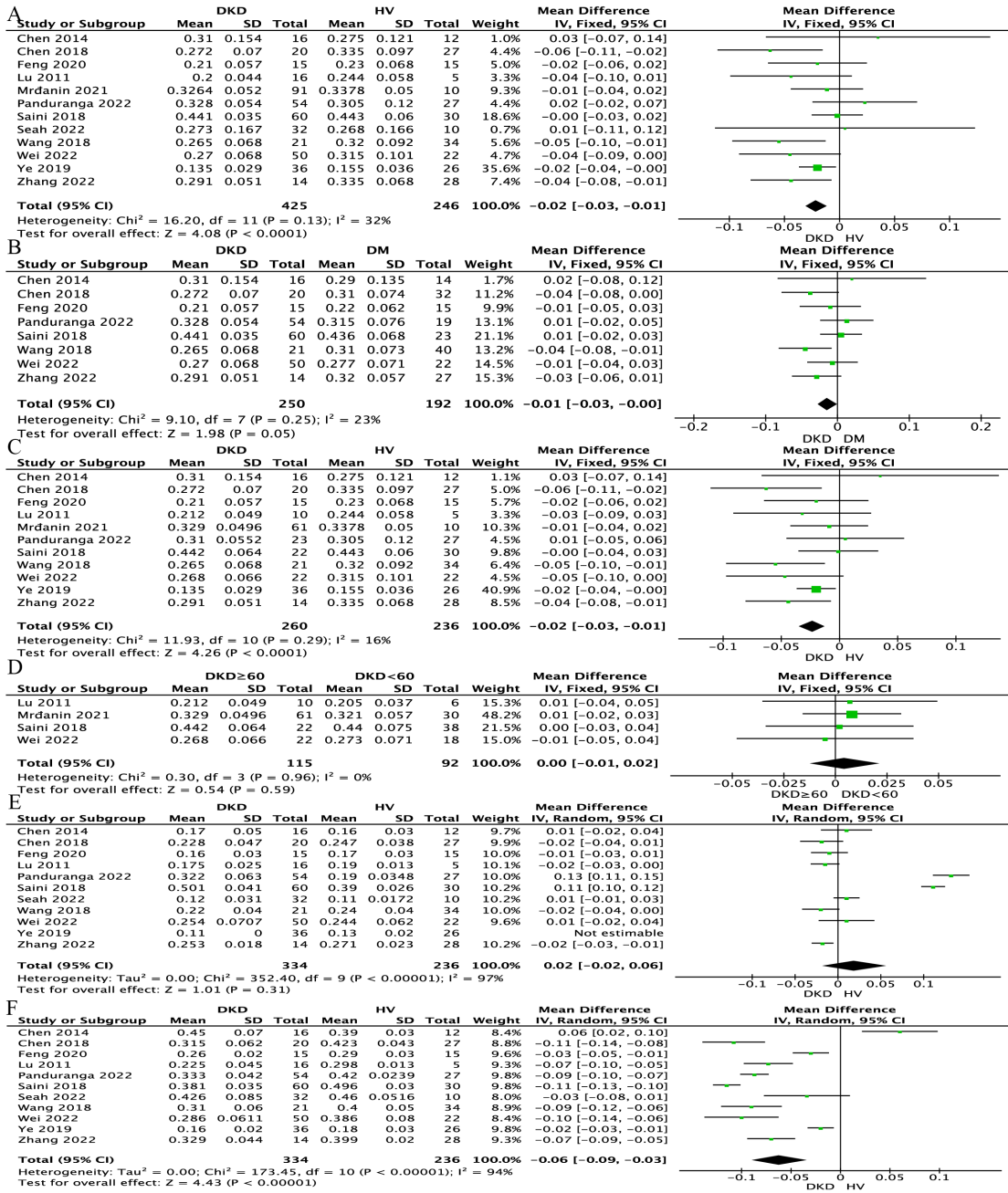
A: DKD versus HV; B: DKD versus simple DM; C: Microalbuminuria DKD versus HV; D: DKD group with eGFR \geq 60 ml/min/1.73m² versus DKD group with eGFR<60 ml/min/1.73m²; E: DKD versus HV in renal cortex; F: DKD versus HV in renal medulla

ADC:



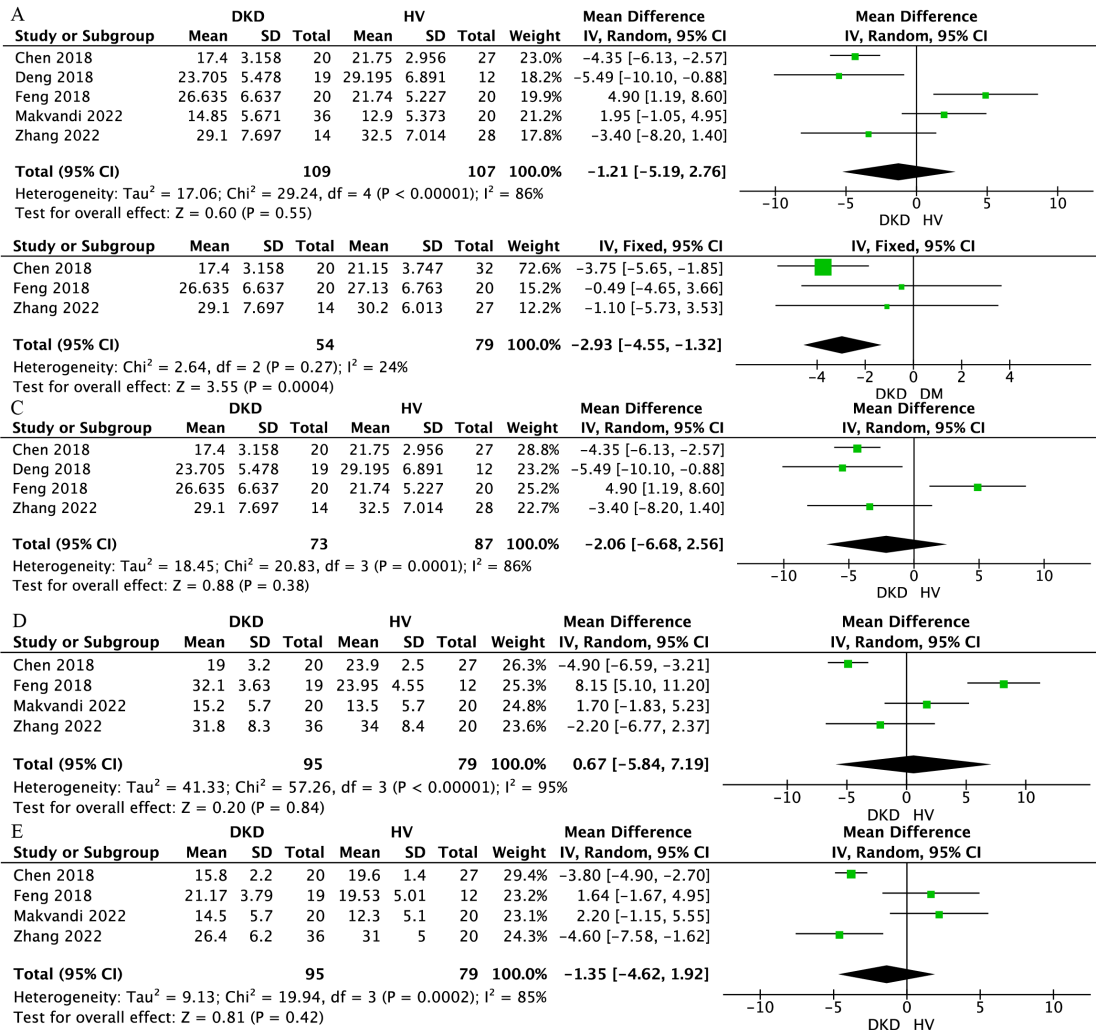
A: DKD versus HV; B: DKD versus simple DM; C: Microalbuminuria DKD versus HV; D: DKD group with eGFR ≥ 60 ml/min/1.73m² versus DKD group with eGFR < 60 ml/min/1.73m²; E: DKD versus HV in renal cortex; F: DKD versus HV in renal medulla

FA:



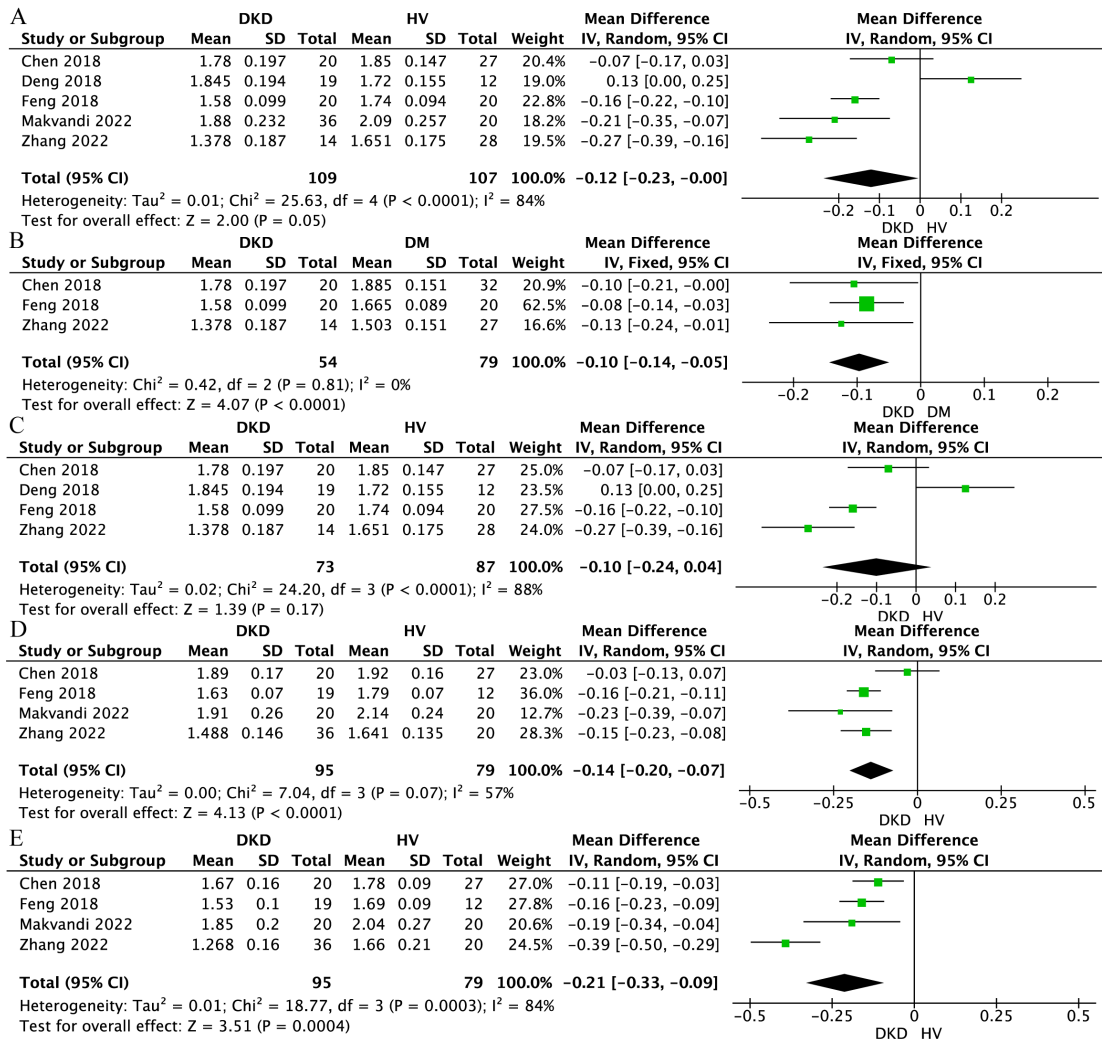
A: DKD versus HV; B: DKD versus simple DM; C: Microalbuminuria DKD versus HV; D: DKD group with eGFR ≥ 60 ml/min/1.73m² versus DKD group with eGFR < 60 ml/min/1.73m²; E: DKD versus HV in renal cortex; F: DKD versus HV in renal medulla

f:



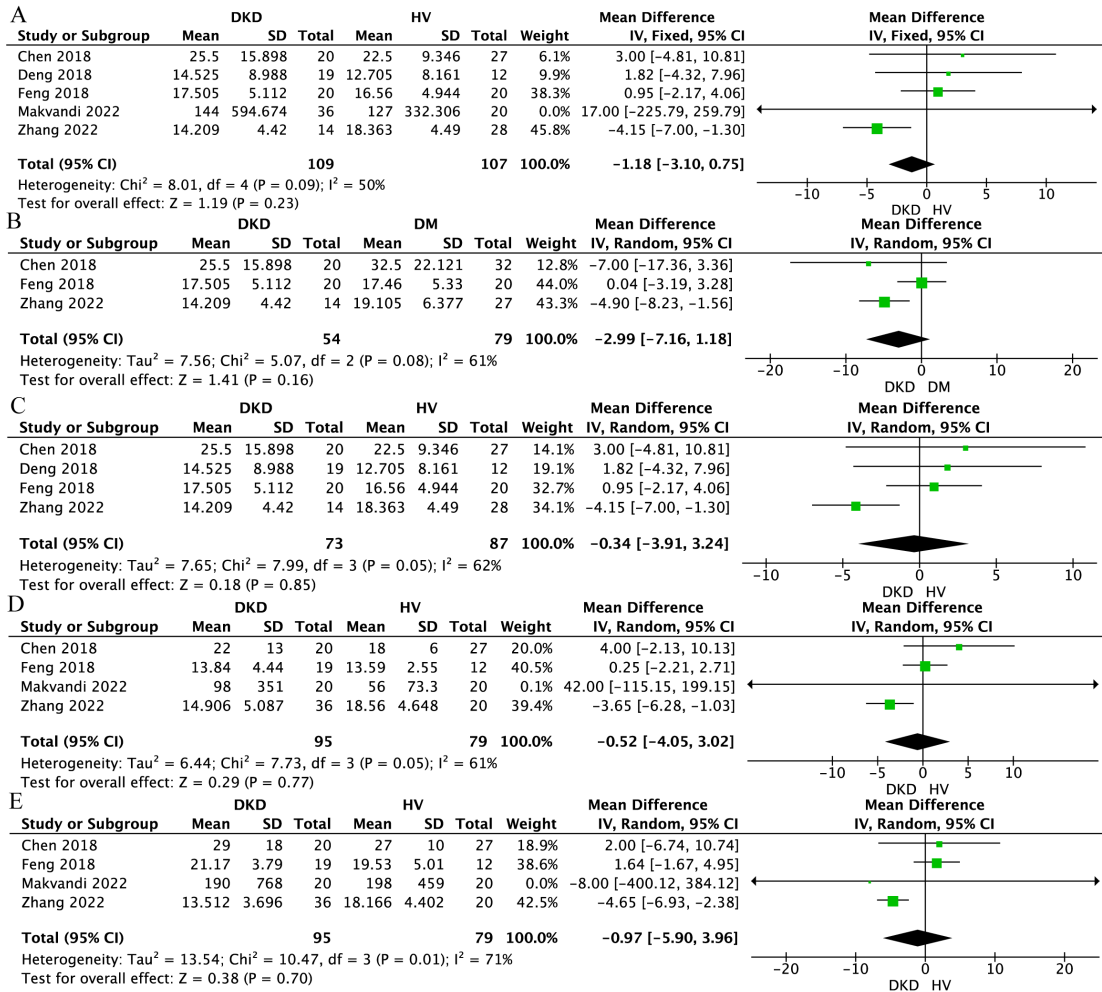
A: DKD versus HV; B: DKD versus simple DM; C: Microalbuminuria DKD versus HV; D: DKD versus HV in renal cortex;
E: DKD versus HV in renal medulla

D:



A: DKD versus HV; B: DKD versus simple DM; C: Microalbuminuria DKD versus HV; D: DKD versus HV in renal cortex;
E: DKD versus HV in renal medulla

D*:



A: DKD versus HV; B: DKD versus simple DM; C: Microalbuminuria DKD versus HV; D: DKD versus HV in renal cortex; E: DKD versus HV in renal medulla