

Table S4: Grading of studies included for meta-analysis using a modified Newcastle-Ottawa Scale for assessment of study quality

	Selection [Maximum Score =2 stars]		Comparability [Maximum Score =2 stars]		Outcome [Maximum Score =6 stars]				
	1) Representativeness of the cohort [Maximum Score =1 star]	2) Ascertainment of exposure [Maximum Score =1 star]	Comparability of cohort, controlling of confounders [Maximum Score =1 star]	Baseline characteristics [Maximum Score =1 star]	1) Assessment of outcome [Maximum Score =1 star]	2) Assessment of oxidative stress and sperm DNA damage [Maximum Score =2 stars]	3) Adequacy of sample size [Maximum Score =1 star]	4) Correlation between ORP and SDF [Maximum Score =2 stars]	
Study	a) Truly representative (1 star) b) Somewhat representative (1 star) c) Highly selected group (No star) d) No description (No star)	a) Secure record (1 star) b) Directly measured (1 star) c) Written self-report (No star) d) No description (No star)	a) Controls of key confounders and related factors (eg. Testicular cancer, genetic defects, smoking, environmental exposure, etc.) (1 star) b) Uncontrolled for confounders (No star)	a) Demographic and clinical characteristics of study population presented (1 star) b) No description (No star)	a) Record linkage (1 star) b) Self-report (No star) c) No description (No star)	a) Assessment of ORP (1 star) b) Assessment of SDF (1 star) c) No description (No star)	a) Number of samples analyzed equal to the number of subjects in the group (1 star) b) More than or equal to 80% of the sample analyzed or description for the exclusion provided (1 star) c) Less than 80% of the sample analyzed and no description for the exclusion (No star) d) No description (No star)	a) Fertile men/donor group (1 star) b) Infertile men (1 star) c) No description (No star) d) Others (No star)	Total Score (Maximum Score =10 stars)
Arafa, 2019	1	1	1	1	1	2	1	1	9
Arafa, 2020	1	1	1	1	1	2	1	1	9

Garcia-Segura, 2020	1	1	0	0	1	2	0	1	6
Gill, 2021	1	1	1	1	1	2	0	1	8
Homa, 2019	1	1	1	0	1	2	0	1	7
Majzoub, 2018	1	1	1	1	1	2	1	2	10
Tanaka, 2020	1	1	0	1	1	2	1	1	8

Good quality: 2/4 stars for selection, 1/2 stars for comparability, 5/6 stars for outcome

Fair quality: 1/4 stars for selection, 1/2 stars for comparability, 4/6 stars for outcome

Poor quality: 0/4 stars for selection, 0/2 stars for comparability, 3/6 stars for outcome