

Supplemental material

Appendix 1. Search syntax Pubmed, Embase, Cochrane.

Domain Pubmed	Embase	Cochrane
((((((kidney[MeSH Terms]) OR kidney[Title/Abstract]) OR renal[Title/Abstract])) AND (((((((transplant) transplantation[Title/Abstract]) OR transplantations[Title/Abstract]) OR allotransplant[Title/Abstract]) OR allotransplantation[Title/Abstract]) OR allotransplantations[Title/Abstract]) OR graft*[Title/Abstract]) OR allograft*[Title/Abstract])))) OR kidney transplantation[MeSH Terms]	renal:ab,ti OR kidney:ab,ti OR kidneys:ab,ti AND ('transplantation'/exp OR transplant:ab,ti OR transplantation:ab,ti OR transplantations:ab,ti OR allotransplant:ab,ti OR allotransplants:ab,ti OR graft:ab,ti OR grafting:ab,ti OR allograft:ab,ti OR allografts:ab,ti) OR 'kidney transplantation':ab,ti OR 'kidney transplantation'/exp	renal:ti,ab OR kidney:ti,ab OR kidneys:ti,ab AND (transplant:ti,ab OR transplantation:ti,ab OR transplantations:ti,ab OR allotransplant:ti,ab OR allotransplants:ti,ab OR graft:ti,ab OR grafting:ti,ab OR allograft:ti,ab OR allografts:ti,ab) OR 'kidney transplantation':ti,ab
Determinant Pubmed	Embase	Cochrane
(((((((pregnancy[MeSH Terms]) OR pregnant[Title/Abstract]) OR pregnancy[Title/Abstract]) OR pregnancies[Title/Abstract]) OR gestation[Title/Abstract]) OR gestational[Title/Abstract]) OR gravid[Title/Abstract]) OR gravidity[Title/Abstract]) OR gravidities[Title/Abstract]	pregnant:ab,ti OR pregnancy:ab,ti OR pregnancies:ab,ti OR gestation:ab,ti OR gestational:ab,ti OR childbearing:ab,ti OR 'child bearing':ab,ti OR gravidity:ab,ti OR 'pregnant'/exp	pregnant:ti,ab OR pregnancy:ti,ab OR pregnancies:ti,ab OR gestation:ti,ab OR gestational:ti,ab OR childbearing:ti,ab OR "child bearing":ti,ab OR gravidity:ti,ab
Outcome pubmed	Embase	Cochrane
(((((((Renal[Title/Abstract]) OR kidney[Title/Abstract])) AND (((((((((((function[Title/Abstract]) OR functions[Title/Abstract]) OR "function decline"[Title/Abstract]) OR "function declining"[Title/Abstract]) OR "function decrease"[Title/Abstract]) OR "function decreased"[Title/Abstract]) OR "function decreases"[Title/Abstract]) OR Failure[Title/Abstract]) OR Failures[Title/Abstract]) OR Insufficient[Title/Abstract]) OR Insufficiency[Title/Abstract]) OR Insufficiencies[Title/Abstract]) OR "graft survival"[Title/Abstract]) OR "graft loss" [Title/Abstract]) OR "graft	((renal:ab,ti OR kidney:ab,ti) AND (function:ab,ti OR functions:ab,ti OR 'function decline':ab,ti OR 'function declining':ab,ti OR 'function decrease':ab,ti OR 'function decreased':ab,ti OR 'function decreases':ab,ti OR failure:ab,ti OR failures:ab,ti OR insufficient:ab,ti OR insufficiency:ab,ti OR insufficiencies:ab,ti OR 'graft survival':ab,ti OR 'graft loss':ab,ti OR 'graft	((renal:ti,ab or kidney:ti,ab) and (function:ti,ab or functions:ti,ab or "function decline":ti,ab or "function declining":ti,ab or "function decrease":ti,ab or "function decreased":ti,ab or "function decreases":ti,ab or failure:ti,ab or failures:ti,ab or insufficient:ti,ab or insufficiency:ti,ab or insufficiencies:ti,ab or "graft survival":ti,ab or "graft loss":ti,ab or "graft survivals":ti,ab or "graft

survivals"[Title/Abstract]) OR "Graft function"[Title/Abstract]) OR "Graft failure"[Title/Abstract]) OR "allograft survival"[Title/Abstract]) OR "allograft survivals"[Title/Abstract])) AND ((((((((((((((((((((((((((((((((renal insufficiency[MeSH Terms]) OR "Glomerular filtration rate"[Title/Abstract]) OR "Glomerular filtration rates"[Title/Abstract]) OR "Glomerular filtration rate slope"[Title/Abstract]) OR "GFR slope"[Title/Abstract]) OR "GFR slopes"[Title/Abstract]) OR "eGFR slope"[Title/Abstract]) OR "eGFR slopes"[Title/Abstract]) OR GFR[Title/Abstract]) OR eGFR[Title/Abstract]) OR e- GFR[Title/Abstract]) OR Creatinin[Title/Abstract]) OR Creatinine[Title/Abstract]) OR "serum creatinin"[Title/Abstract]) OR "serum creatinine"[Title/Abstract]) OR MDRD[Title/Abstract]) OR "Cockroft Gault"[Title/Abstract]) OR "modification of diet in renal disease"[Title/Abstract]) OR Inulin[Title/Abstract]) OR iothalamat[Title/Abstract]) OR "Cystatin C"[Title/Abstract] OR "CKD epi"[Title/Abstract]) OR Proteinuria[Title/Abstract]) OR Proteinuria[MeSH Terms]) OR Albuminuria[Title/Abstract]) OR Albuminuria[MeSH Terms]) OR Microalbuminuria[Title/Abstract]) OR Macroalbuminuria[Title/Abstract]))))	survivals':ab,ti OR 'graft function':ab,ti OR 'graft failure':ab,ti OR 'allograft survival':ab,ti OR 'allograft survivals':ab,ti)) OR 'renal insufficiency':ab,ti OR 'glomerulus filtration rate':ab,ti OR 'glomerulus filtration rates':ab,ti OR 'glomerulus filtration rate slope':ab,ti OR 'gfr slope':ab,ti OR 'gfr slopes':ab,ti OR 'egfr slope':ab,ti OR 'egfr slopes':ab,ti OR gfr:ab,ti OR egfr:ab,ti OR 'e gfr':ab,ti OR creatinin:ab,ti OR creatinine:ab,ti OR 'serum creatinine':ab,ti OR 'creatinine blood level':ab,ti OR 'serum creatinin':ab,ti OR mdrd:ab,ti OR 'cockroft gault':ab,ti OR 'modification of diet in renal disease':ab,ti OR inulin:ab,ti OR iothalamat:ab,ti OR 'cystatin c':ab,ti OR 'ckd epi':ab,ti OR proteinuria:ab,ti OR 'proteinuria'/exp OR albuminuria:ab,ti OR 'albuminuria'/exp OR microalbuminuria:ab,ti OR macroalbuminuria:ab,ti	function":ti,ab or "graft failure":ti,ab or "allograft survival":ti,ab or "allograft survivals":ti,ab)) or "renal insufficiency":ti,ab or "glomerular filtration rate":ti,ab or "glomerular filtration rates":ti,ab or "glomerular filtration rate slope":ti,ab or "gfr slope":ti,ab or "egfr slope":ti,ab or gfr:ti,ab or egfr:ti,ab or "e gfr":ti,ab or creatinin:ti,ab or creatinine:ti,ab or "serum creatinine":ti,ab or "serum creatinin":ti,ab or mdrd:ti,ab or "cockroft gault":ti,ab or "modification of diet in renal disease":ti,ab or inulin:ti,ab or iothalamat:ti,ab or "cystatin c":ti,ab or "ckd epi":ti,ab or proteinuria:ti,ab or albuminuria:ti,ab or microalbuminuria:ti,ab or macroalbuminuria:ti,ab
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Appendix 2. Critical appraisal of topic table

Author (year) Journal	General		Applicability				Validity						
	Study design	Study size (n=)	Domain	Determinant	Outcome: PP renal function	Graft loss	Missing data	Loss to follow up	Standardization of outcome	Analysis	Confounding	Data extraction PP renal function	Graft loss
Abe (2008) International Journal of Urology	scRCS	20	●	●	●	●	●	●	●	●	●	●	●
Aivazoglou (2010) European Journal of Obstetrics & Gynecology and Reproductive Biology	scPCS	31	●	●	●	●	●	●	●	●	●	●	●
Ajaimy (2016) American journal of Transplantation	scRCS	11	●	●	○	●	○	●	●	○	●	○	●
Alfi (2008) Saudi Journal of Kidney Disease and Transplantation	scRCS	12	●	●	●	●	●	●	●	●	●	●	●
Amine (2017) PanAfrican Medical Journal	scRCs	12	●	●	●	○	●	○	●	○	●	○	●
Areia (2009) Arch Gynecol Obstet	scRCS	28	●	●	●	●	●	○	●	●	●	●	○
Basaran (2005) Transplantation Proceedings	scRCS	8	●	●	●	●	○	●	●	○	●	●	●
Candido (2016) Journal Brazilian Nefrology	scRCs	36	●	●	●	●	●	●	●	●	●	●	●
Crowe (1999) Quarterly Journal of Medicine	scRCS	29	●	●	●	●	●	○	●	●	●	●	○
Debska-Slizien (2014) Transplantation Proceedings	scRCS	17	●	●	●	●	○	●	●	●	●	○	●
Di Loreto (2010) Transplant Proceedings	scRCS	12	●	●	○	●	○	○	●	○	●	○	●
El Houssni (2016) Transplant International	scRCS	12	●	●	○	●	●	●	●	●	●	○	●
Farr (2014) European journal of obstetrics and gynaecology and reproductive biology	scRCS	10	●	●	●	●	●	●	●	●	●	●	●
First (1995) Transplantation	scCRCS	18	●	●	○	●	○	○	●	●	●	○	●
Fischer (2005) American Journal of Transplantation	mcCRCS	81	●	●	○	●	●	●	●	●	●	○	●
Galdo (2005) Transplantation Proceedings	scRCS	30	●	●	●	○	○	○	●	●	●	●	○
Gaughan (1996) American journal of kidney diseases	mcRCS	15	●	●	●	●	●	●	●	●	●	○	●
Ghafari (2008) Transplantation proceedings	scRCS	53	●	●	○	●	○	●	●	●	●	○	●
Gorgulu (2010) Clinical and Experimental Nephrology	scRCS	19	●	●	●	●	○	●	●	●	○	●	○
Hebral (2014) Nephrology Dialysis Transplantation	scRCS	46	●	●	●	●	●	●	●	●	●	○	●
Hooi (2003) Medical Journal of Malaysia	mcRCS	46	●	●	●	●	●	●	●	●	●	●	●
Kashanizadeh (2007) Transplantation Proceedings	scCRCS	86	●	●	○	●	○	●	●	●	●	○	●
Kato (2012) Transplantation Proceedings	mcRCS	23	●	●	●	●	○	○	●	●	○	●	●
Keitel (2004) Transplantation Proceedings	scRCS	41	●	●	●	●	○	●	●	●	○	●	●
Kim (2008) Transplantation	scCRCS	48	●	●	○	●	○	○	●	●	●	○	●

Kwek (2015) Journal of Obstetrics and Gynaecology Research	scRCS	10	●	●	●	●	●	●	●	●	●	●	●
Levidiotis (2009) Journal of American Society of Nephrology	scCRCS	118	●	●	●	●	●	●	●	●	●	○	●
Little (2000) Irish Journal of Medicine Science	scRCS	19	●	●	●	●	○	●	●	○	○	●	●
Melchor (2002) Transplantation Proceedings	scRCS	21	●	●	○	●	○	●	●	○	○	○	●
Moritz (2018) Annual Report International Pregnancy Transplantation Registry	mcRCS	1100	●	●	●	●	○	○	●	●	●	○	●
O'Reilly (2001) Journal of Obstetrics and Gynaecology	scRCS	41	●	●	●	●	○	●	●	●	●	○	●
Pour-Reza Gholi (2005) Transplantation proceedings	scCRCS	60	●	●	●	●	○	●	●	●	●	○	●
Rahaminov (2006) Transplantation	scCRCS	39	●	●	○	●	○	○	●	●	●	○	●
Queipo-Zaragoza (2003) Transplantation proceedings	scRCS	29	●	●	●	●	○	●	●	○	●	○	●
Salmela (1993) Transplantation	scRCS	22	●	●	●	●	○	●	●	●	●	○	●
Sibanda (2007) Transplantation	mcCRCS	176	●	●	○	●	●	○	●	●	●	○	●
Stoumpos (2016) Clinical transplantation	scCRCS	83	●	●	●	○	●	●	●	●	●	●	○
Sturgiss (1995) American Journal of Kidney disease	scCRCS	18	●	●	●	●	○	●	●	●	●	●	●
Svetitsky (2018) Transplant Proceedings	scRCS	18	●	●	●	●	●	○	○	●	●	●	●
Thompson (2003) Quarterly Journal of Medicine	scCRCS	24	●	●	●	●	●	○	●	○	●	●	●
Vannevel (2018) Obstetrics & Gyneacology	mcRCS	52	●	●	●	●	●	●	●	●	●	○	●
Yassaee (2007) Urol Journal	mcRCS	74	●	●	○	●	○	○	●	○	○	○	●
Yildirim (2005) International Journal of Gynecology and Obstetrics	scRCS	17	●	●	●	●	●	●	●	○	●	●	●
	Study design	Study size	Domain	Determinant	Outcome	Missing data	Loss to follow up	Standardization of outcome	Analysis	Confounding	Data extraction		

Legend CAT Table

General

Study design: single center (sc), multicenter (mc), prospective cohort study (PCS), retrospective cohort study (RCS), retrospective cohort study with control group (CRCS)

Study size: number of kidney transplant recipients who became pregnant after kidney transplantation (KT) n = number of pregnancies.

Applicability

Domain: ●: KT; ►: subgroup analysis within KT recipients; ○: other domain reported

Determinant: ◻●: pregnancy with renal allograft.

Outcome: ●: post pregnancy KT function, graft loss both with a follow up post pregnancy of more than 6 months; ►: graft survival; ○:◻no description of post pregnancy KT function or graft loss/graft survival.

Validity

Missing data: ●: ≤10% missing and nonselective; ►: >10% missing data, but a sensitivity analysis was conducted to account for those missings; ○: >10% missing data, selective or not reported.

Loss to follow up: ◻●: Sufficient duration of follow up and well described, ≤10% loss to follow up and nonselective; ○: no duration of follow up described, >10% loss to follow up, selective or not described.

Standardization of outcome: ●: outcomes are clearly defined (SCr at a fixed time of follow up, eGFR (described which formula they used) at a fixed time in follow up, graft loss at fixed time of follow up; ►: outcomes mentioned, but not clearly described (SCr reported, without clear description of follow up duration. eGFR reported, without clear description of follow up duration or no formula reported. Graft loss reported, without clear description of follow up duration or graft survival reported. ○: not well described.

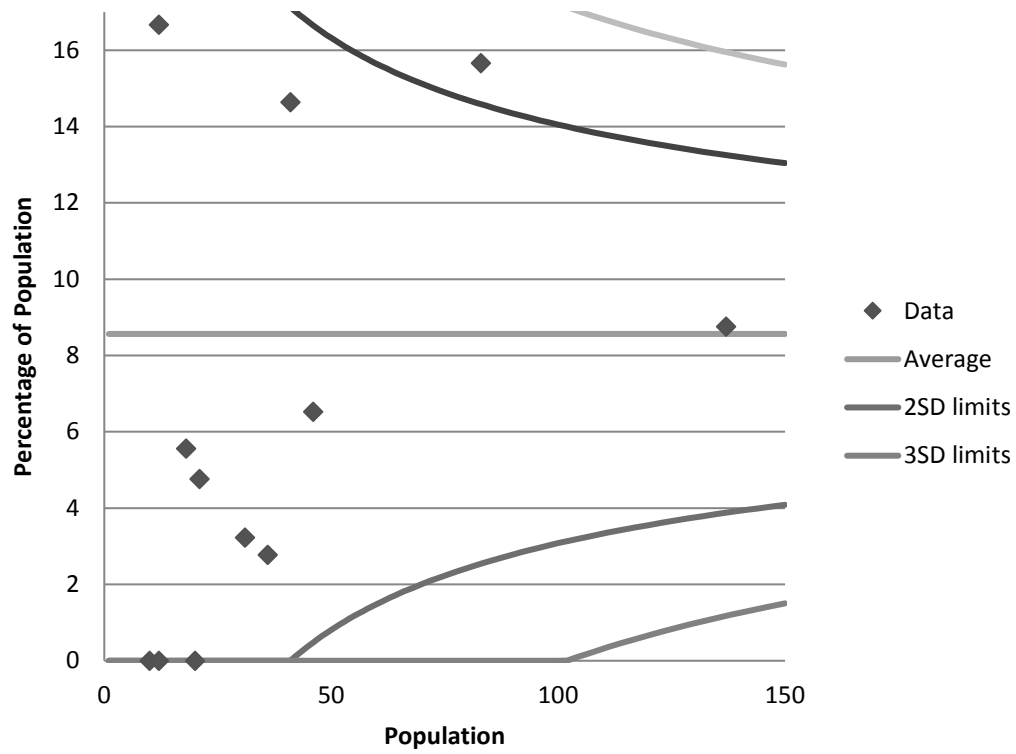
Analysis: ●: correct and well reported use of statistical tests; ►: summary description of used tests; ○: not well described

Confounding: ●: baseline characteristics described well (Reported characteristics of the study population such as BMI, ethnicity, smoking, cause of ESRD, duration of hemodialysis, age at KT, type of donor, use of immunosuppressants, TCI, age at delivery, etc); ►: description of baseline characteristics, but general characteristics of the study population are missing (e.g. ethnicity, smoking, cause of ESRD); ○: no baseline characteristics reported.

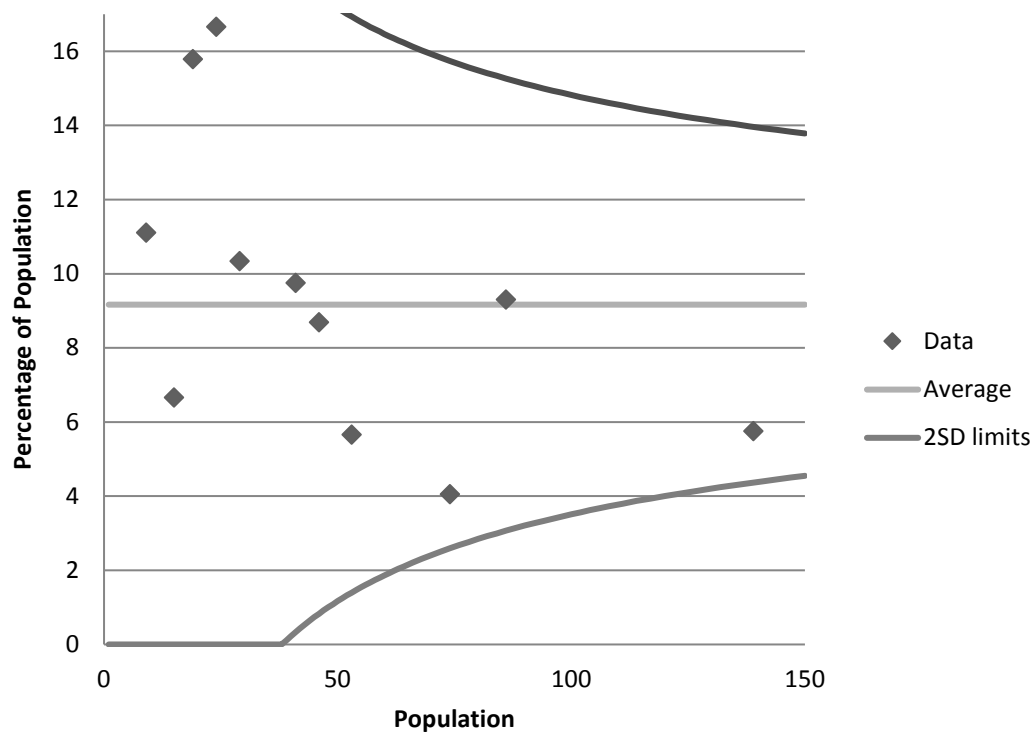
Data extraction: ●: possible; ○: not possible

Appendix 3: Funnel plots for graft loss

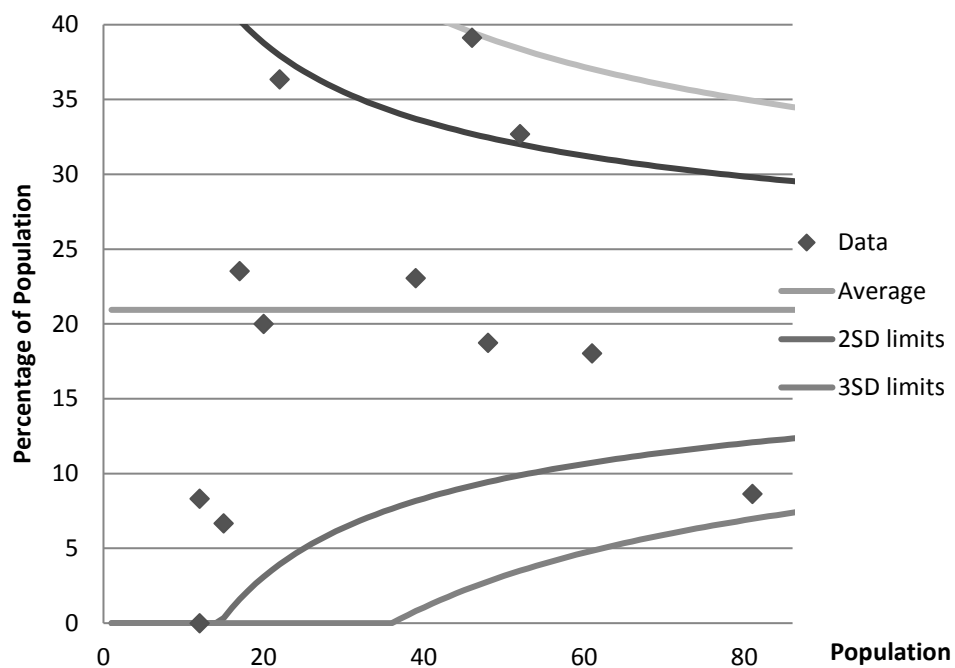
A: Graft loss < 2 years post pregnancy



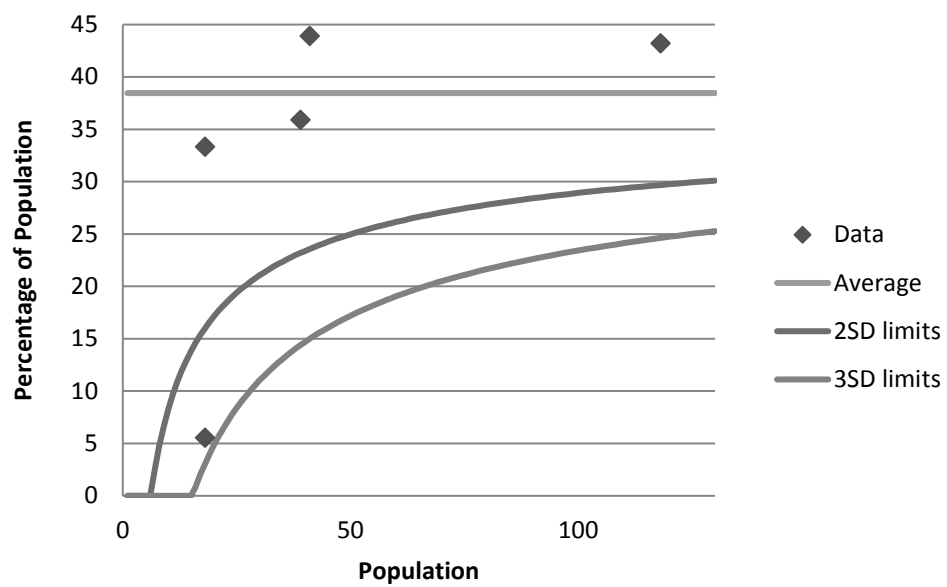
B. Graft loss 2 – 5 years post pregnancy



C. Graft loss 5-10 years post pregnancy

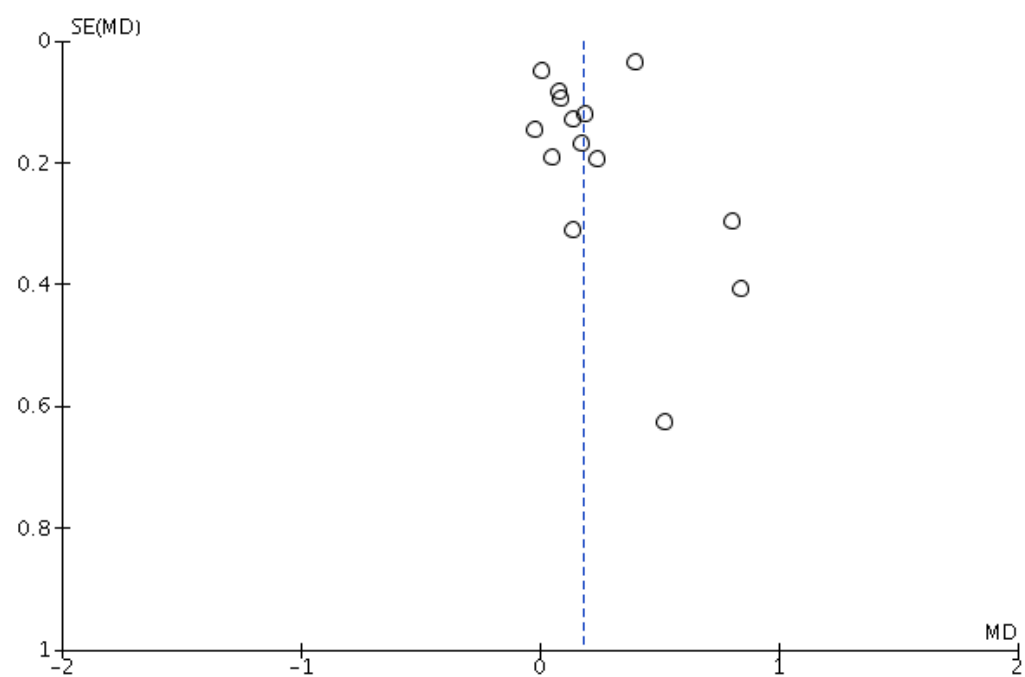


D. Graft loss > 10 years post pregnancy

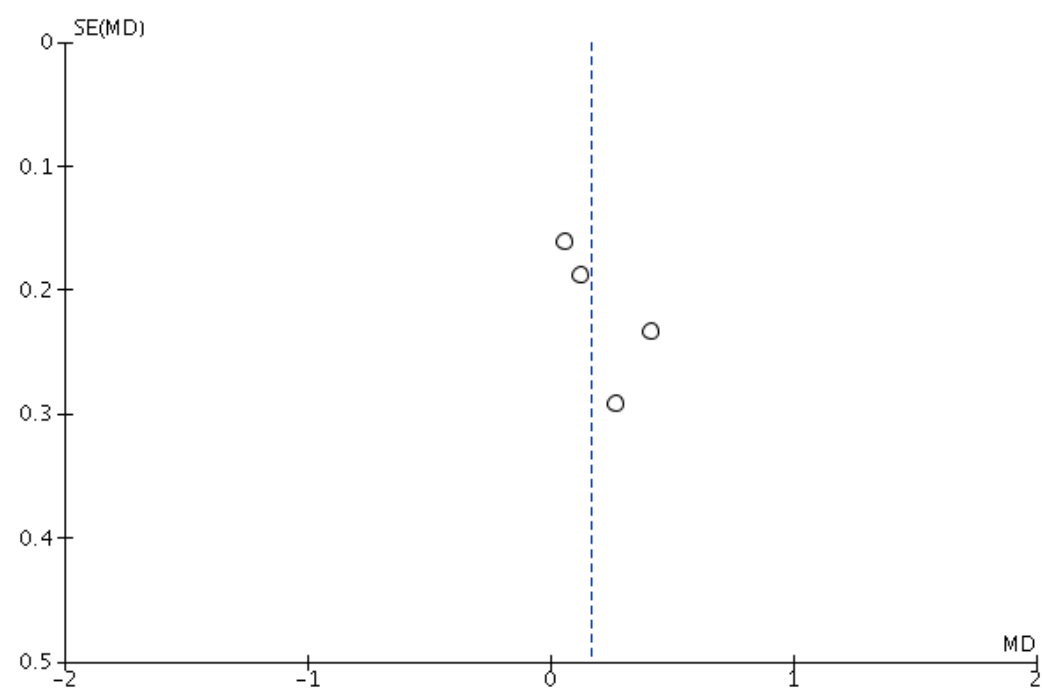


Appendix 4: Funnel plots SCr pre versus post pregnancy

4A: SCr pre versus 6m-2yr post pregnancy



4B: SCr pre versus 2-5 yr post pregnancy



4C: SCr pre versus >10 yr post pregnancy

