

Supplemental Table 5. Sensitivity analysis using FDR correction across the full interaction family

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Prostatic hyperplasia	AVD	0.190 (0.137, 0.242)	<0.001	<0.001	<0.001
Prostatic hyperplasia	VD	-0.141 (-0.195, -0.086)	<0.001	<0.001	<0.001
Prostatic hyperplasia	AAD	0.149 (0.091, 0.207)	<0.001	<0.001	<0.001
Prostatic hyperplasia	AVeD	0.148 (0.097, 0.199)	<0.001	<0.001	<0.001
Prostatic hyperplasia	DCB	-0.247 (-0.290, -0.204)	<0.001	<0.001	<0.001
Prostatic hyperplasia	OD_4.5mm_FTD	-0.182 (-0.241, -0.123)	<0.001	<0.001	<0.001
Prostatic hyperplasia	OD_4.5mm_I_FTD	-0.214 (-0.271, -0.156)	<0.001	<0.001	<0.001
Prostatic hyperplasia	OD_4.5mm_N_FTD	-0.182 (-0.235, -0.129)	<0.001	<0.001	<0.001
Prostatic hyperplasia	OD_4.5mm_T_FTD	-0.174 (-0.230, -0.118)	<0.001	<0.001	<0.001
Prostatic hyperplasia	RSD	0.117 (0.064, 0.170)	<0.001	<0.001	0.001
Hyperuricemia	DCB	0.104 (0.055, 0.153)	<0.001	0.001	0.003
Hepatic cyst	AVD	-0.152 (-0.230, -0.074)	<0.001	0.004	0.010
Prostatic hyperplasia	Fundus_FTD	-0.113 (-0.171, -0.054)	<0.001	<0.001	0.013
Hepatic cyst	AVeD	-0.142 (-0.217, -0.068)	<0.001	0.004	0.013
Prostatic hyperplasia	VL	-0.104 (-0.160, -0.049)	<0.001	0.001	0.016
Hepatic cyst	AAD	-0.136 (-0.216, -0.056)	<0.001	0.014	0.054
Elevated glucose	AVC	-0.084 (-0.134, -0.034)	0.001	0.049	0.058
Hepatic cyst	VD	0.126 (0.048, 0.204)	0.001	0.018	0.071
Gallstone	VD	0.129 (0.049, 0.208)	0.001	0.076	0.071

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated TG	CDR_V	-0.085 (-0.137, -0.032)	0.001	0.054	0.071
Prostatic hyperplasia	MaxRD_OC	0.077 (0.029, 0.125)	0.001	0.005	0.071
Prostatic hyperplasia	M_6mm_FTD	-0.092 (-0.150, -0.035)	0.001	0.005	0.071
Fatty liver	VD	0.110 (0.041, 0.180)	0.001	0.088	0.076
Reduced HDL-C	MCB	0.105 (0.038, 0.172)	0.002	0.060	0.087
Reduced HDL-C	DDM	0.101 (0.036, 0.167)	0.002	0.060	0.097
Elevated TG	CDR_H	-0.081 (-0.134, -0.028)	0.002	0.054	0.099
Elevated TG	CDR	-0.081 (-0.135, -0.027)	0.003	0.054	0.119
Renal cyst	AVC	0.108 (0.036, 0.181)	0.003	0.126	0.119
Gallstone	VFD	0.130 (0.043, 0.218)	0.003	0.088	0.122
Reduced HDL-C	RID	0.099 (0.031, 0.167)	0.004	0.070	0.140
Elevated TC	AADM	-0.087 (-0.147, -0.027)	0.004	0.217	0.140
Reduced HGB (anemia)	AVD	-0.141 (-0.239, -0.043)	0.004	0.070	0.143
Urinary calculi	VD	0.103 (0.031, 0.176)	0.005	0.133	0.153
Urinary calculi	Fundus_FTD	-0.122 (-0.208, -0.036)	0.005	0.133	0.153
Gallstone	VL	0.111 (0.033, 0.189)	0.005	0.089	0.153
Reduced HGB (anemia)	VAPD1_Distance	-0.151 (-0.258, -0.044)	0.005	0.070	0.158
Reduced HGB (anemia)	VAPD2_Distance	-0.149 (-0.256, -0.043)	0.006	0.070	0.161
Prostatic hyperplasia	VFD	-0.085 (-0.145, -0.024)	0.006	0.020	0.164
Prostatic hyperplasia	VDD	0.065 (0.018, 0.112)	0.007	0.021	0.175
Elevated glucose	OD_4.5mm_FTD	-0.072 (-0.125, -0.019)	0.007	0.157	0.178
Hyperuricemia	OD_4.5mm_FTD	0.074 (0.019, 0.129)	0.008	0.085	0.197
Hyperuricemia	Fundus_FTD	0.072 (0.018, 0.126)	0.008	0.085	0.201

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Hyperuricemia	HDD	0.062 (0.016, 0.109)	0.008	0.085	0.201
Reduced HGB (anemia)	HDD	-0.142 (-0.248, -0.035)	0.009	0.070	0.201
Elevated glucose	OD_4.5mm_T_FTD	-0.069 (-0.121, -0.016)	0.009	0.157	0.201
Urinary calculi	M_6mm_FTD	-0.112 (-0.198, -0.027)	0.010	0.165	0.201
Prostatic hyperplasia	M_3mm_FTD	-0.077 (-0.135, -0.018)	0.010	0.029	0.201
Elevated BP	AVeD	-0.058 (-0.102, -0.013)	0.010	0.386	0.201
Renal cyst	M_3mm_FTD	-0.116 (-0.205, -0.026)	0.011	0.126	0.201
Reduced HGB (anemia)	AAD	-0.132 (-0.234, -0.030)	0.011	0.070	0.201
Gallstone	AVD	-0.098 (-0.174, -0.022)	0.011	0.128	0.201
Hyperuricemia	OD_4.5mm_T_FTD	0.071 (0.016, 0.125)	0.011	0.085	0.201
Hyperuricemia	OD_4.5mm_N_FTD	0.071 (0.016, 0.125)	0.011	0.085	0.201
Renal cyst	M_6mm_FTD	-0.112 (-0.198, -0.025)	0.011	0.126	0.201
Reduced HGB (anemia)	VDD	-0.139 (-0.247, -0.031)	0.011	0.070	0.201
Reduced HGB (anemia)	MinRD_OC	-0.135 (-0.239, -0.030)	0.011	0.070	0.201
Reduced HDL-C	VL	0.092 (0.021, 0.164)	0.011	0.143	0.201
Hepatic cyst	VDD	-0.096 (-0.172, -0.021)	0.012	0.123	0.206
Elevated glucose	OD_4.5mm_I_FTD	-0.068 (-0.121, -0.014)	0.012	0.157	0.206
Elevated TC	AAH_DDV	-0.068 (-0.121, -0.014)	0.012	0.305	0.206
Renal cyst	DDM	-0.084 (-0.150, -0.018)	0.012	0.126	0.206
Gallstone	AVeD	-0.092 (-0.166, -0.019)	0.013	0.128	0.206
Reduced HGB (anemia)	AVeD	-0.124 (-0.222, -0.026)	0.013	0.070	0.208
Reduced HGB (anemia)	OD_4.5mm_S_FTD	0.152 (0.031, 0.273)	0.013	0.070	0.208
Elevated TG	HCD	-0.065 (-0.117, -0.013)	0.013	0.165	0.208

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Hyperuricemia	OD_4.5mm_I_FTD	0.069 (0.014, 0.125)	0.014	0.085	0.208
Reduced HGB (anemia)	AAH	-0.134 (-0.241, -0.026)	0.014	0.070	0.208
Hepatic cyst	VFD	0.109 (0.021, 0.197)	0.015	0.124	0.208
Renal cyst	M_1mm_FTD	-0.116 (-0.209, -0.022)	0.015	0.126	0.208
Renal cyst	VFD	0.098 (0.019, 0.178)	0.015	0.126	0.208
Fatty liver	CDR	-0.091 (-0.164, -0.017)	0.015	0.266	0.208
Reduced HGB (anemia)	DA	-0.133 (-0.241, -0.025)	0.015	0.070	0.208
Gallstone	AVC	0.097 (0.018, 0.176)	0.015	0.128	0.208
Hyperuricemia	HCD	0.062 (0.012, 0.113)	0.015	0.085	0.208
Premature contraction	OD_4.5mm_FTD	0.139 (0.026, 0.252)	0.015	0.483	0.208
Fatty liver	VL	0.084 (0.015, 0.153)	0.016	0.266	0.212
Elevated TG	VCD	-0.064 (-0.116, -0.011)	0.016	0.165	0.212
Elevated creatinine	MCB	0.091 (0.016, 0.166)	0.016	0.604	0.212
Hyperuricemia	VAPD2_Distance	0.056 (0.010, 0.103)	0.018	0.085	0.223
Prostatic hyperplasia	VCD	0.062 (0.010, 0.113)	0.018	0.051	0.224
Elevated TC	AAH	-0.064 (-0.118, -0.011)	0.018	0.305	0.224
Hyperuricemia	DA	0.057 (0.009, 0.104)	0.018	0.085	0.224
Elevated urea	AVR	0.130 (0.021, 0.238)	0.019	0.708	0.224
Hyperuricemia	VFD	-0.062 (-0.114, -0.010)	0.019	0.085	0.228
Urinary calculi	VFD	0.094 (0.015, 0.173)	0.019	0.191	0.228
Hyperuricemia	MaxRD_OC	0.058 (0.009, 0.106)	0.020	0.085	0.236
Fatty liver	VFD	0.087 (0.013, 0.162)	0.021	0.266	0.244
Gallstone	M_6mm_FTD	-0.106 (-0.197, -0.015)	0.022	0.159	0.253
Reduced HDL-C	RTD	0.083 (0.011, 0.155)	0.023	0.207	0.256
Elevated BP	AVD	-0.052 (-0.098, -0.007)	0.023	0.386	0.256

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Urinary calculi	VL	0.084 (0.011, 0.156)	0.023	0.191	0.256
Hyperuricemia	VAPD1_Distance	0.053 (0.007, 0.100)	0.024	0.092	0.257
Premature contraction	OD_4.5mm_N_FTD	0.127 (0.016, 0.239)	0.024	0.483	0.257
Elevated bilirubin	AVC	0.125 (0.016, 0.235)	0.025	0.338	0.257
Reduced HDL-C	RSD	0.078 (0.010, 0.147)	0.025	0.207	0.257
Hepatic cyst	HDD	-0.084 (-0.158, -0.010)	0.025	0.134	0.257
Elevated creatinine	DCB	0.091 (0.011, 0.171)	0.026	0.604	0.257
Hepatic cyst	DA	-0.084 (-0.157, -0.010)	0.026	0.134	0.257
Hyperuricemia	M_6mm_FTD	0.060 (0.007, 0.114)	0.026	0.092	0.257
Reduced HGB (anemia)	VAM_Distance	-0.123 (-0.231, -0.014)	0.026	0.103	0.257
Renal cyst	VD	0.080 (0.009, 0.151)	0.026	0.187	0.257
Elevated BP	AVR	0.053 (0.006, 0.099)	0.026	0.386	0.257
Elevated LDL-C	VFD	0.077 (0.009, 0.145)	0.027	0.505	0.257
Reduced HGB (anemia)	MaxRD_OC	-0.117 (-0.220, -0.013)	0.027	0.103	0.257
Fatty liver	CDR_H	-0.083 (-0.157, -0.009)	0.027	0.270	0.257
Abnormal liver function	VD	0.128 (0.014, 0.242)	0.028	0.413	0.260
Urinary calculi	M_3mm_FTD	-0.096 (-0.183, -0.010)	0.028	0.191	0.260
Urinary calculi	OD_4.5mm_S_FTD	-0.097 (-0.184, -0.010)	0.029	0.191	0.264
Prostatic hyperplasia	DA	0.051 (0.005, 0.097)	0.029	0.077	0.264
Reduced HGB (anemia)	AAH_DDV	-0.116 (-0.220, -0.011)	0.030	0.107	0.264
Hepatic cyst	VL	0.087 (0.008, 0.166)	0.030	0.134	0.264
Urinary calculi	OD_4.5mm_N_FTD	-0.087 (-0.167, -0.008)	0.031	0.191	0.264
Hyperuricemia	RND	0.054 (0.005, 0.103)	0.031	0.096	0.264

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Hyperuricemia	VDD	0.052 (0.005, 0.100)	0.031	0.096	0.264
Abnormal liver function	VFD	0.130 (0.011, 0.249)	0.031	0.413	0.264
Prostatic hyperplasia	HCD	0.056 (0.005, 0.107)	0.031	0.078	0.264
Elevated TG	AVD	0.055 (0.005, 0.104)	0.032	0.206	0.264
Elevated TG	CA	-0.057 (-0.110, -0.005)	0.032	0.206	0.264
Elevated bilirubin	Fundus_FTD	-0.156 (-0.298, -0.013)	0.032	0.338	0.264
Elevated LDL-C	AVR	0.071 (0.006, 0.136)	0.033	0.505	0.271
Hepatic cyst	DDM	-0.077 (-0.148, -0.006)	0.033	0.134	0.271
Renal cyst	AADM	-0.087 (-0.167, -0.006)	0.034	0.201	0.272
Hyperuricemia	AVeD	0.051 (0.004, 0.099)	0.034	0.099	0.272
Hepatic cyst	VAPD2_Distance	-0.079 (-0.152, -0.006)	0.034	0.134	0.272
Reduced HDL-C	MinRD_OC	0.076 (0.005, 0.147)	0.034	0.245	0.272
Hepatic cyst	MCB	-0.079 (-0.152, -0.005)	0.035	0.134	0.272
Hepatic cyst	M_1mm_FTD	-0.111 (-0.214, -0.007)	0.035	0.134	0.275
Reduced HGB (anemia)	RSD	-0.113 (-0.219, -0.007)	0.036	0.118	0.276
Elevated glucose	RID	0.051 (0.003, 0.099)	0.037	0.245	0.283
Gallstone	OD_4.5mm_T_FTD	-0.096 (-0.186, -0.005)	0.037	0.230	0.283
Prostatic hyperplasia	M_1mm_FTD	-0.062 (-0.120, -0.003)	0.038	0.089	0.285
Premature contraction	OD_4.5mm_I_FTD	0.118 (0.006, 0.230)	0.038	0.483	0.285
Renal cyst	AVeD	-0.074 (-0.145, -0.004)	0.038	0.201	0.287
Elevated glucose	M_6mm_FTD	-0.053 (-0.103, -0.003)	0.039	0.245	0.287
Elevated TG	M_1mm_FTD	0.054 (0.003, 0.105)	0.039	0.206	0.287
Elevated glucose	MinRD_OC	0.051 (0.002, 0.100)	0.040	0.245	0.287
Elevated LDL-C	DCB	-0.069 (-0.136, -0.003)	0.040	0.505	0.287
Elevated TG	AVeD	0.051 (0.002, 0.100)	0.040	0.206	0.287

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated urea	AAR	0.142 (0.006, 0.278)	0.040	0.708	0.287
Renal cyst	Fundus_FTD	-0.089 (-0.174, -0.004)	0.041	0.201	0.288
Elevated glucose	OD_4.5mm_N_FTD	-0.054 (-0.106, -0.002)	0.041	0.245	0.288
Elevated TG	AAD	0.054 (0.002, 0.105)	0.042	0.206	0.288
Gallstone	OD_4.5mm_I_FTD	-0.091 (-0.179, -0.003)	0.042	0.230	0.288
Elevated creatinine	VAPD1_Distance	0.079 (0.003, 0.154)	0.042	0.604	0.288
Elevated BP	RSD	-0.049 (-0.097, -0.002)	0.042	0.386	0.288
Elevated bilirubin	OD_4.5mm_I_FTD	-0.141 (-0.279, -0.004)	0.043	0.338	0.291
Reduced HDL-C	CDR	-0.078 (-0.154, -0.002)	0.044	0.275	0.299
Prostatic hyperplasia	VAPD1_Distance	0.047 (0.001, 0.092)	0.045	0.101	0.299
Elevated TC	AVC	0.055 (0.001, 0.109)	0.045	0.482	0.299
Reduced HGB (anemia)	RND	-0.105 (-0.208, -0.001)	0.047	0.144	0.304
Elevated BP	VAPD2_Distance	-0.045 (-0.089, -0.001)	0.047	0.386	0.304
Elevated BP	DCB	-0.047 (-0.093, -0.001)	0.047	0.386	0.304
Gallstone	AVR	0.090 (0.001, 0.180)	0.048	0.236	0.308
Hyperuricemia	RID	0.050 (0.000, 0.100)	0.048	0.132	0.308
Premature contraction	OD_4.5mm_S_FTD	0.115 (0.001, 0.229)	0.049	0.483	0.308
Premature contraction	OD_4.5mm_T_FTD	0.108 (0.000, 0.215)	0.049	0.483	0.308
Urinary calculi	OD_4.5mm_FTD	-0.083 (-0.166, -0.000)	0.049	0.270	0.308
Elevated glucose	M_3mm_FTD	-0.050 (-0.101, -0.000)	0.049	0.245	0.308
Abnormal liver function	VCD	-0.112 (-0.224, 0.000)	0.0502	0.413	0.308
Hepatic cyst	AVC	0.080 (-0.000, 0.160)	0.0503	0.176	0.308
Reduced HGB (anemia)	DDM	-0.110 (-0.222, 0.001)	0.052	0.149	0.315

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated glucose	Fundus_FTD	-0.051 (-0.102, 0.001)	0.052	0.245	0.315
Prostatic hyperplasia	AAH	0.053 (-0.001, 0.106)	0.052	0.112	0.315
Elevated LDL-C	RND	-0.065 (-0.131, 0.001)	0.053	0.505	0.317
Elevated TC	VD	0.052 (-0.001, 0.105)	0.055	0.482	0.323
Fatty liver	RND	0.066 (-0.001, 0.133)	0.055	0.449	0.323
Elevated glucose	CDR	-0.051 (-0.102, 0.001)	0.055	0.245	0.323
Elevated TG	VL	-0.051 (-0.104, 0.001)	0.056	0.250	0.325
Abnormal liver function	RND	-0.105 (-0.213, 0.003)	0.056	0.413	0.325
Hyperuricemia	CA	0.049 (-0.001, 0.100)	0.056	0.145	0.325
Elevated BP	VAPD1_Distance	-0.043 (-0.087, 0.001)	0.058	0.389	0.326
Elevated bilirubin	DCB	-0.108 (-0.219, 0.004)	0.058	0.338	0.326
Hepatic cyst	VAPD1_Distance	-0.071 (-0.144, 0.002)	0.058	0.180	0.326
Renal cyst	OD_4.5mm_S_FTD	-0.092 (-0.187, 0.003)	0.058	0.230	0.326
Renal cyst	AVD	-0.070 (-0.141, 0.002)	0.058	0.230	0.326
Elevated TC	DDM	-0.047 (-0.096, 0.002)	0.059	0.482	0.328
Elevated LDL-C	VD	0.064 (-0.003, 0.131)	0.061	0.505	0.336
Reduced HGB (anemia)	RTD	-0.108 (-0.221, 0.005)	0.062	0.168	0.336
Elevated bilirubin	OD_4.5mm_FTD	-0.138 (-0.284, 0.007)	0.062	0.338	0.336
Hyperuricemia	VCD	0.049 (-0.002, 0.100)	0.062	0.151	0.336
Urinary calculi	M_1mm_FTD	-0.084 (-0.172, 0.004)	0.062	0.305	0.337
Renal cyst	HDD	-0.063 (-0.130, 0.004)	0.064	0.230	0.343
Reduced HDL-C	VAPD1_Distance	0.062 (-0.004, 0.127)	0.065	0.291	0.343
Elevated glucose	CDR_V	-0.048 (-0.099, 0.003)	0.065	0.262	0.343
Reduced HGB (anemia)	RID	-0.100 (-0.206, 0.006)	0.065	0.168	0.343
Renal cyst	AVR	0.075 (-0.005, 0.155)	0.066	0.230	0.343

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Hepatic cyst	VAM_Distance	-0.075 (-0.155, 0.005)	0.066	0.180	0.343
Hepatic cyst	M_3mm_FTD	-0.094 (-0.194, 0.006)	0.066	0.180	0.343
Hepatic cyst	OD_4.5mm_N_FTD	0.075 (-0.005, 0.156)	0.066	0.180	0.343
Elevated BP	VDD	-0.042 (-0.087, 0.003)	0.067	0.389	0.343
Gallstone	M_3mm_FTD	-0.087 (-0.179, 0.006)	0.068	0.303	0.349
Elevated LDL-C	OD_4.5mm_T_FTD	-0.064 (-0.133, 0.005)	0.068	0.505	0.349
Elevated glucose	OD_4.5mm_S_FTD	-0.047 (-0.099, 0.004)	0.069	0.262	0.352
Conduction block	AAW	0.097 (-0.008, 0.202)	0.070	0.873	0.354
Reduced HDL-C	AADM	0.077 (-0.006, 0.160)	0.071	0.291	0.356
Abnormal liver function	MaxRD_OC	-0.100 (-0.208, 0.009)	0.071	0.413	0.358
Elevated TG	OD_4.5mm_T_FTD	-0.049 (-0.103, 0.005)	0.073	0.299	0.363
Hyperuricemia	AAD	0.046 (-0.004, 0.096)	0.073	0.171	0.363
Elevated BP	DDM	-0.040 (-0.085, 0.004)	0.074	0.389	0.363
Reduced HDL-C	CDR_V	-0.070 (-0.146, 0.007)	0.074	0.291	0.363
Reduced HDL-C	VAPD2_Distance	0.060 (-0.006, 0.125)	0.074	0.291	0.363
Elevated LDL-C	AAH	-0.061 (-0.128, 0.006)	0.075	0.505	0.363
Elevated bilirubin	AAW_DDH	-0.119 (-0.252, 0.013)	0.077	0.338	0.369
Reduced HDL-C	VFD	0.064 (-0.007, 0.136)	0.077	0.291	0.369
Abnormal liver function	AVD	-0.100 (-0.210, 0.011)	0.077	0.413	0.369
Abnormal liver function	VL	0.097 (-0.011, 0.205)	0.078	0.413	0.369
Elevated bilirubin	RND	-0.103 (-0.218, 0.012)	0.078	0.338	0.369
Premature contraction	M_6mm_FTD	0.096 (-0.011, 0.203)	0.080	0.585	0.374
Elevated bilirubin	AAH_DDV	-0.110 (-0.233, 0.013)	0.080	0.338	0.374
Reduced HGB (anemia)	MCB	-0.095 (-0.201, 0.012)	0.081	0.198	0.377
Elevated urea	DR	-0.100 (-0.212, 0.012)	0.081	0.708	0.377

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated bilirubin	MinRD_OC	-0.105 (-0.224, 0.013)	0.082	0.338	0.377
Gallstone	OD_4.5mm_FTD	-0.080 (-0.170, 0.010)	0.082	0.335	0.377
Elevated bilirubin	AAW	-0.118 (-0.251, 0.015)	0.082	0.338	0.377
Prostatic hyperplasia	HDD	0.041 (-0.005, 0.088)	0.083	0.166	0.377
Elevated creatinine	AAA	0.093 (-0.012, 0.199)	0.083	0.604	0.377
Elevated BP	VAM_Distance	-0.042 (-0.090, 0.006)	0.083	0.389	0.377
Elevated urea	AADM	-0.097 (-0.207, 0.013)	0.084	0.708	0.378
Prostatic hyperplasia	DDM	0.041 (-0.006, 0.087)	0.085	0.166	0.379
Elevated creatinine	VAPD2_Distance	0.067 (-0.009, 0.142)	0.085	0.604	0.379
Abnormal liver function	CA	-0.094 (-0.201, 0.013)	0.086	0.413	0.379
Elevated bilirubin	M_3mm_FTD	-0.125 (-0.268, 0.018)	0.086	0.338	0.379
Abnormal liver function	VDD	-0.088 (-0.189, 0.013)	0.087	0.413	0.381
Elevated bilirubin	AAH	-0.109 (-0.234, 0.016)	0.087	0.338	0.383
Renal cyst	DA	-0.058 (-0.124, 0.009)	0.089	0.290	0.387
Elevated glucose	M_1mm_FTD	-0.043 (-0.093, 0.007)	0.089	0.313	0.387
Elevated TG	VFD	-0.046 (-0.099, 0.007)	0.090	0.331	0.387
Elevated bilirubin	OD_4.5mm_N_FTD	-0.129 (-0.279, 0.020)	0.090	0.338	0.387
Abnormal liver function	RID	-0.092 (-0.199, 0.015)	0.090	0.413	0.387
Fatty liver	DR	0.061 (-0.010, 0.132)	0.092	0.604	0.391
Elevated BP	OD_4.5mm_S_FTD	0.043 (-0.007, 0.094)	0.092	0.389	0.391
Abnormal liver function	AAD	-0.104 (-0.226, 0.017)	0.093	0.413	0.391
Elevated creatinine	AAD	0.067 (-0.011, 0.146)	0.094	0.604	0.395

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Reduced HGB (anemia)	VL	-0.079 (-0.172, 0.014)	0.096	0.224	0.402
Elevated TG	VD	-0.044 (-0.096, 0.008)	0.098	0.331	0.409
Elevated LDL-C	AAW	-0.057 (-0.124, 0.011)	0.099	0.505	0.409
Elevated TC	AAW_DDH	-0.046 (-0.100, 0.009)	0.099	0.695	0.410
Reduced HDL-C	CDR_H	-0.065 (-0.141, 0.012)	0.100	0.349	0.410
Elevated LDL-C	AAD	0.060 (-0.011, 0.131)	0.100	0.505	0.410
Elevated urea	AAA	0.119 (-0.024, 0.262)	0.103	0.708	0.416
Elevated bilirubin	M_6mm_FTD	-0.122 (-0.269, 0.025)	0.103	0.338	0.416
Elevated LDL-C	AAH_DDV	-0.055 (-0.122, 0.011)	0.103	0.505	0.416
Hyperuricemia	VAM_Distance	0.043 (-0.009, 0.094)	0.103	0.217	0.416
Elevated TG	AAR	0.043 (-0.009, 0.095)	0.104	0.331	0.416
Hyperuricemia	AAA	0.048 (-0.010, 0.105)	0.104	0.217	0.416
Premature contraction	Fundus_FTD	0.091 (-0.019, 0.201)	0.106	0.585	0.421
Hyperuricemia	AVD	0.040 (-0.009, 0.089)	0.106	0.217	0.422
Prostatic hyperplasia	CA	0.041 (-0.009, 0.092)	0.107	0.201	0.422
Elevated BP	VFD	0.040 (-0.009, 0.088)	0.108	0.389	0.422
Elevated TG	AVC	-0.045 (-0.099, 0.010)	0.108	0.331	0.422
Reduced HGB (anemia)	VCD	-0.085 (-0.190, 0.019)	0.108	0.241	0.422
Elevated creatinine	RID	0.065 (-0.015, 0.145)	0.109	0.604	0.422
Reduced HDL-C	AVC	-0.059 (-0.132, 0.013)	0.109	0.355	0.422
Elevated bilirubin	OD_4.5mm_T_FTD	-0.117 (-0.261, 0.026)	0.110	0.338	0.422
Hepatic cyst	M_6mm_FTD	-0.080 (-0.177, 0.018)	0.110	0.284	0.422
Elevated bilirubin	M_1mm_FTD	-0.116 (-0.257, 0.026)	0.110	0.338	0.422
Elevated urea	AVeD	-0.075 (-0.167, 0.017)	0.112	0.708	0.426
Fatty liver	HCD	-0.055 (-0.123, 0.013)	0.113	0.604	0.429

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated glucose	RND	0.038 (−0.009, 0.086)	0.114	0.344	0.429
Abnormal liver function	DA	−0.080 (−0.180, 0.019)	0.115	0.469	0.429
Prostatic hyperplasia	VAPD2_Distance	0.037 (−0.009, 0.083)	0.116	0.205	0.429
Elevated glucose	RSD	0.040 (−0.010, 0.089)	0.116	0.344	0.429
Elevated urea	SLR_OD	−0.091 (−0.205, 0.023)	0.116	0.708	0.429
Elevated BP	DA	−0.036 (−0.081, 0.009)	0.116	0.389	0.429
Elevated urea	OD_4.5mm_N_FTD	−0.100 (−0.224, 0.025)	0.117	0.708	0.429
Prostatic hyperplasia	VHR_OD_VA	0.044 (−0.011, 0.099)	0.117	0.205	0.429
Conduction block	AAH	0.079 (−0.020, 0.178)	0.117	0.873	0.429
Elevated TC	AAW	−0.043 (−0.098, 0.011)	0.117	0.719	0.429
Elevated glucose	AAD	0.038 (−0.010, 0.086)	0.119	0.344	0.434
Elevated LDL-C	VAPD2_Distance	−0.051 (−0.116, 0.013)	0.120	0.520	0.435
Prostatic hyperplasia	AAW	0.046 (−0.012, 0.103)	0.121	0.205	0.436
Fatty liver	M_6mm_FTD	−0.057 (−0.130, 0.015)	0.121	0.604	0.436
Reduced HDL-C	AVD	0.051 (−0.014, 0.116)	0.123	0.355	0.436
Elevated BP	AVC	0.038 (−0.010, 0.087)	0.123	0.389	0.436
Hyperuricemia	M_1mm_FTD	0.042 (−0.011, 0.096)	0.123	0.242	0.436
Fatty liver	MinRD_OC	0.053 (−0.015, 0.122)	0.123	0.604	0.436
Renal cyst	OD_4.5mm_T_FTD	−0.065 (−0.147, 0.018)	0.123	0.378	0.436
Elevated BP	HDD	−0.035 (−0.079, 0.010)	0.125	0.389	0.439
Hepatic cyst	RID	−0.061 (−0.140, 0.017)	0.126	0.309	0.443
Elevated BP	AAD	−0.036 (−0.083, 0.010)	0.127	0.389	0.444
Reduced HGB (anemia)	DCB	−0.084 (−0.192, 0.024)	0.127	0.271	0.444
Conduction block	AAW_DDH	0.082 (−0.024, 0.188)	0.128	0.873	0.444
Reduced HDL-C	AVeD	0.049 (−0.014, 0.113)	0.128	0.355	0.444

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Prostatic hyperplasia	CDR_H	0.043 (−0.013, 0.099)	0.129	0.210	0.444
Urinary calculi	OD_4.5mm_I_FTD	−0.064 (−0.147, 0.019)	0.129	0.576	0.445
Reduced HDL-C	OD_4.5mm_N_FTD	0.053 (−0.016, 0.122)	0.130	0.355	0.447
Abnormal liver function	VAM_Distance	−0.085 (−0.195, 0.025)	0.132	0.496	0.450
Reduced HGB (anemia)	SLR_OD	−0.079 (−0.181, 0.024)	0.133	0.271	0.451
Hyperuricemia	AVR	−0.038 (−0.089, 0.012)	0.134	0.253	0.456
Fatty liver	CA	−0.050 (−0.118, 0.017)	0.141	0.615	0.474
Hepatic cyst	VCD	−0.064 (−0.149, 0.021)	0.141	0.329	0.474
Elevated BP	SLR_OD	0.036 (−0.012, 0.084)	0.143	0.412	0.480
Reduced HGB (anemia)	AVC	0.086 (−0.029, 0.203)	0.144	0.282	0.481
Elevated TC	OD_4.5mm_T_FTD	−0.040 (−0.094, 0.014)	0.146	0.797	0.487
Elevated urea	AVD	−0.069 (−0.162, 0.024)	0.147	0.708	0.487
Conduction block	M_1mm_FTD	−0.085 (−0.199, 0.030)	0.148	0.873	0.487
Reduced HDL-C	RND	0.050 (−0.018, 0.118)	0.149	0.385	0.487
Elevated TG	RTD	0.039 (−0.014, 0.092)	0.149	0.421	0.487
Elevated bilirubin	AAR	−0.108 (−0.256, 0.039)	0.149	0.431	0.487
Elevated creatinine	HDD	0.057 (−0.021, 0.135)	0.150	0.604	0.487
Gallstone	Fundus_FTD	−0.068 (−0.159, 0.024)	0.150	0.552	0.487
Elevated creatinine	OD_4.5mm_N_FTD	0.070 (−0.025, 0.166)	0.150	0.604	0.487
Premature contraction	AVeD	−0.065 (−0.153, 0.024)	0.150	0.585	0.487
Prostatic hyperplasia	RND	0.037 (−0.014, 0.088)	0.151	0.234	0.487
Elevated creatinine	AVC	−0.060 (−0.142, 0.022)	0.152	0.604	0.488

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Prostatic hyperplasia	AAH_DDV	0.039 (−0.015, 0.093)	0.152	0.234	0.488
Renal cyst	VDD	−0.050 (−0.119, 0.019)	0.155	0.384	0.491
Elevated creatinine	RND	0.057 (−0.022, 0.136)	0.155	0.604	0.491
Premature contraction	VL	0.066 (−0.025, 0.157)	0.155	0.585	0.491
Elevated TG	OD_4.5mm_I_FTD	−0.040 (−0.094, 0.015)	0.156	0.421	0.491
Renal cyst	HCD	−0.055 (−0.132, 0.021)	0.157	0.384	0.491
Gallstone	AAA	0.075 (−0.029, 0.178)	0.158	0.552	0.491
Reduced HGB (anemia)	VFD	−0.075 (−0.178, 0.029)	0.158	0.297	0.491
Elevated urea	HDD	−0.069 (−0.166, 0.027)	0.158	0.708	0.491
Urinary calculi	DR	−0.057 (−0.135, 0.022)	0.158	0.646	0.491
Elevated creatinine	DA	0.056 (−0.022, 0.134)	0.159	0.604	0.491
Elevated urea	DCB	−0.072 (−0.171, 0.028)	0.159	0.708	0.491
Elevated creatinine	VD	−0.058 (−0.140, 0.023)	0.160	0.604	0.494
Fatty liver	CDR_V	−0.053 (−0.128, 0.021)	0.161	0.615	0.495
Hyperuricemia	DDM	0.033 (−0.013, 0.080)	0.163	0.296	0.498
Elevated TG	AAH	−0.038 (−0.090, 0.015)	0.163	0.421	0.498
Premature contraction	RTD	−0.068 (−0.162, 0.027)	0.164	0.585	0.498
Reduced HDL-C	AAD	0.046 (−0.020, 0.113)	0.168	0.404	0.510
Renal cyst	RID	−0.050 (−0.121, 0.021)	0.169	0.384	0.510
Elevated bilirubin	AAA	−0.109 (−0.264, 0.046)	0.169	0.461	0.510
Renal cyst	CA	−0.050 (−0.122, 0.022)	0.171	0.384	0.514
Elevated creatinine	VDD	0.055 (−0.024, 0.134)	0.173	0.605	0.514
Premature	AVD	−0.064 (−0.155, 0.028)	0.173	0.585	0.514

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
contraction					
Conduction block	LSR	0.073 (−0.032, 0.178)	0.173	0.873	0.514
Conduction block	RND	0.061 (−0.027, 0.150)	0.173	0.873	0.514
Renal cyst	AAD	−0.051 (−0.124, 0.022)	0.174	0.384	0.514
Reduced HDL-C	AAH_DDV	0.051 (−0.022, 0.123)	0.174	0.404	0.514
Elevated LDL-C	AAW_DDH	−0.046 (−0.113, 0.021)	0.175	0.520	0.514
Abnormal liver function	AAA	0.097 (−0.044, 0.239)	0.176	0.582	0.517
Elevated LDL-C	OD_4.5mm_FTD	−0.049 (−0.120, 0.022)	0.177	0.520	0.517
Renal cyst	MinRD_OC	−0.053 (−0.129, 0.024)	0.178	0.384	0.519
Abnormal liver function	MinRD_OC	−0.077 (−0.190, 0.035)	0.178	0.582	0.519
Elevated LDL-C	VHR_OD_VA	0.043 (−0.020, 0.107)	0.179	0.520	0.519
Renal cyst	RTD	−0.052 (−0.129, 0.024)	0.181	0.384	0.521
Hepatic cyst	CA	−0.055 (−0.135, 0.025)	0.181	0.403	0.521
Premature contraction	RSD	−0.066 (−0.163, 0.031)	0.181	0.585	0.521
Fatty liver	AADM	0.052 (−0.025, 0.129)	0.182	0.615	0.521
Elevated LDL-C	OD_4.5mm_N_FTD	−0.048 (−0.117, 0.022)	0.182	0.520	0.521
Elevated BP	RND	−0.031 (−0.077, 0.015)	0.183	0.483	0.521
Urinary calculi	AAW	−0.057 (−0.141, 0.027)	0.184	0.693	0.522
Elevated creatinine	VFD	−0.059 (−0.146, 0.028)	0.185	0.605	0.522
Prostatic hyperplasia	MinRD_OC	0.035 (−0.017, 0.086)	0.186	0.276	0.522
Premature contraction	VD	0.063 (−0.030, 0.156)	0.187	0.585	0.522
Premature contraction	DA	−0.059 (−0.146, 0.029)	0.187	0.585	0.522
Elevated BP	DR	0.032 (−0.016, 0.080)	0.187	0.483	0.522

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Renal cyst	VL	0.047 (−0.023, 0.117)	0.188	0.384	0.522
Reduced HDL-C	AAH	0.048 (−0.024, 0.120)	0.189	0.404	0.522
Reduced HDL-C	VAM_Distance	0.048 (−0.024, 0.120)	0.190	0.404	0.522
Conduction block	OD_4.5mm_N_FTD	0.073 (−0.036, 0.181)	0.190	0.873	0.522
Abnormal liver function	AVeD	−0.072 (−0.179, 0.035)	0.190	0.582	0.522
Premature contraction	M_3mm_FTD	0.071 (−0.035, 0.178)	0.190	0.585	0.522
Premature contraction	AVC	−0.064 (−0.161, 0.032)	0.191	0.585	0.522
Elevated glucose	CA	−0.033 (−0.082, 0.016)	0.192	0.495	0.522
Elevated glucose	CDR_H	−0.034 (−0.085, 0.017)	0.192	0.495	0.522
Elevated LDL-C	HDD	−0.043 (−0.107, 0.022)	0.192	0.520	0.522
Hyperuricemia	M_3mm_FTD	0.036 (−0.018, 0.089)	0.193	0.331	0.523
Elevated urea	M_6mm_FTD	−0.078 (−0.196, 0.040)	0.193	0.789	0.523
Elevated LDL-C	VAM_Distance	−0.046 (−0.115, 0.023)	0.194	0.520	0.523
Fatty liver	OD_4.5mm_T_FTD	−0.049 (−0.122, 0.025)	0.195	0.615	0.525
Hyperuricemia	OD_4.5mm_S_FTD	0.036 (−0.019, 0.091)	0.196	0.331	0.525
Hepatic cyst	HCD	−0.055 (−0.139, 0.029)	0.197	0.405	0.527
Elevated TG	AAH_DDV	−0.035 (−0.087, 0.018)	0.198	0.485	0.527
Hepatic cyst	RSD	−0.054 (−0.137, 0.028)	0.198	0.405	0.527
Elevated creatinine	DDM	0.050 (−0.026, 0.126)	0.199	0.611	0.527
Conduction block	M_3mm_FTD	−0.073 (−0.184, 0.038)	0.199	0.873	0.527
Fatty liver	M_3mm_FTD	−0.048 (−0.122, 0.025)	0.200	0.615	0.527
Elevated LDL-C	VAPD1_Distance	−0.043 (−0.108, 0.023)	0.201	0.520	0.529
Elevated LDL-C	OD_4.5mm_I_FTD	−0.047 (−0.119, 0.025)	0.202	0.520	0.529
Elevated bilirubin	SLR_OD	−0.079 (−0.201, 0.043)	0.202	0.520	0.529
Fatty liver	RTD	0.044 (−0.025, 0.112)	0.212	0.615	0.554

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated BP	RTD	-0.031 (-0.079, 0.018)	0.213	0.503	0.554
Fatty liver	Fundus_FTD	-0.047 (-0.122, 0.027)	0.214	0.615	0.554
Prostatic hyperplasia	OD_4.5mm_S_FTD	-0.043 (-0.111, 0.025)	0.214	0.308	0.554
Conduction block	AADM	-0.067 (-0.171, 0.038)	0.214	0.873	0.554
Elevated TG	MaxRD_OC	-0.032 (-0.081, 0.018)	0.215	0.500	0.554
Premature contraction	AAD	-0.059 (-0.154, 0.035)	0.215	0.620	0.554
Reduced HDL-C	M_1mm_FTD	0.044 (-0.026, 0.115)	0.216	0.441	0.555
Hepatic cyst	MaxRD_OC	-0.052 (-0.135, 0.032)	0.223	0.437	0.568
Elevated urea	AAW_DDH	0.071 (-0.043, 0.185)	0.224	0.819	0.568
Conduction block	AAH_DDV	0.062 (-0.038, 0.163)	0.224	0.873	0.568
Elevated TG	RND	0.031 (-0.019, 0.081)	0.225	0.500	0.568
Fatty liver	VCD	-0.043 (-0.113, 0.027)	0.226	0.615	0.568
Elevated BP	LSR	-0.029 (-0.077, 0.018)	0.227	0.503	0.568
Elevated creatinine	AVeD	0.045 (-0.028, 0.119)	0.227	0.620	0.568
Abnormal liver function	HCD	-0.068 (-0.177, 0.042)	0.227	0.631	0.568
Urinary calculi	AAW_DDH	-0.053 (-0.138, 0.033)	0.227	0.791	0.568
Elevated creatinine	MaxRD_OC	0.050 (-0.031, 0.130)	0.228	0.620	0.570
Elevated BP	MaxRD_OC	-0.028 (-0.074, 0.018)	0.228	0.503	0.570
Elevated LDL-C	MinRD_OC	-0.041 (-0.109, 0.026)	0.232	0.567	0.575
Abnormal liver function	AVC	0.068 (-0.043, 0.178)	0.232	0.631	0.575
Reduced HGB (anemia)	AAW	-0.067 (-0.177, 0.043)	0.233	0.423	0.575
Renal cyst	OD_4.5mm_FTD	-0.050 (-0.133, 0.033)	0.234	0.458	0.575
Conduction block	HDD	0.053 (-0.034, 0.140)	0.234	0.873	0.575

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated BP	VCD	-0.029 (-0.076, 0.019)	0.236	0.503	0.580
Elevated urea	Fundus_FTD	-0.072 (-0.192, 0.048)	0.239	0.819	0.587
Premature contraction	VDD	-0.054 (-0.144, 0.036)	0.243	0.660	0.593
Prostatic hyperplasia	AVR	-0.036 (-0.097, 0.025)	0.245	0.334	0.597
Prostatic hyperplasia	AAA	0.039 (-0.027, 0.105)	0.245	0.334	0.597
Fatty liver	RSD	0.040 (-0.028, 0.108)	0.247	0.636	0.597
Elevated creatinine	AAR	0.059 (-0.041, 0.160)	0.247	0.624	0.597
Abnormal liver function	HDD	-0.058 (-0.157, 0.041)	0.247	0.631	0.597
Gallstone	OD_4.5mm_S_FTD	-0.059 (-0.159, 0.041)	0.248	0.768	0.599
Urinary calculi	AVR	0.046 (-0.032, 0.124)	0.250	0.791	0.600
Elevated urea	AAW	0.069 (-0.048, 0.185)	0.251	0.819	0.600
Gallstone	AAR	0.060 (-0.042, 0.162)	0.251	0.768	0.600
Elevated TC	SLR_OD	0.031 (-0.022, 0.084)	0.252	0.823	0.600
Prostatic hyperplasia	VAM_Distance	-0.030 (-0.081, 0.021)	0.252	0.334	0.600
Elevated TG	AAA	0.031 (-0.022, 0.085)	0.253	0.520	0.600
Elevated TG	MinRD_OC	0.030 (-0.022, 0.082)	0.255	0.520	0.603
Abnormal liver function	RSD	-0.067 (-0.182, 0.049)	0.258	0.631	0.608
Urinary calculi	OD_4.5mm_T_FTD	-0.048 (-0.132, 0.035)	0.258	0.791	0.609
Conduction block	DA	0.049 (-0.037, 0.136)	0.261	0.873	0.612
Renal cyst	MaxRD_OC	-0.043 (-0.119, 0.032)	0.262	0.476	0.613
Renal cyst	MCB	-0.039 (-0.108, 0.029)	0.262	0.476	0.613
Reduced HDL-C	AAW_DDH	0.043 (-0.032, 0.117)	0.264	0.484	0.616
Reduced HDL-C	VD	0.040 (-0.031, 0.111)	0.266	0.484	0.620

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated creatinine	CA	0.046 (−0.035, 0.127)	0.269	0.624	0.625
Reduced HDL-C	VDD	0.037 (−0.029, 0.104)	0.273	0.484	0.631
Urinary calculi	AAH	−0.044 (−0.123, 0.035)	0.275	0.793	0.636
Reduced HDL-C	M_6mm_FTD	0.038 (−0.030, 0.105)	0.277	0.484	0.638
Elevated TG	RID	0.028 (−0.023, 0.078)	0.279	0.537	0.641
Conduction block	AAA	0.070 (−0.057, 0.197)	0.279	0.873	0.641
Elevated creatinine	AVD	0.041 (−0.034, 0.117)	0.285	0.624	0.648
Elevated TG	M_6mm_FTD	0.028 (−0.023, 0.080)	0.285	0.537	0.648
Reduced HGB (anemia)	CA	−0.057 (−0.163, 0.048)	0.286	0.490	0.648
Renal cyst	VAPD2_Distance	−0.036 (−0.103, 0.031)	0.286	0.501	0.648
Conduction block	M_6mm_FTD	−0.059 (−0.169, 0.050)	0.289	0.873	0.648
Elevated bilirubin	LSR	0.070 (−0.059, 0.199)	0.289	0.708	0.648
Premature contraction	VFD	0.055 (−0.046, 0.156)	0.289	0.709	0.648
Premature contraction	VAPD1_Distance	−0.047 (−0.133, 0.040)	0.289	0.709	0.648
Hyperuricemia	SLR_OD	0.028 (−0.024, 0.080)	0.290	0.443	0.648
Reduced HDL-C	AAW	0.039 (−0.034, 0.112)	0.290	0.489	0.648
Reduced HGB (anemia)	HCD	−0.055 (−0.157, 0.047)	0.290	0.490	0.648
Elevated LDL-C	DA	−0.035 (−0.101, 0.030)	0.290	0.648	0.648
Elevated LDL-C	AAA	−0.036 (−0.104, 0.031)	0.291	0.648	0.648
Conduction block	AAR	0.071 (−0.061, 0.204)	0.292	0.873	0.649
Hepatic cyst	RTD	−0.044 (−0.126, 0.038)	0.293	0.552	0.649
Conduction block	VDD	0.047 (−0.041, 0.134)	0.293	0.873	0.649
Elevated glucose	VCD	−0.026 (−0.076, 0.023)	0.295	0.694	0.650
Urinary calculi	AAH_DDV	−0.043 (−0.122, 0.037)	0.295	0.804	0.650

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated glucose	VL	0.026 (−0.023, 0.075)	0.298	0.694	0.654
Elevated creatinine	M_1mm_FTD	0.053 (−0.047, 0.152)	0.300	0.624	0.655
Hyperuricemia	VL	−0.027 (−0.077, 0.024)	0.300	0.443	0.655
Reduced HGB (anemia)	AAW_DDH	−0.055 (−0.159, 0.049)	0.301	0.491	0.655
Hyperuricemia	CDR_H	0.028 (−0.025, 0.081)	0.301	0.443	0.655
Fatty liver	AVC	0.036 (−0.032, 0.104)	0.302	0.679	0.655
Renal cyst	VAPD1_Distance	−0.035 (−0.103, 0.032)	0.302	0.507	0.655
Elevated TC	CDR_V	0.028 (−0.026, 0.082)	0.305	0.823	0.655
Hyperuricemia	MinRD_OC	0.027 (−0.024, 0.078)	0.305	0.443	0.655
Elevated creatinine	HCD	0.043 (−0.039, 0.125)	0.305	0.624	0.655
Hepatic cyst	AVR	0.045 (−0.041, 0.130)	0.305	0.554	0.655
Elevated urea	M_3mm_FTD	−0.063 (−0.183, 0.057)	0.306	0.911	0.655
Abnormal liver function	VHR_OD_VA	−0.059 (−0.172, 0.054)	0.307	0.691	0.655
Hyperuricemia	VD	−0.026 (−0.077, 0.024)	0.307	0.443	0.655
Fatty liver	M_1mm_FTD	−0.040 (−0.115, 0.036)	0.308	0.679	0.655
Conduction block	OD_4.5mm_I_FTD	0.056 (−0.051, 0.162)	0.308	0.873	0.655
Elevated TG	OD_4.5mm_FTD	−0.028 (−0.083, 0.026)	0.309	0.560	0.655
Elevated creatinine	RTD	0.043 (−0.040, 0.127)	0.310	0.624	0.656
Elevated urea	HCD	−0.051 (−0.152, 0.049)	0.316	0.911	0.667
Gallstone	AAD	−0.041 (−0.120, 0.039)	0.317	0.797	0.667
Fatty liver	AAH_DDV	−0.036 (−0.108, 0.035)	0.318	0.679	0.669
Renal cyst	VCD	−0.040 (−0.118, 0.039)	0.321	0.507	0.670
Elevated BP	M_3mm_FTD	0.025 (−0.024, 0.074)	0.321	0.613	0.670
Premature contraction	RID	−0.046 (−0.139, 0.046)	0.324	0.736	0.670

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated BP	VHR_OD_VA	-0.025 (-0.073, 0.024)	0.324	0.613	0.670
Elevated creatinine	VCD	0.042 (-0.041, 0.125)	0.324	0.624	0.670
Gallstone	DCB	-0.034 (-0.102, 0.034)	0.325	0.797	0.670
Elevated TC	M_3mm_FTD	-0.026 (-0.079, 0.026)	0.325	0.823	0.670
Elevated BP	RID	-0.023 (-0.069, 0.023)	0.325	0.613	0.670
Hyperuricemia	VHR_OD_VA	-0.026 (-0.079, 0.026)	0.326	0.456	0.670
Prostatic hyperplasia	CDR_V	0.028 (-0.028, 0.085)	0.327	0.421	0.670
Conduction block	VHR_OD_VA	0.052 (-0.052, 0.157)	0.327	0.873	0.670
Abnormal liver function	VAPD1_Distance	-0.050 (-0.150, 0.050)	0.328	0.691	0.670
Fatty liver	DCB	0.029 (-0.029, 0.088)	0.328	0.679	0.670
Urinary calculi	AVC	0.037 (-0.037, 0.111)	0.328	0.847	0.670
Renal cyst	VAM_Distance	-0.036 (-0.108, 0.036)	0.330	0.507	0.671
Elevated TC	AAD	0.026 (-0.026, 0.079)	0.330	0.823	0.671
Renal cyst	AAR	0.048 (-0.049, 0.144)	0.331	0.507	0.671
Elevated LDL-C	DDM	-0.033 (-0.098, 0.033)	0.332	0.704	0.671
Abnormal liver function	VAPD2_Distance	-0.050 (-0.150, 0.051)	0.334	0.691	0.674
Fatty liver	SLR_OD	0.036 (-0.037, 0.108)	0.335	0.679	0.674
Elevated TG	M_3mm_FTD	0.025 (-0.026, 0.077)	0.335	0.586	0.674
Elevated bilirubin	OD_4.5mm_S_FTD	-0.069 (-0.209, 0.071)	0.336	0.785	0.674
Elevated urea	VHR_OD_VA	0.054 (-0.056, 0.164)	0.336	0.916	0.674
Premature contraction	M_1mm_FTD	0.054 (-0.057, 0.165)	0.339	0.736	0.677
Elevated creatinine	VL	-0.039 (-0.119, 0.041)	0.339	0.624	0.677
Elevated creatinine	MinRD_OC	0.040 (-0.043, 0.123)	0.344	0.624	0.684

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated LDL-C	RID	-0.032 (-0.099, 0.035)	0.345	0.704	0.685
Abnormal liver function	AADM	-0.059 (-0.181, 0.064)	0.346	0.691	0.685
Fatty liver	OD_4.5mm_S_FTD	-0.037 (-0.115, 0.040)	0.346	0.679	0.685
Elevated TC	OD_4.5mm_FTD	-0.027 (-0.082, 0.029)	0.347	0.823	0.685
Elevated TC	OD_4.5mm_I_FTD	-0.026 (-0.082, 0.029)	0.351	0.823	0.690
Elevated TC	DCB	0.024 (-0.026, 0.074)	0.352	0.823	0.690
Gallstone	RND	0.037 (-0.041, 0.115)	0.352	0.797	0.690
Abnormal liver function	OD_4.5mm_T_FTD	-0.062 (-0.194, 0.069)	0.352	0.691	0.690
Premature contraction	DDM	-0.041 (-0.128, 0.046)	0.352	0.736	0.690
Reduced HDL-C	Fundus_FTD	0.033 (-0.037, 0.103)	0.353	0.577	0.690
Gallstone	DR	0.038 (-0.043, 0.119)	0.354	0.797	0.690
Reduced HGB (anemia)	CDR_H	0.047 (-0.052, 0.146)	0.356	0.563	0.692
Gallstone	CDR_H	-0.042 (-0.130, 0.047)	0.356	0.797	0.692
Gallstone	VAPD2_Distance	0.034 (-0.039, 0.107)	0.358	0.797	0.693
Hepatic cyst	AADM	-0.041 (-0.129, 0.047)	0.359	0.628	0.693
Elevated TC	RTD	0.025 (-0.029, 0.079)	0.359	0.823	0.693
Prostatic hyperplasia	AAW_DDH	0.027 (-0.030, 0.084)	0.360	0.452	0.693
Fatty liver	OD_4.5mm_FTD	-0.034 (-0.108, 0.039)	0.361	0.680	0.693
Elevated TG	OD_4.5mm_S_FTD	0.024 (-0.028, 0.076)	0.363	0.614	0.696
Elevated glucose	AVR	0.023 (-0.026, 0.071)	0.364	0.750	0.697
Elevated bilirubin	AAD	-0.054 (-0.173, 0.064)	0.367	0.811	0.701
Elevated TC	AVR	0.024 (-0.028, 0.075)	0.369	0.823	0.701
Elevated creatinine	VAM_Distance	0.038 (-0.045, 0.121)	0.369	0.643	0.701
Reduced HGB	DR	-0.045 (-0.143, 0.053)	0.370	0.567	0.701

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
(anemia)					
Premature contraction	VAPD2_Distance	-0.039 (-0.125, 0.047)	0.370	0.736	0.701
Elevated TC	RND	-0.023 (-0.074, 0.028)	0.370	0.823	0.701
Abnormal liver function	M_3mm_FTD	-0.055 (-0.176, 0.066)	0.373	0.694	0.703
Elevated glucose	VD	0.022 (-0.027, 0.071)	0.373	0.750	0.703
Hepatic cyst	AAH	-0.038 (-0.122, 0.046)	0.376	0.635	0.705
Premature contraction	HDD	-0.040 (-0.127, 0.048)	0.376	0.736	0.705
Urinary calculi	DCB	0.029 (-0.035, 0.093)	0.378	0.854	0.706
Prostatic hyperplasia	CDR	0.026 (-0.031, 0.082)	0.378	0.463	0.706
Reduced HDL-C	HDD	0.030 (-0.036, 0.096)	0.378	0.598	0.706
Elevated glucose	DDM	0.021 (-0.025, 0.066)	0.379	0.750	0.706
Elevated creatinine	RSD	0.036 (-0.045, 0.118)	0.381	0.643	0.707
Elevated urea	MinRD_OC	-0.046 (-0.151, 0.058)	0.382	0.921	0.707
Abnormal liver function	AAR	0.060 (-0.075, 0.196)	0.382	0.694	0.707
Elevated glucose	AVD	0.021 (-0.026, 0.068)	0.383	0.750	0.707
Gallstone	SLR_OD	0.037 (-0.046, 0.120)	0.385	0.819	0.710
Elevated LDL-C	VL	0.029 (-0.037, 0.096)	0.386	0.707	0.711
Elevated LDL-C	CDR_H	0.029 (-0.036, 0.094)	0.386	0.707	0.711
Elevated LDL-C	AADM	-0.035 (-0.114, 0.045)	0.390	0.707	0.715
Fatty liver	AAH	-0.031 (-0.102, 0.040)	0.390	0.708	0.715
Elevated urea	DDM	-0.040 (-0.130, 0.051)	0.394	0.921	0.720
Urinary calculi	AADM	-0.036 (-0.117, 0.046)	0.395	0.854	0.720
Reduced HGB (anemia)	OD_4.5mm_N_FTD	0.053 (-0.070, 0.175)	0.398	0.588	0.724

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated TC	M_6mm_FTD	-0.022 (-0.075, 0.030)	0.402	0.823	0.728
Elevated urea	CDR_V	-0.046 (-0.155, 0.062)	0.403	0.921	0.728
Prostatic hyperplasia	AVC	-0.022 (-0.072, 0.029)	0.403	0.481	0.728
Elevated BP	CDR_H	0.021 (-0.028, 0.070)	0.403	0.731	0.728
Premature contraction	MaxRD_OC	-0.038 (-0.127, 0.051)	0.406	0.746	0.733
Hyperuricemia	AAH	0.022 (-0.030, 0.075)	0.408	0.555	0.733
Reduced HGB (anemia)	AAR	0.053 (-0.072, 0.178)	0.408	0.588	0.733
Fatty liver	AAW_DD	-0.032 (-0.107, 0.044)	0.409	0.716	0.733
Conduction block	MaxRD_OC	0.039 (-0.054, 0.133)	0.410	0.873	0.733
Abnormal liver function	CDR_V	-0.053 (-0.178, 0.073)	0.411	0.719	0.733
Urinary calculi	AVD	-0.031 (-0.104, 0.043)	0.411	0.854	0.733
Renal cyst	VHR_OD_VA	0.034 (-0.047, 0.114)	0.413	0.595	0.733
Elevated TG	RSD	0.022 (-0.030, 0.074)	0.413	0.618	0.733
Reduced HDL-C	DA	0.027 (-0.038, 0.093)	0.414	0.625	0.733
Elevated TG	LSR	0.021 (-0.030, 0.072)	0.414	0.618	0.733
Renal cyst	RSD	-0.032 (-0.107, 0.044)	0.415	0.595	0.733
Urinary calculi	SLR_OD	-0.033 (-0.113, 0.046)	0.415	0.854	0.733
Urinary calculi	VHR_OD_VA	0.033 (-0.047, 0.113)	0.418	0.854	0.737
Elevated glucose	AVeD	0.019 (-0.027, 0.065)	0.419	0.756	0.737
Reduced HDL-C	MaxRD_OC	0.028 (-0.040, 0.097)	0.421	0.625	0.737
Elevated glucose	DR	0.020 (-0.029, 0.070)	0.422	0.756	0.737
Reduced HGB (anemia)	VD	-0.040 (-0.138, 0.058)	0.423	0.592	0.737
Conduction block	AAD	-0.036 (-0.124, 0.052)	0.423	0.873	0.737
Elevated BP	M_1mm_FTD	0.020 (-0.029, 0.069)	0.423	0.741	0.737
Elevated TG	AVR	-0.020 (-0.070, 0.029)	0.424	0.618	0.737

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Premature contraction	MinRD_OC	-0.038 (-0.132, 0.056)	0.425	0.746	0.737
Elevated TC	VCD	0.021 (-0.031, 0.074)	0.426	0.823	0.737
Elevated bilirubin	DR	-0.050 (-0.173, 0.073)	0.426	0.811	0.737
Gallstone	LSR	-0.033 (-0.113, 0.048)	0.427	0.824	0.737
Conduction block	Fundus_FTD	-0.044 (-0.152, 0.065)	0.429	0.873	0.740
Abnormal liver function	DDM	-0.041 (-0.142, 0.061)	0.432	0.730	0.740
Conduction block	VAPD1_Distance	0.034 (-0.051, 0.120)	0.432	0.873	0.740
Renal cyst	AAH	-0.031 (-0.107, 0.046)	0.433	0.595	0.740
Elevated bilirubin	VAM_Distance	-0.044 (-0.155, 0.067)	0.433	0.811	0.740
Elevated TG	HDD	-0.020 (-0.069, 0.030)	0.434	0.618	0.740
Elevated LDL-C	RSD	-0.027 (-0.095, 0.041)	0.436	0.729	0.740
Premature contraction	VCD	-0.036 (-0.128, 0.055)	0.436	0.746	0.740
Elevated bilirubin	VCD	-0.046 (-0.161, 0.070)	0.437	0.811	0.740
Conduction block	CA	0.036 (-0.055, 0.127)	0.437	0.873	0.740
Renal cyst	CDR	-0.033 (-0.116, 0.050)	0.437	0.595	0.740
Hepatic cyst	Fundus_FTD	-0.038 (-0.134, 0.058)	0.438	0.695	0.740
Hyperuricemia	AAR	0.022 (-0.035, 0.080)	0.439	0.582	0.740
Elevated TG	SLR_OD	-0.020 (-0.072, 0.031)	0.440	0.618	0.740
Hepatic cyst	VHR_OD_VA	-0.036 (-0.127, 0.055)	0.440	0.695	0.740
Reduced HGB (anemia)	M_1mm_FTD	0.041 (-0.063, 0.144)	0.441	0.600	0.740
Premature contraction	AVR	0.038 (-0.059, 0.135)	0.442	0.746	0.740
Elevated TG	DA	-0.019 (-0.069, 0.030)	0.442	0.618	0.740
Elevated BP	MinRD_OC	-0.018 (-0.066, 0.029)	0.445	0.747	0.742
Elevated LDL-C	Fundus_FTD	-0.026 (-0.093, 0.041)	0.445	0.729	0.742
Elevated LDL-C	DR	-0.025 (-0.088, 0.039)	0.446	0.729	0.742

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated urea	CA	-0.039 (-0.139, 0.061)	0.446	0.921	0.742
Elevated TC	CDR_H	0.021 (-0.033, 0.075)	0.447	0.823	0.742
Gallstone	VHR_OD_VA	-0.032 (-0.114, 0.050)	0.448	0.824	0.742
Elevated TC	CDR	0.022 (-0.034, 0.077)	0.450	0.823	0.742
Urinary calculi	AVeD	-0.028 (-0.099, 0.044)	0.450	0.873	0.742
Elevated urea	MaxRD_OC	-0.038 (-0.135, 0.060)	0.450	0.921	0.742
Elevated urea	DA	-0.037 (-0.132, 0.059)	0.451	0.921	0.742
Gallstone	HCD	-0.031 (-0.111, 0.049)	0.453	0.824	0.742
Conduction block	CDR_H	-0.039 (-0.141, 0.063)	0.453	0.873	0.742
Abnormal liver function	MCB	-0.039 (-0.142, 0.063)	0.454	0.741	0.742
Gallstone	CA	-0.030 (-0.107, 0.048)	0.454	0.824	0.742
Elevated TC	MaxRD_OC	0.019 (-0.031, 0.069)	0.455	0.823	0.742
Elevated glucose	HCD	-0.018 (-0.067, 0.030)	0.455	0.756	0.742
Elevated bilirubin	CDR_V	-0.045 (-0.165, 0.074)	0.456	0.811	0.742
Elevated TC	LSR	-0.020 (-0.071, 0.032)	0.457	0.823	0.743
Elevated TC	VAM_Distance	-0.020 (-0.073, 0.033)	0.459	0.823	0.745
Hepatic cyst	RND	-0.029 (-0.106, 0.048)	0.461	0.707	0.747
Urinary calculi	DDM	-0.025 (-0.091, 0.042)	0.463	0.873	0.748
Hyperuricemia	CDR	0.020 (-0.034, 0.074)	0.464	0.598	0.748
Prostatic hyperplasia	RTD	0.019 (-0.033, 0.072)	0.466	0.544	0.750
Reduced HGB (anemia)	AVR	0.039 (-0.067, 0.146)	0.467	0.616	0.750
Conduction block	VFD	-0.036 (-0.133, 0.061)	0.467	0.873	0.750
Conduction block	RID	0.034 (-0.057, 0.124)	0.468	0.873	0.750
Elevated bilirubin	HCD	-0.043 (-0.159, 0.073)	0.468	0.811	0.750
Elevated bilirubin	CDR_H	-0.044 (-0.164, 0.076)	0.471	0.811	0.753
Elevated BP	CA	-0.017 (-0.065, 0.030)	0.472	0.747	0.753

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated BP	AADM	-0.020 (-0.074, 0.034)	0.472	0.747	0.753
Elevated TG	VDD	-0.018 (-0.068, 0.032)	0.475	0.623	0.756
Reduced HGB (anemia)	AAA	0.049 (-0.086, 0.183)	0.477	0.616	0.758
Elevated TG	DR	-0.018 (-0.070, 0.033)	0.478	0.623	0.758
Hyperuricemia	LSR	-0.018 (-0.070, 0.033)	0.480	0.603	0.759
Elevated bilirubin	VFD	0.043 (-0.077, 0.164)	0.480	0.811	0.759
Elevated TC	HCD	0.019 (-0.034, 0.071)	0.481	0.823	0.760
Elevated glucose	VDD	0.017 (-0.030, 0.063)	0.483	0.756	0.760
Elevated creatinine	AADM	-0.032 (-0.122, 0.058)	0.484	0.790	0.760
Conduction block	OD_4.5mm_FTD	0.038 (-0.069, 0.145)	0.484	0.873	0.760
Elevated LDL-C	MaxRD_OC	-0.023 (-0.088, 0.042)	0.488	0.735	0.765
Abnormal liver function	M_6mm_FTD	-0.043 (-0.164, 0.078)	0.488	0.745	0.765
Elevated TG	Fundus_FTD	0.018 (-0.034, 0.071)	0.489	0.623	0.765
Elevated glucose	RTD	0.018 (-0.032, 0.067)	0.490	0.756	0.765
Elevated TC	VAPD2_Distance	-0.017 (-0.066, 0.032)	0.493	0.823	0.768
Elevated LDL-C	AAR	-0.023 (-0.089, 0.043)	0.493	0.735	0.768
Elevated LDL-C	CDR	0.024 (-0.044, 0.092)	0.495	0.735	0.769
Elevated TG	VAM_Distance	-0.018 (-0.071, 0.035)	0.496	0.623	0.769
Premature contraction	LSR	0.033 (-0.063, 0.130)	0.499	0.815	0.772
Elevated BP	MCB	-0.016 (-0.061, 0.030)	0.499	0.765	0.772
Reduced HDL-C	SLR_OD	-0.026 (-0.101, 0.049)	0.500	0.721	0.772
Conduction block	VAPD2_Distance	0.029 (-0.057, 0.116)	0.503	0.873	0.775
Elevated glucose	VAPD2_Distance	0.015 (-0.030, 0.061)	0.504	0.756	0.775
Elevated TC	VFD	0.019 (-0.036, 0.073)	0.505	0.823	0.775
Abnormal liver function	LSR	-0.036 (-0.143, 0.070)	0.506	0.745	0.776

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated glucose	VFD	0.017 (−0.033, 0.067)	0.508	0.756	0.778
Elevated glucose	VAPD1_Distance	0.015 (−0.030, 0.061)	0.509	0.756	0.778
Hepatic cyst	LSR	−0.031 (−0.124, 0.061)	0.510	0.747	0.778
Abnormal liver function	OD_4.5mm_S_FTD	−0.044 (−0.177, 0.088)	0.512	0.745	0.781
Conduction block	AVR	−0.032 (−0.127, 0.064)	0.517	0.873	0.786
Gallstone	CDR	−0.029 (−0.117, 0.059)	0.518	0.896	0.786
Hepatic cyst	OD_4.5mm_T_FTD	−0.031 (−0.123, 0.062)	0.518	0.747	0.786
Elevated BP	VD	0.015 (−0.032, 0.062)	0.520	0.771	0.787
Elevated urea	VAM_Distance	−0.032 (−0.131, 0.066)	0.520	0.924	0.787
Elevated LDL-C	RTD	−0.022 (−0.090, 0.046)	0.524	0.755	0.790
Fatty liver	AAD	−0.022 (−0.090, 0.046)	0.524	0.822	0.790
Premature contraction	AAA	−0.037 (−0.151, 0.077)	0.524	0.829	0.790
Elevated urea	VCD	−0.033 (−0.136, 0.070)	0.529	0.924	0.794
Abnormal liver function	DCB	−0.033 (−0.134, 0.069)	0.529	0.745	0.794
Gallstone	AADM	−0.028 (−0.117, 0.060)	0.530	0.896	0.794
Elevated bilirubin	AVeD	−0.035 (−0.147, 0.076)	0.531	0.849	0.794
Hyperuricemia	RSD	0.017 (−0.035, 0.068)	0.532	0.651	0.794
Elevated bilirubin	RSD	−0.036 (−0.150, 0.078)	0.537	0.849	0.801
Prostatic hyperplasia	DR	−0.017 (−0.070, 0.037)	0.539	0.615	0.803
Reduced HGB (anemia)	OD_4.5mm_FTD	0.038 (−0.083, 0.159)	0.540	0.670	0.803
Abnormal liver function	OD_4.5mm_FTD	−0.041 (−0.172, 0.090)	0.541	0.745	0.804
Elevated urea	RSD	0.031 (−0.070, 0.133)	0.545	0.924	0.808
Fatty liver	RID	0.020 (−0.045, 0.086)	0.546	0.822	0.808
Elevated	OD_4.5mm_I_FTD	0.029 (−0.066, 0.125)	0.547	0.862	0.808

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
creatinine					
Abnormal liver function	Fundus_FTD	-0.038 (-0.163, 0.086)	0.547	0.745	0.808
Fatty liver	AAW	-0.023 (-0.097, 0.052)	0.549	0.822	0.810
Elevated LDL-C	VDD	-0.020 (-0.086, 0.046)	0.555	0.759	0.815
Renal cyst	CDR_H	-0.026 (-0.114, 0.061)	0.555	0.735	0.815
Elevated LDL-C	AVC	0.021 (-0.050, 0.093)	0.558	0.759	0.817
Hyperuricemia	AAW	0.016 (-0.037, 0.069)	0.559	0.652	0.817
Reduced HGB (anemia)	LSR	0.029 (-0.068, 0.126)	0.559	0.670	0.817
Hyperuricemia	CDR_V	0.016 (-0.037, 0.069)	0.559	0.652	0.817
Reduced HGB (anemia)	CDR	0.030 (-0.071, 0.131)	0.560	0.670	0.817
Elevated TC	M_1mm_FTD	-0.015 (-0.068, 0.037)	0.562	0.823	0.818
Fatty liver	DDM	0.018 (-0.043, 0.080)	0.564	0.822	0.818
Prostatic hyperplasia	AADM	0.016 (-0.039, 0.071)	0.564	0.628	0.818
Elevated glucose	HDD	0.013 (-0.032, 0.059)	0.565	0.803	0.818
Urinary calculi	HDD	-0.020 (-0.087, 0.047)	0.566	0.934	0.818
Elevated creatinine	M_3mm_FTD	-0.028 (-0.125, 0.068)	0.566	0.862	0.818
Fatty liver	LSR	-0.022 (-0.097, 0.054)	0.575	0.822	0.829
Premature contraction	CA	-0.025 (-0.114, 0.064)	0.576	0.858	0.830
Elevated glucose	AAA	0.015 (-0.039, 0.069)	0.577	0.803	0.830
Conduction block	VCD	0.027 (-0.068, 0.122)	0.584	0.927	0.836
Elevated TC	AAR	-0.015 (-0.071, 0.040)	0.585	0.823	0.836
Fatty liver	AVD	-0.018 (-0.085, 0.048)	0.586	0.822	0.836
Elevated urea	CDR	-0.030 (-0.137, 0.077)	0.586	0.924	0.836
Fatty liver	VHR_OD_VA	-0.021 (-0.097, 0.055)	0.587	0.822	0.836

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Urinary calculi	AAR	-0.028 (-0.130, 0.074)	0.589	0.934	0.836
Elevated glucose	AAH_DDV	-0.014 (-0.064, 0.036)	0.590	0.803	0.836
Elevated TC	Fundus_FTD	-0.015 (-0.068, 0.039)	0.591	0.823	0.836
Renal cyst	RND	-0.019 (-0.090, 0.051)	0.592	0.763	0.836
Reduced HDL-C	AVR	-0.019 (-0.088, 0.050)	0.592	0.728	0.836
Gallstone	VAPD1_Distance	0.020 (-0.053, 0.093)	0.592	0.936	0.836
Reduced HDL-C	HCD	-0.020 (-0.092, 0.053)	0.592	0.728	0.836
Elevated LDL-C	MCB	0.018 (-0.049, 0.086)	0.593	0.785	0.836
Urinary calculi	MinRD_OC	0.021 (-0.056, 0.099)	0.593	0.934	0.836
Elevated urea	RTD	-0.029 (-0.135, 0.077)	0.594	0.924	0.836
Conduction block	AVD	-0.024 (-0.112, 0.064)	0.595	0.927	0.836
Elevated creatinine	OD_4.5mm_FTD	0.026 (-0.071, 0.123)	0.597	0.862	0.836
Hepatic cyst	DR	-0.024 (-0.111, 0.064)	0.598	0.838	0.836
Abnormal liver function	SLR_OD	0.030 (-0.082, 0.142)	0.601	0.761	0.836
Reduced HDL-C	OD_4.5mm_I_FTD	0.020 (-0.054, 0.093)	0.601	0.728	0.836
Gallstone	VAM_Distance	0.021 (-0.059, 0.101)	0.602	0.936	0.836
Reduced HDL-C	M_3mm_FTD	0.018 (-0.051, 0.087)	0.603	0.728	0.836
Prostatic hyperplasia	SLR_OD	-0.015 (-0.070, 0.041)	0.604	0.658	0.836
Elevated creatinine	VHR_OD_VA	-0.022 (-0.107, 0.062)	0.604	0.862	0.836
Abnormal liver function	M_1mm_FTD	-0.033 (-0.159, 0.092)	0.605	0.761	0.836
Conduction block	VD	-0.024 (-0.115, 0.067)	0.606	0.927	0.836
Reduced HDL-C	AAA	0.018 (-0.052, 0.089)	0.606	0.728	0.836
Abnormal liver function	OD_4.5mm_N_FTD	-0.032 (-0.152, 0.089)	0.606	0.761	0.836
Reduced HDL-C	CA	-0.019 (-0.090, 0.053)	0.606	0.728	0.836

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated glucose	DA	0.012 (−0.034, 0.058)	0.607	0.803	0.836
Reduced HDL-C	OD_4.5mm_FTD	0.019 (−0.054, 0.091)	0.610	0.728	0.839
Elevated TC	OD_4.5mm_N_FTD	−0.014 (−0.068, 0.040)	0.613	0.823	0.842
Elevated BP	AAH	−0.013 (−0.061, 0.036)	0.614	0.855	0.842
Elevated TC	CA	0.014 (−0.040, 0.067)	0.614	0.823	0.842
Elevated creatinine	SLR_OD	−0.021 (−0.106, 0.063)	0.616	0.862	0.842
Elevated TG	OD_4.5mm_N_FTD	−0.013 (−0.067, 0.039)	0.617	0.754	0.842
Hyperuricemia	AVC	−0.013 (−0.065, 0.038)	0.617	0.703	0.842
Gallstone	M_1mm_FTD	−0.025 (−0.121, 0.072)	0.617	0.936	0.842
Urinary calculi	AAD	−0.019 (−0.094, 0.056)	0.619	0.934	0.843
Elevated bilirubin	VD	0.029 (−0.086, 0.144)	0.621	0.863	0.844
Reduced HGB (anemia)	AADM	−0.031 (−0.155, 0.093)	0.622	0.726	0.845
Fatty liver	AAA	0.020 (−0.060, 0.100)	0.625	0.851	0.847
Elevated BP	CDR	0.012 (−0.037, 0.062)	0.626	0.855	0.847
Elevated BP	M_6mm_FTD	0.012 (−0.037, 0.061)	0.628	0.855	0.849
Elevated TG	AAW	−0.013 (−0.066, 0.040)	0.631	0.754	0.852
Premature contraction	AAW	−0.025 (−0.127, 0.077)	0.632	0.858	0.852
Premature contraction	CDR	0.024 (−0.075, 0.122)	0.637	0.858	0.857
Hepatic cyst	AAW	−0.021 (−0.111, 0.068)	0.639	0.856	0.859
Urinary calculi	RTD	−0.018 (−0.095, 0.059)	0.641	0.934	0.859
Urinary calculi	VAPD2_Distance	−0.016 (−0.082, 0.051)	0.645	0.934	0.859
Hepatic cyst	AAH_DDV	−0.020 (−0.105, 0.065)	0.647	0.856	0.859
Premature contraction	HCD	−0.021 (−0.112, 0.070)	0.649	0.858	0.859
Conduction block	OD_4.5mm_S_FTD	0.027 (−0.089, 0.143)	0.649	0.947	0.859
Elevated TC	DR	0.012 (−0.041, 0.065)	0.650	0.823	0.859

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Gallstone	VCD	-0.019 (-0.100, 0.062)	0.651	0.936	0.859
Reduced HDL-C	DCB	0.015 (-0.051, 0.081)	0.651	0.760	0.859
Elevated creatinine	AAW	0.021 (-0.069, 0.110)	0.652	0.865	0.859
Elevated TC	RID	-0.012 (-0.063, 0.039)	0.652	0.823	0.859
Elevated TG	VAPD1_Distance	-0.011 (-0.060, 0.038)	0.652	0.761	0.859
Elevated bilirubin	MaxRD_OC	-0.025 (-0.134, 0.084)	0.653	0.863	0.859
Elevated creatinine	AAH_DDV	-0.020 (-0.106, 0.066)	0.653	0.865	0.859
Prostatic hyperplasia	AAR	0.015 (-0.050, 0.079)	0.653	0.696	0.859
Elevated bilirubin	VHR_OD_VA	0.029 (-0.097, 0.155)	0.653	0.863	0.859
Urinary calculi	MCB	0.016 (-0.053, 0.084)	0.655	0.934	0.859
Renal cyst	AAA	0.021 (-0.071, 0.113)	0.655	0.823	0.859
Premature contraction	VAM_Distance	-0.021 (-0.114, 0.072)	0.656	0.858	0.859
Premature contraction	RND	0.021 (-0.070, 0.112)	0.656	0.858	0.859
Elevated TC	VL	0.012 (-0.041, 0.066)	0.656	0.823	0.859
Elevated glucose	AADM	0.013 (-0.044, 0.070)	0.659	0.850	0.861
Elevated urea	OD_4.5mm_FTD	-0.028 (-0.150, 0.095)	0.660	0.924	0.862
Elevated TC	VHR_OD_VA	-0.012 (-0.065, 0.041)	0.663	0.823	0.864
Hyperuricemia	DR	0.011 (-0.040, 0.062)	0.665	0.738	0.865
Premature contraction	AADM	-0.023 (-0.125, 0.080)	0.665	0.858	0.865
Hepatic cyst	OD_4.5mm_I_FTD	0.020 (-0.071, 0.112)	0.666	0.859	0.865
Elevated urea	VDD	-0.021 (-0.117, 0.075)	0.669	0.924	0.866
Elevated urea	CDR_H	-0.023 (-0.130, 0.084)	0.670	0.924	0.866
Elevated TC	MCB	-0.011 (-0.061, 0.039)	0.670	0.823	0.866
Elevated	CDR_V	-0.019 (-0.105, 0.067)	0.671	0.865	0.866

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
creatinine					
Gallstone	RSD	-0.017 (-0.099, 0.064)	0.676	0.936	0.871
Elevated glucose	SLR_OD	0.011 (-0.039, 0.060)	0.677	0.851	0.871
Hyperuricemia	RTD	0.011 (-0.041, 0.063)	0.677	0.738	0.871
Elevated LDL-C	SLR_OD	-0.013 (-0.076, 0.050)	0.682	0.839	0.876
Renal cyst	OD_4.5mm_I_FTD	-0.017 (-0.100, 0.065)	0.683	0.823	0.876
Gallstone	VDD	-0.015 (-0.090, 0.059)	0.684	0.936	0.876
Urinary calculi	VAM_Distance	-0.015 (-0.088, 0.058)	0.685	0.934	0.876
Hepatic cyst	OD_4.5mm_FTD	0.019 (-0.073, 0.112)	0.688	0.864	0.878
Abnormal liver function	CDR	-0.025 (-0.146, 0.097)	0.688	0.842	0.878
Elevated urea	AAH_DDV	0.022 (-0.086, 0.131)	0.690	0.924	0.879
Elevated bilirubin	RID	0.023 (-0.091, 0.137)	0.691	0.863	0.879
Urinary calculi	RSD	0.015 (-0.060, 0.090)	0.691	0.934	0.879
Urinary calculi	RID	-0.015 (-0.089, 0.059)	0.697	0.934	0.883
Reduced HGB (anemia)	Fundus_FTD	0.022 (-0.090, 0.134)	0.699	0.797	0.883
Elevated bilirubin	RTD	0.023 (-0.092, 0.138)	0.699	0.863	0.883
Renal cyst	CDR_V	-0.018 (-0.107, 0.072)	0.700	0.823	0.883
Elevated urea	AAD	-0.018 (-0.113, 0.076)	0.700	0.924	0.883
Reduced HDL-C	DR	-0.014 (-0.088, 0.059)	0.705	0.791	0.883
Abnormal liver function	DR	0.021 (-0.089, 0.132)	0.705	0.842	0.883
Fatty liver	MCB	0.012 (-0.051, 0.075)	0.705	0.934	0.883
Renal cyst	AAH_DDV	-0.015 (-0.092, 0.062)	0.706	0.823	0.883
Elevated TC	VAPD1_Distance	-0.009 (-0.058, 0.039)	0.706	0.823	0.883
Elevated TC	AAA	-0.011 (-0.068, 0.046)	0.706	0.823	0.883
Elevated LDL-C	M_6mm_FTD	-0.013 (-0.078, 0.053)	0.706	0.839	0.883
Conduction block	MCB	0.018 (-0.074, 0.109)	0.707	0.947	0.883

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated bilirubin	CA	-0.023 (-0.141, 0.096)	0.708	0.863	0.883
Urinary calculi	AAA	-0.018 (-0.116, 0.079)	0.708	0.934	0.883
Elevated bilirubin	VAPD2_Distance	0.020 (-0.084, 0.123)	0.710	0.863	0.883
Gallstone	MaxRD_OC	-0.015 (-0.092, 0.062)	0.710	0.936	0.883
Elevated bilirubin	VL	0.020 (-0.087, 0.127)	0.715	0.863	0.887
Reduced HDL-C	VCD	-0.014 (-0.087, 0.060)	0.716	0.791	0.887
Elevated bilirubin	VAPD1_Distance	0.019 (-0.085, 0.124)	0.716	0.863	0.887
Elevated TC	HDD	0.009 (-0.040, 0.058)	0.717	0.823	0.887
Conduction block	VL	-0.016 (-0.105, 0.072)	0.719	0.947	0.887
Elevated urea	RID	-0.018 (-0.117, 0.081)	0.719	0.924	0.887
Elevated TC	AVD	0.009 (-0.042, 0.060)	0.723	0.823	0.890
Premature contraction	AAH	-0.018 (-0.116, 0.081)	0.723	0.886	0.890
Elevated glucose	AAR	0.010 (-0.044, 0.063)	0.725	0.873	0.891
Reduced HDL-C	AAR	0.013 (-0.061, 0.088)	0.727	0.791	0.892
Elevated bilirubin	CDR	-0.021 (-0.141, 0.099)	0.730	0.863	0.892
Fatty liver	OD_4.5mm_N_FTD	-0.013 (-0.083, 0.058)	0.730	0.941	0.892
Hyperuricemia	MCB	0.009 (-0.040, 0.057)	0.730	0.764	0.892
Elevated urea	RND	-0.017 (-0.115, 0.081)	0.731	0.924	0.892
Renal cyst	AAW_DDH	0.014 (-0.067, 0.095)	0.731	0.833	0.892
Hyperuricemia	AAW_DDH	-0.009 (-0.062, 0.044)	0.733	0.764	0.893
Elevated creatinine	CDR_H	-0.015 (-0.101, 0.071)	0.733	0.921	0.893
Elevated urea	AAH	0.018 (-0.090, 0.127)	0.739	0.924	0.896
Urinary calculi	LSR	0.013 (-0.065, 0.092)	0.740	0.934	0.896
Elevated bilirubin	MCB	0.018 (-0.090, 0.126)	0.740	0.863	0.896
Elevated glucose	AAW_DDH	-0.009 (-0.060, 0.042)	0.741	0.873	0.896
Premature contraction	AAH_DDV	0.017 (-0.083, 0.116)	0.743	0.886	0.896

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated LDL-C	CA	-0.011 (-0.079, 0.056)	0.743	0.839	0.896
Urinary calculi	HCD	-0.013 (-0.088, 0.063)	0.743	0.934	0.896
Elevated urea	OD_4.5mm_T_FTD	-0.020 (-0.140, 0.100)	0.744	0.924	0.896
Elevated TG	VHR_OD_VA	0.009 (-0.044, 0.061)	0.745	0.821	0.896
Elevated TC	DA	0.008 (-0.041, 0.058)	0.745	0.830	0.896
Conduction block	CDR	-0.016 (-0.116, 0.083)	0.746	0.947	0.896
Elevated urea	AVC	0.017 (-0.088, 0.123)	0.748	0.924	0.897
Reduced HGB (anemia)	VHR_OD_VA	-0.017 (-0.122, 0.088)	0.749	0.835	0.897
Fatty liver	MaxRD_OC	-0.011 (-0.076, 0.055)	0.750	0.943	0.897
Elevated LDL-C	HCD	-0.011 (-0.076, 0.055)	0.751	0.839	0.897
Reduced HDL-C	OD_4.5mm_S_FTD	0.012 (-0.060, 0.083)	0.751	0.800	0.897
Elevated TG	DCB	-0.008 (-0.059, 0.043)	0.753	0.821	0.897
Elevated TG	VAPD2_Distance	-0.008 (-0.057, 0.041)	0.754	0.821	0.897
Gallstone	MinRD_OC	0.013 (-0.068, 0.093)	0.757	0.936	0.900
Conduction block	AVeD	-0.014 (-0.100, 0.073)	0.758	0.947	0.900
Elevated glucose	AAH	-0.008 (-0.058, 0.043)	0.760	0.873	0.901
Gallstone	AAH	-0.013 (-0.098, 0.072)	0.762	0.936	0.902
Elevated urea	VFD	-0.017 (-0.127, 0.093)	0.762	0.924	0.902
Premature contraction	DR	-0.015 (-0.113, 0.084)	0.770	0.886	0.909
Hyperuricemia	AADM	-0.009 (-0.066, 0.049)	0.770	0.786	0.909
Conduction block	MinRD_OC	0.014 (-0.079, 0.107)	0.771	0.947	0.909
Elevated BP	OD_4.5mm_T_FTD	-0.007 (-0.058, 0.043)	0.772	0.975	0.909
Elevated LDL-C	CDR_V	0.010 (-0.056, 0.075)	0.773	0.839	0.909
Elevated urea	VD	-0.015 (-0.119, 0.089)	0.773	0.924	0.909
Elevated glucose	VHR_OD_VA	0.007 (-0.043, 0.058)	0.778	0.873	0.911
Elevated BP	HCD	-0.007 (-0.054, 0.040)	0.778	0.975	0.911
Abnormal liver	AVR	-0.018 (-0.143, 0.107)	0.779	0.878	0.911

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
function					
Elevated bilirubin	DDM	-0.015 (-0.118, 0.089)	0.780	0.889	0.911
Fatty liver	OD_4.5mm_I_FTD	-0.011 (-0.085, 0.064)	0.780	0.956	0.911
Elevated creatinine	Fundus_FTD	0.013 (-0.082, 0.109)	0.781	0.957	0.911
Elevated glucose	MCB	0.007 (-0.040, 0.053)	0.783	0.873	0.911
Elevated LDL-C	AVD	0.010 (-0.059, 0.078)	0.784	0.839	0.911
Abnormal liver function	AAH	-0.016 (-0.133, 0.101)	0.785	0.878	0.911
Elevated BP	AAR	0.007 (-0.043, 0.058)	0.786	0.975	0.911
Elevated LDL-C	M_1mm_FTD	0.009 (-0.056, 0.074)	0.786	0.839	0.911
Abnormal liver function	CDR_H	-0.017 (-0.141, 0.107)	0.788	0.878	0.912
Conduction block	HCD	0.013 (-0.082, 0.107)	0.790	0.947	0.912
Premature contraction	AAR	0.015 (-0.097, 0.127)	0.790	0.886	0.912
Premature contraction	SLR_OD	0.013 (-0.086, 0.112)	0.793	0.886	0.912
Elevated TC	RSD	-0.007 (-0.060, 0.046)	0.793	0.861	0.912
Urinary calculi	CDR_H	-0.011 (-0.097, 0.074)	0.794	0.967	0.912
Renal cyst	LSR	0.010 (-0.068, 0.088)	0.794	0.884	0.912
Gallstone	RTD	0.011 (-0.071, 0.093)	0.795	0.936	0.912
Gallstone	AAW_DDH	-0.012 (-0.103, 0.079)	0.795	0.936	0.912
Premature contraction	MCB	-0.011 (-0.097, 0.074)	0.795	0.886	0.912
Reduced HDL-C	LSR	-0.009 (-0.082, 0.063)	0.797	0.831	0.912
Hepatic cyst	CDR_H	-0.012 (-0.105, 0.081)	0.799	0.930	0.914
Conduction block	DCB	0.011 (-0.079, 0.102)	0.803	0.947	0.916
Elevated bilirubin	AVD	-0.014 (-0.128, 0.099)	0.803	0.895	0.916
Elevated LDL-C	OD_4.5mm_S_FTD	0.009 (-0.060, 0.078)	0.805	0.839	0.917

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated TC	MinRD_OC	-0.006 (-0.059, 0.046)	0.808	0.861	0.919
Elevated BP	AAH_DDV	-0.006 (-0.054, 0.042)	0.808	0.975	0.919
Elevated TG	MCB	0.006 (-0.045, 0.057)	0.810	0.863	0.919
Abnormal liver function	AAW_DDH	-0.015 (-0.140, 0.109)	0.811	0.881	0.919
Conduction block	DR	-0.012 (-0.114, 0.089)	0.812	0.947	0.919
Fatty liver	AVeD	-0.008 (-0.072, 0.057)	0.813	0.971	0.919
Reduced HGB (anemia)	M_3mm_FTD	0.013 (-0.092, 0.117)	0.813	0.886	0.919
Elevated LDL-C	LSR	0.007 (-0.053, 0.068)	0.815	0.839	0.920
Elevated LDL-C	M_3mm_FTD	-0.008 (-0.073, 0.058)	0.817	0.839	0.921
Conduction block	DDM	-0.010 (-0.096, 0.076)	0.819	0.947	0.922
Gallstone	DDM	-0.008 (-0.080, 0.063)	0.820	0.936	0.922
Elevated LDL-C	VCD	-0.008 (-0.074, 0.059)	0.822	0.839	0.923
Elevated urea	OD_4.5mm_S_FTD	0.014 (-0.112, 0.141)	0.823	0.924	0.924
Urinary calculi	DA	-0.007 (-0.074, 0.059)	0.827	0.967	0.927
Abnormal liver function	AAH_DDV	-0.013 (-0.131, 0.104)	0.827	0.881	0.927
Reduced HGB (anemia)	OD_4.5mm_T_FTD	-0.012 (-0.127, 0.103)	0.832	0.887	0.931
Elevated urea	LSR	0.011 (-0.097, 0.120)	0.837	0.924	0.933
Hepatic cyst	AAW_DDH	-0.009 (-0.101, 0.082)	0.837	0.930	0.933
Hepatic cyst	CDR_V	-0.010 (-0.106, 0.086)	0.839	0.930	0.933
Elevated LDL-C	AVeD	0.007 (-0.060, 0.074)	0.840	0.840	0.933
Fatty liver	VDD	-0.007 (-0.070, 0.057)	0.840	0.974	0.933
Elevated TC	VDD	0.005 (-0.045, 0.055)	0.841	0.876	0.933
Elevated urea	VAPD1_Distance	-0.009 (-0.101, 0.082)	0.841	0.924	0.933
Conduction block	SLR_OD	-0.010 (-0.112, 0.091)	0.842	0.947	0.933
Urinary calculi	RND	0.007 (-0.065, 0.080)	0.845	0.967	0.934

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Hepatic cyst	MinRD_OC	-0.008 (-0.092, 0.075)	0.845	0.930	0.934
Renal cyst	DR	-0.008 (-0.085, 0.070)	0.845	0.920	0.934
Elevated urea	VL	-0.010 (-0.111, 0.091)	0.848	0.924	0.936
Hepatic cyst	SLR_OD	-0.009 (-0.098, 0.081)	0.851	0.930	0.937
Gallstone	CDR_V	-0.009 (-0.098, 0.081)	0.851	0.936	0.937
Elevated BP	AAW	-0.005 (-0.054, 0.045)	0.855	0.975	0.939
Fatty liver	VAM_Distance	-0.006 (-0.074, 0.061)	0.855	0.974	0.939
Gallstone	AAW	-0.008 (-0.100, 0.083)	0.856	0.936	0.940
Elevated creatinine	OD_4.5mm_S_FTD	-0.009 (-0.108, 0.090)	0.859	0.976	0.942
Gallstone	DA	-0.006 (-0.079, 0.066)	0.861	0.936	0.943
Gallstone	RID	-0.007 (-0.085, 0.071)	0.863	0.936	0.944
Elevated bilirubin	DA	-0.009 (-0.118, 0.100)	0.867	0.940	0.947
Hepatic cyst	CDR	-0.008 (-0.097, 0.082)	0.868	0.930	0.947
Prostatic hyperplasia	RID	0.004 (-0.046, 0.054)	0.871	0.901	0.949
Hepatic cyst	OD_4.5mm_S_FTD	0.009 (-0.096, 0.113)	0.873	0.930	0.951
Elevated creatinine	LSR	-0.007 (-0.089, 0.075)	0.875	0.976	0.951
Urinary calculi	CDR	-0.007 (-0.090, 0.076)	0.875	0.967	0.951
Urinary calculi	VAPD1_Distance	-0.005 (-0.072, 0.062)	0.880	0.967	0.955
Renal cyst	AAW	-0.006 (-0.086, 0.074)	0.884	0.942	0.958
Elevated bilirubin	VDD	-0.008 (-0.116, 0.100)	0.886	0.940	0.959
Conduction block	RSD	0.007 (-0.086, 0.099)	0.887	0.947	0.959
Urinary calculi	CDR_V	-0.006 (-0.093, 0.081)	0.888	0.967	0.959
Elevated creatinine	DR	-0.006 (-0.090, 0.078)	0.889	0.976	0.959
Hyperuricemia	AAH_DDV	0.004 (-0.049, 0.056)	0.890	0.890	0.959
Gallstone	MCB	0.005 (-0.068, 0.077)	0.896	0.936	0.961

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Elevated creatinine	M_6mm_FTD	-0.006 (-0.101, 0.089)	0.897	0.976	0.961
Gallstone	AAH_DDV	-0.006 (-0.091, 0.080)	0.898	0.936	0.961
Premature contraction	CDR_V	0.006 (-0.091, 0.104)	0.898	0.978	0.961
Elevated TG	AADM	-0.004 (-0.065, 0.057)	0.899	0.919	0.961
Prostatic hyperplasia	MCB	-0.003 (-0.048, 0.042)	0.899	0.901	0.961
Elevated TG	DDM	0.003 (-0.046, 0.052)	0.900	0.919	0.961
Elevated BP	OD_4.5mm_N_FTD	-0.003 (-0.054, 0.047)	0.900	0.975	0.961
Prostatic hyperplasia	LSR	0.003 (-0.050, 0.057)	0.901	0.901	0.961
Elevated TC	AVeD	0.003 (-0.047, 0.053)	0.902	0.921	0.961
Conduction block	CDR_V	-0.006 (-0.109, 0.096)	0.903	0.947	0.961
Elevated bilirubin	HDD	-0.006 (-0.111, 0.098)	0.904	0.940	0.961
Reduced HGB (anemia)	OD_4.5mm_I_FTD	-0.007 (-0.126, 0.112)	0.905	0.943	0.961
Hepatic cyst	AAA	0.006 (-0.092, 0.104)	0.905	0.944	0.961
Elevated glucose	LSR	-0.003 (-0.052, 0.046)	0.908	0.964	0.963
Elevated BP	VL	0.003 (-0.044, 0.050)	0.910	0.975	0.964
Conduction block	AVC	-0.005 (-0.097, 0.086)	0.912	0.947	0.965
Elevated creatinine	OD_4.5mm_T_FTD	0.005 (-0.090, 0.101)	0.914	0.976	0.966
Reduced HDL-C	OD_4.5mm_T_FTD	-0.004 (-0.076, 0.068)	0.916	0.935	0.966
Elevated glucose	VAM_Distance	0.003 (-0.047, 0.052)	0.916	0.964	0.966
Elevated creatinine	CDR	-0.004 (-0.089, 0.080)	0.916	0.976	0.966
Elevated BP	OD_4.5mm_FTD	0.003 (-0.049, 0.054)	0.920	0.975	0.968
Elevated urea	M_1mm_FTD	-0.006 (-0.127, 0.115)	0.922	0.963	0.969
Fatty liver	HDD	0.003 (-0.059, 0.065)	0.922	0.986	0.969

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Conduction block	VAM_Distance	-0.005 (-0.101, 0.091)	0.923	0.947	0.969
Fatty liver	AAR	0.004 (-0.075, 0.082)	0.924	0.986	0.969
Elevated glucose	AAW	-0.002 (-0.054, 0.049)	0.926	0.964	0.969
Abnormal liver function	AAW	0.006 (-0.120, 0.131)	0.928	0.956	0.970
Hepatic cyst	AAR	0.005 (-0.095, 0.104)	0.928	0.947	0.970
Elevated bilirubin	AADM	-0.006 (-0.129, 0.118)	0.929	0.940	0.970
Elevated urea	OD_4.5mm_I_FTD	0.005 (-0.119, 0.130)	0.931	0.963	0.971
Elevated BP	OD_4.5mm_I_FTD	-0.002 (-0.054, 0.049)	0.933	0.975	0.971
Conduction block	RTD	0.004 (-0.091, 0.099)	0.935	0.947	0.972
Elevated BP	CDR_V	0.002 (-0.047, 0.051)	0.936	0.975	0.972
Abnormal liver function	OD_4.5mm_I_FTD	0.005 (-0.125, 0.136)	0.936	0.956	0.972
Elevated bilirubin	AVR	0.005 (-0.115, 0.124)	0.940	0.940	0.975
Elevated creatinine	AVR	0.003 (-0.084, 0.090)	0.943	0.980	0.975
Elevated urea	MCB	0.003 (-0.089, 0.095)	0.943	0.963	0.975
Renal cyst	DCB	0.002 (-0.059, 0.064)	0.944	0.984	0.975
Conduction block	OD_4.5mm_T_FTD	-0.004 (-0.109, 0.102)	0.947	0.947	0.978
Fatty liver	DA	-0.002 (-0.064, 0.060)	0.952	0.986	0.983
Urinary calculi	MaxRD_OC	0.002 (-0.072, 0.076)	0.955	0.995	0.984
Elevated glucose	MaxRD_OC	-0.001 (-0.048, 0.046)	0.956	0.964	0.984
Fatty liver	VAPD2_Distance	0.002 (-0.060, 0.063)	0.958	0.986	0.985
Premature contraction	VHR_OD_VA	0.003 (-0.097, 0.102)	0.958	0.986	0.985
Elevated creatinine	AAH	0.002 (-0.085, 0.089)	0.960	0.980	0.985
Elevated glucose	DCB	0.001 (-0.047, 0.049)	0.964	0.964	0.987
Elevated BP	AAW_DDH	-0.001 (-0.050, 0.048)	0.965	0.975	0.987
Elevated BP	Fundus_FTD	0.001 (-0.049, 0.051)	0.966	0.975	0.987

Systemic factor	Fundus parameter	Interaction β (95% CI)	P value	P (FDR by systemic factor)	P (FDR across all interactions)
Premature contraction	DCB	0.002 (−0.088, 0.092)	0.966	0.986	0.987
Premature contraction	AAW_DDH	0.002 (−0.100, 0.104)	0.967	0.986	0.987
Elevated urea	VAPD2_Distance	−0.002 (−0.093, 0.089)	0.968	0.968	0.987
Urinary calculi	VDD	−0.001 (−0.070, 0.068)	0.971	0.995	0.987
Elevated TG	AAW_DDH	−0.001 (−0.054, 0.052)	0.971	0.971	0.987
Gallstone	HDD	0.001 (−0.071, 0.073)	0.973	0.983	0.987
Hepatic cyst	DCB	−0.001 (−0.071, 0.069)	0.974	0.974	0.987
Reduced HDL-C	VHR_OD_VA	−0.001 (−0.075, 0.073)	0.974	0.974	0.987
Urinary calculi	CA	0.001 (−0.070, 0.072)	0.975	0.995	0.987
Elevated BP	AAA	−0.001 (−0.052, 0.051)	0.975	0.975	0.987
Fatty liver	AVR	−0.001 (−0.073, 0.071)	0.976	0.986	0.987
Renal cyst	OD_4.5mm_N_FTD	0.001 (−0.074, 0.076)	0.979	0.991	0.988
Reduced HGB (anemia)	CDR_V	−0.001 (−0.098, 0.095)	0.979	0.998	0.988
Gallstone	OD_4.5mm_N_FTD	0.001 (−0.081, 0.083)	0.983	0.983	0.991
Fatty liver	VAPD1_Distance	−0.001 (−0.062, 0.061)	0.986	0.986	0.992
Premature contraction	CDR_H	−0.001 (−0.098, 0.096)	0.986	0.986	0.992
Elevated creatinine	AAW_DDH	−0.001 (−0.088, 0.087)	0.991	0.991	0.995
Renal cyst	SLR_OD	−0.000 (−0.080, 0.079)	0.991	0.991	0.995
Elevated TC	OD_4.5mm_S_FTD	−0.000 (−0.056, 0.055)	0.992	0.992	0.995
Reduced HGB (anemia)	M_6mm_FTD	−0.000 (−0.107, 0.107)	0.998	0.998	1.000
Urinary calculi	VCD	−0.000 (−0.077, 0.076)	0.999	0.999	1.000
Abnormal liver function	RTD	0.000 (−0.116, 0.116)	1.000	1.000	1.000

Note: This sensitivity analysis applied FDR correction across the full family of sex-by-systemic-factor interaction tests. Interaction β values were estimated from generalized estimating equations with participant-level clustering. P values are two-sided. A two-sided P value < 0.05 was considered statistically significant; for FDR-corrected analyses, an FDR-adjusted P value < 0.05 was considered statistically significant. For prostatic hyperplasia, a three-level sex factor was used because prostatic hyperplasia is male-specific.