

SUPPLEMENT

Endemic statistical paradoxes in epidemiologic studies distort knowledge on prostate cancer: mitigation and caution of fallacies in prostate cancer causal epidemiological studies

key rules for the conduct of a valid case control study based on PSA classification:

Results from the CASE STUDY

Family history, body mass index, height and prostate volume and association with prostate cancer diagnosis.

Figure N°1-Supplement: Cases versus Controls according to 2 modalities of inclusion

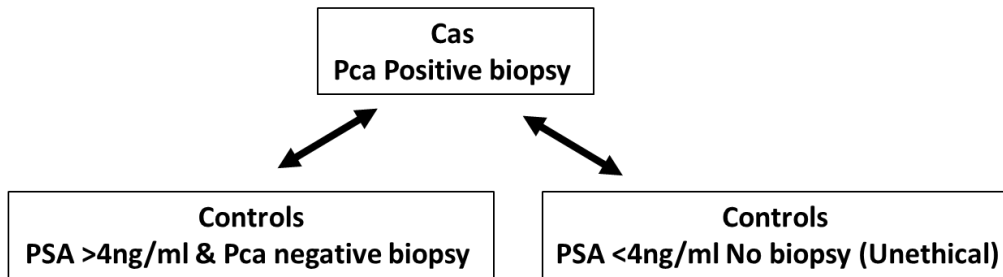


Figure N°2-supplement: Directional associations and potential bias

(BMI: Body mass index) (Directional associations: black arrows) Potential bias (dashed line).

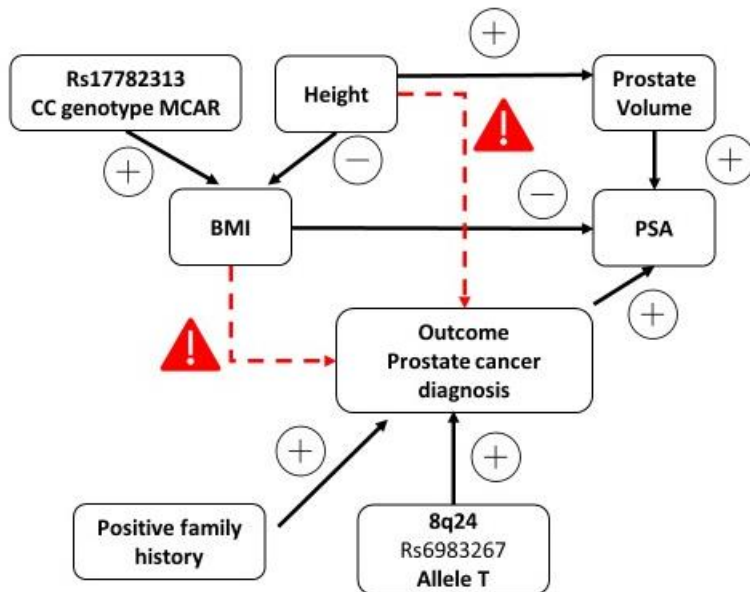


Table N°1-supplement Logistic regression, odds ratio CI 95% of the variables to the explanation of the response variable (Prostate Cancer Risk)	Controls selected on low PSA <4ng/ml				Controls selected on high and negative Biopsy PSA <4ng/ml			
	Odds ratio	Odds ratio CI< (95%)	Odds ratio CI> (95%)	pValue	Odds ratio	Odds ratio CI< (95%)	Odds ratio CI> (95%)	pValue
Prostate Volume	1,016	1,007	1,026	0,001	0,981	0,975	0,987	<0,000 1

Height	1,012	0,993	1,030	0,212	0,991	0,973	1,009	0,318
BMI	0,892	0,862	0,922	<0,000 1	1,050	1,012	1,089	0,009
Family History Pa negative	0,255	0,174	0,374	<0,000 1	0,639	0,481	0,851	0,002
Family History Pa positive	1							
rs6983267KP-GG	1,785	1,285	2,479	0,001	1,791	1,296	2,476	0,000
rs6983267KP-GT	1,395	1,040	1,870	0,026	1,315	0,980	1,764	0,068
rs6983267KP-TT	1							
rs17782313MCARallele -CC	0,722	0,419	1,241	0,238	0,995	0,589	1,680	0,984
rs17782313MCARallele -CTTT	1							

Table N°2-supplement Bayes factors (BF) for the variables on the response variable (BF=Posterior Probability/Prior Probability)

Table N°2-supplement	Controls selected on low PSA <4ng/ml	Controls selected on high and negative Biopsy PSA <4ng/ml	
Prostate Cancer Risk factors	Bayes Factors		
Family History PCa	Positive	1.31	1.09
Body Mass Index	<25%	1.11	0.95
Prostate Volume	>60cc	1.08	0.83
rs 698326 (Pca susceptibility)	Genotype GG	1.08	1.08
Height	>176 cm	1.08	0.98
Rs 17782313 MCAR	Genotype TT&CT	1.00	0.99

Table N°3-supplement	Controls selected on low PSA <4ng/ml	Controls selected on high and negative Biopsy PSA <4ng/ml
Prostate Cancer Risk factors	Direct effects	
Family History PCa	0.2074	0.067
Body Mass Index	-0.018	0.007
Prostate Volume	0.002	-0.003
rs 698326 (Pca susceptibility)	0.068	0.007
Height	0.005	-0.002
Rs 17782313 MCAR	-0.010	0.002

Table 4-supplement

Correlations between PSA (Log10) and BMI, height and prostate volume in the control groups

Variables	LogPSA	Prostate_Volume	Height	BMI
LogPSA	1	0,206*	0,093*	-0,171*

Prostate_Poids	0,206*	1	0,068*	0,048
Taille	0,093*	0,068*	1	-0,066*
IMC	-0,171*	0,048	-0,066*	1

* values are different from 0 to a significance level alpha=0.05

Figure4-supplement: **Correlations between PSA (Log10) and BMI, height and prostate volume in the control groups**

