2021年Research proposal 採択演題について

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採択演題：
The role and relative importance of traditional risk factors for coronary artery disease in patients undergoing percutaneous coronary intervention from the nationwide database.

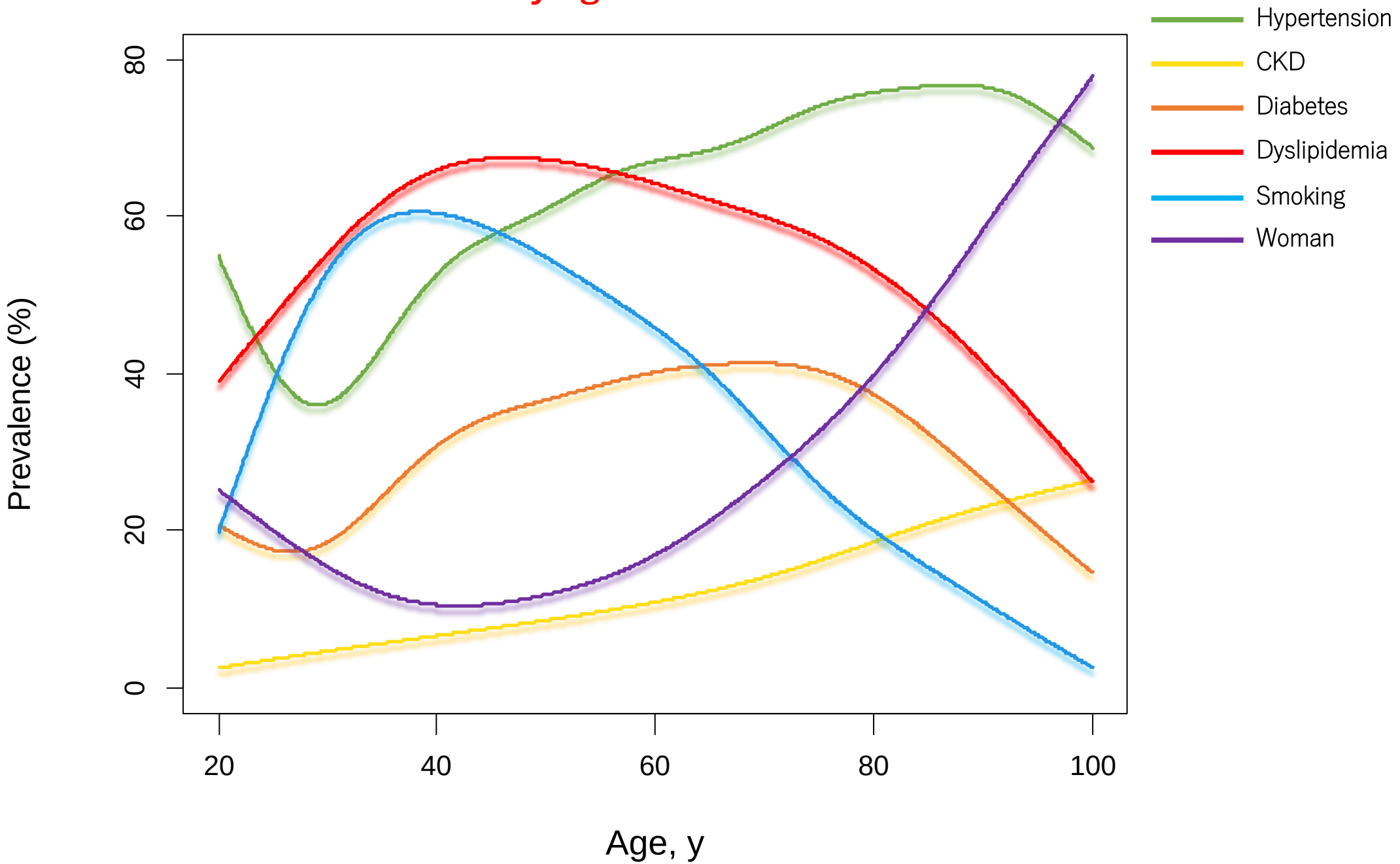
- **Background**

動脈硬化を促進させる因子として加齢・高血圧・脂質異常症・喫煙・糖尿病・慢性腎不全（・男性）が古典的かつ一般的であり、冠動脈疾患の根本的原因と考えられるが、古典的動脈硬化リスク因子がPCI患者に与える影響やその影響力の相対的差異は明らかではない。

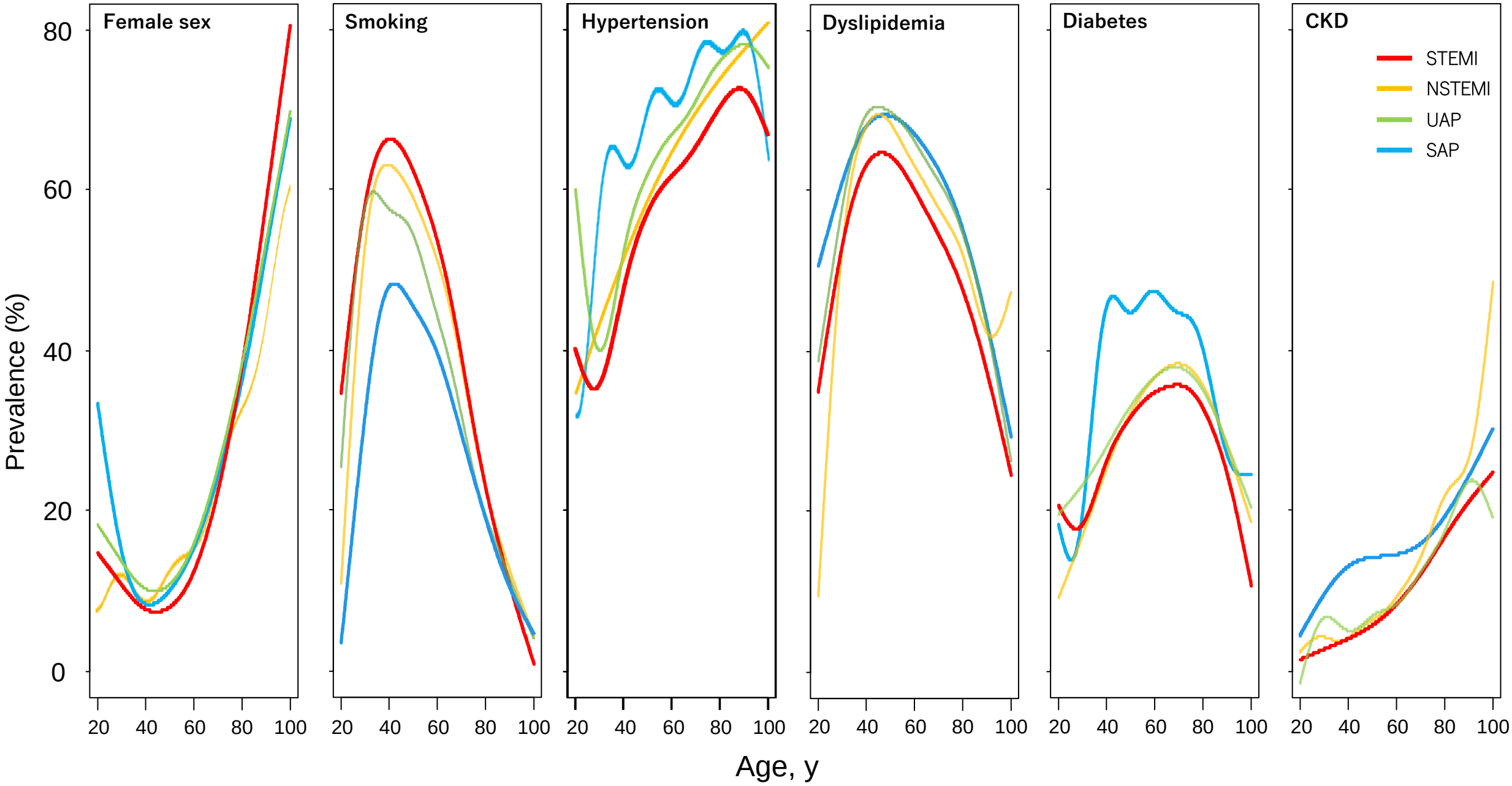
- **Study population**

20-100歳の患者の中で、初回PCIを受け、かつ欠損データのない559452人の患者が本試験に登録された。

Prevalence of traditional risk factors by age



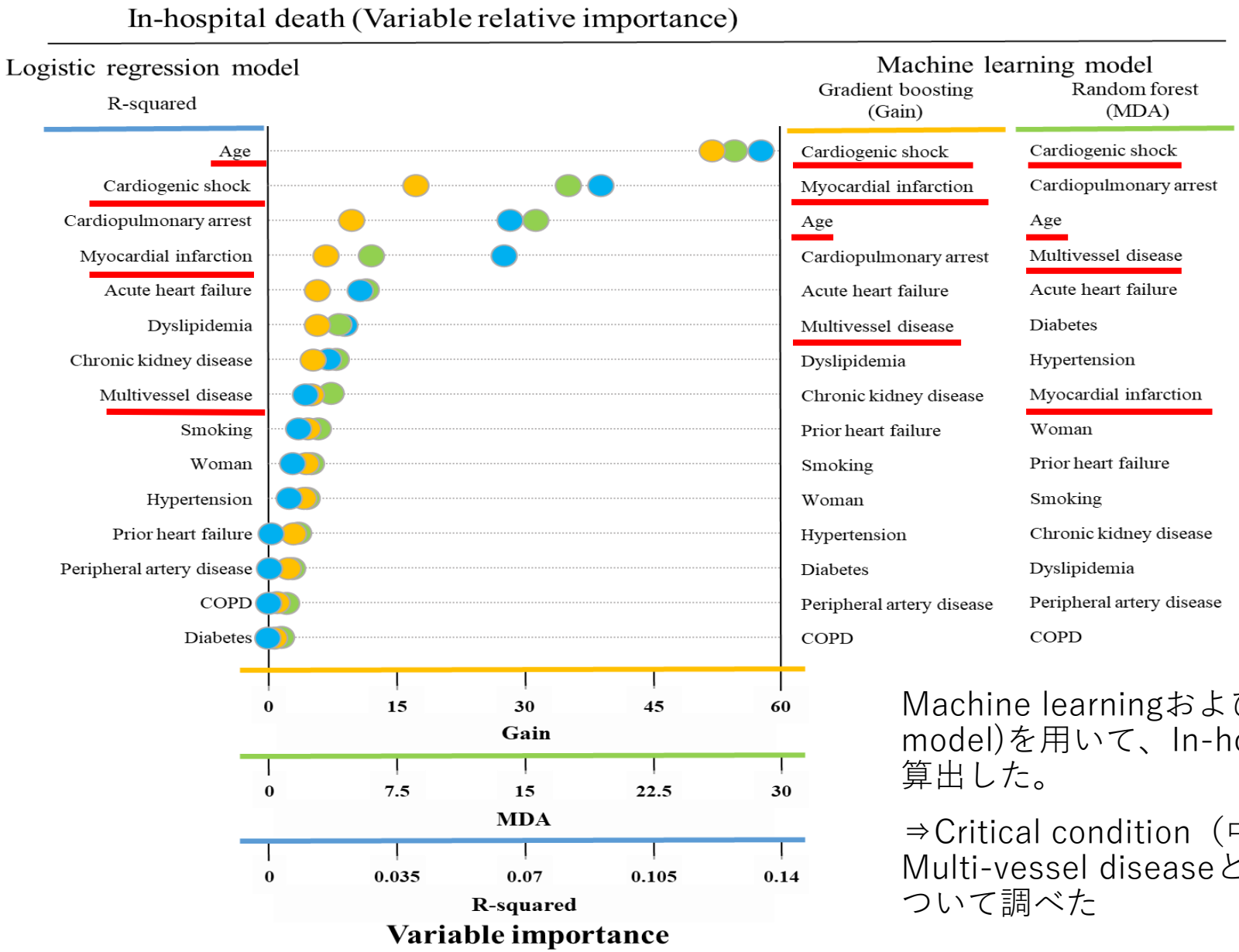
Prevalence of traditional risk factors by age and presentation



Baseline characteristics and Clinical profile

	Overall (N=559452)	Sex		Hypertension		Dyslipidemia		Diabetes		Smoking		Chronic kidney disease	
		Woman (N=149375)	Man (N=410077)	Presence (N=396021)	Absence (N=163431)	Presence (N=325887)	Absence (N=233565)	Presence (N=396021)	Absence (N=347639)	Presence (N=396021)	Absence (N=377519)	Presence (N=396021)	Absence (N=478759)
Age, year	70.0 ± 11.6	75.1 ± 10.2	68.1 ± 11.6	70.9 ± 11.2	67.8 ± 12.3	68.8 ± 11.6	71.6 ± 11.6	69.6 ± 11.0	70.1 ± 12.0	65.2 ± 11.6	72.2 ± 11.0	73.2 ± 10.8	69.4 ± 11.7
Male sex	410077 (73.3%)	0 (0%)	410077 (100%)	285192 (72.0%)	124885 (76.4%)	236719 (72.6%)	173358 (74.2%)	157300 (74.3%)	252777 (72.7%)	165597 (91.0%)	244480 (64.8%)	60024 (74.4%)	350053 (73.1%)
Hypertension	396021 (70.8%)	110829 (74.2%)	285192 (69.6%)	396021 (100%)	163431 (0%)	247579 (76.0%)	148442 (63.6%)	161028 (76.0%)	234993 (67.6%)	124162 (68.3%)	271859 (72.0%)	64158 (79.5%)	331863 (69.3%)
Dyslipidemia	325887 (58.3%)	89168 (59.7%)	236719 (57.7%)	247579 (62.5%)	78308 (47.9%)	325887 (100%)	233565 (0%)	133985 (63.3%)	191902 (55.2%)	112088 (61.6%)	213799 (56.6%)	44493 (55.1%)	281394 (58.8%)
Diabetes	211813 (37.9%)	54513 (36.5%)	157300 (38.4%)	161028 (40.6%)	50785 (31.7%)	133985 (41.1%)	77828 (33.3%)	211813 (100%)	347639 (0%)	69688 (38.3%)	142125 (37.7%)	40904 (50.7%)	170909 (35.7%)
Smoking	181933 (32.5%)	16336 (10.9%)	165597 (40.4%)	124162 (31.4%)	57771 (35.4%)	112088 (34.4%)	69845 (29.9%)	69688 (32.9%)	112245 (32.3%)	181933 (100%)	377519 (0%)	22660 (28.1%)	159273 (33.3%)
Chronic kidney disease	80693 (14.4%)	20669 (13.8%)	60024 (14.6%)	64158 (16.2%)	16535 (10.1%)	44493 (13.7%)	36200 (15.5%)	40904 (19.3%)	39789 (11.5%)	22660 (12.5%)	58033 (15.4%)	80693 (100%)	478759 (0%)
Prior heart failure	44555 (8.0%)	15201 (10.2%)	29354 (7.2%)	34822 (8.8%)	9733 (6.0%)	23417 (7.2%)	21138 (9.1%)	21699 (10.2%)	22856 (6.6%)	11747 (6.5%)	32808 (8.7%)	15146 (18.8%)	29409 (6.1%)
COPD	11827 (2.1%)	1431 (1.0%)	10396 (2.5%)	8192 (2.1%)	3635 (2.2%)	6127 (1.9%)	5700 (2.4%)	4010 (1.9%)	7817 (2.3%)	5674 (3.1%)	6153 (1.6%)	2584 (3.2%)	9243 (1.9%)
Peripheral artery disease	32037 (5.7%)	7940 (5.3 %)	24097 (5.9%)	25668 (6.5%)	6369 (3.9%)	18985 (5.8%)	13052 (5.6%)	16200 (7.7%)	15837 (4.6%)	10712 (5.9%)	21325 (5.7%)	10588 (13.1%)	21449 (4.5%)
Myocardial infarction	205449 (36.7%)	51062 (34.2%)	154387 (37.7%)	134887 (34.1%)	70562 (43.2%)	112476 (34.5%)	92973 (39.8%)	68370 (32.3%)	137079 (39.4%)	80698 (44.4%)	124751 (33.0%)	25761 (31.9%)	179688 (37.5%)
Number of vessels													
1 vessel	348760 (62.3%)	94616 (63.3%)	254144 (62.0%)	240748 (60.8%)	108012 (66.1%)	199328 (61.2%)	149432 (64.0%)	119476 (56.4%)	229284 (66.0%)	112576 (61.9%)	236184 (62.6%)	43362 (53.7%)	305398 (63.8%)
2 vessels	140236 (25.1%)	36068 (24.2%)	104168 (25.4%)	102602 (25.9%)	37634 (23.0%)	83891 (25.7%)	56345 (24.1%)	58103 (27.4%)	82133 (23.6%)	46354 (25.5%)	93882 (24.9%)	23172 (28.7%)	117064 (24.5%)
3 vessels	70456 (12.6%)	18691 (12.5%)	51765 (12.6%)	52671 (13.3%)	17785 (10.9%)	42668 (13.1%)	27788 (11.9%)	34234 (16.2%)	36222 (10.4%)	23003 (12.6%)	47453 (12.6%)	14159 (17.6%)	56297 (11.8%)
Cardiopulmonary arrest	12775 (2.3%)	2614 (1.8 %)	10161 (2.5%)	7478 (1.9%)	5297 (3.2%)	5513 (1.7%)	7262 (3.1%)	4221 (2.0%)	8554 (2.5%)	4602 (2.5%)	8173 (2.2%)	2504 (3.1%)	10271 (2.2%)
Acute heart failure	30603 (5.5%)	9392 (6.3%)	21211 (5.2%)	20991 (5.3%)	9612 (5.9%)	15219 (4.7%)	15384 (6.6%)	17825 (5.1%)	12778 (6.0%)	9795 ‡ (5.4%)	20808 (5.5%)	7650 (9.5%)	22953 (4.8%)
Cardiogenic shock	24437 (4.4%)	6650* (4.5%)	17787 (4.3%)	15159 (3.8%)	9278 (5.7%)	11149 (3.4%)	13288 (5.7%)	9051 † (4.3%)	15386 (4.4%)	8292 (4.6%)	16145 (4.3%)	5712 (7.1%)	18725 (3.9%)

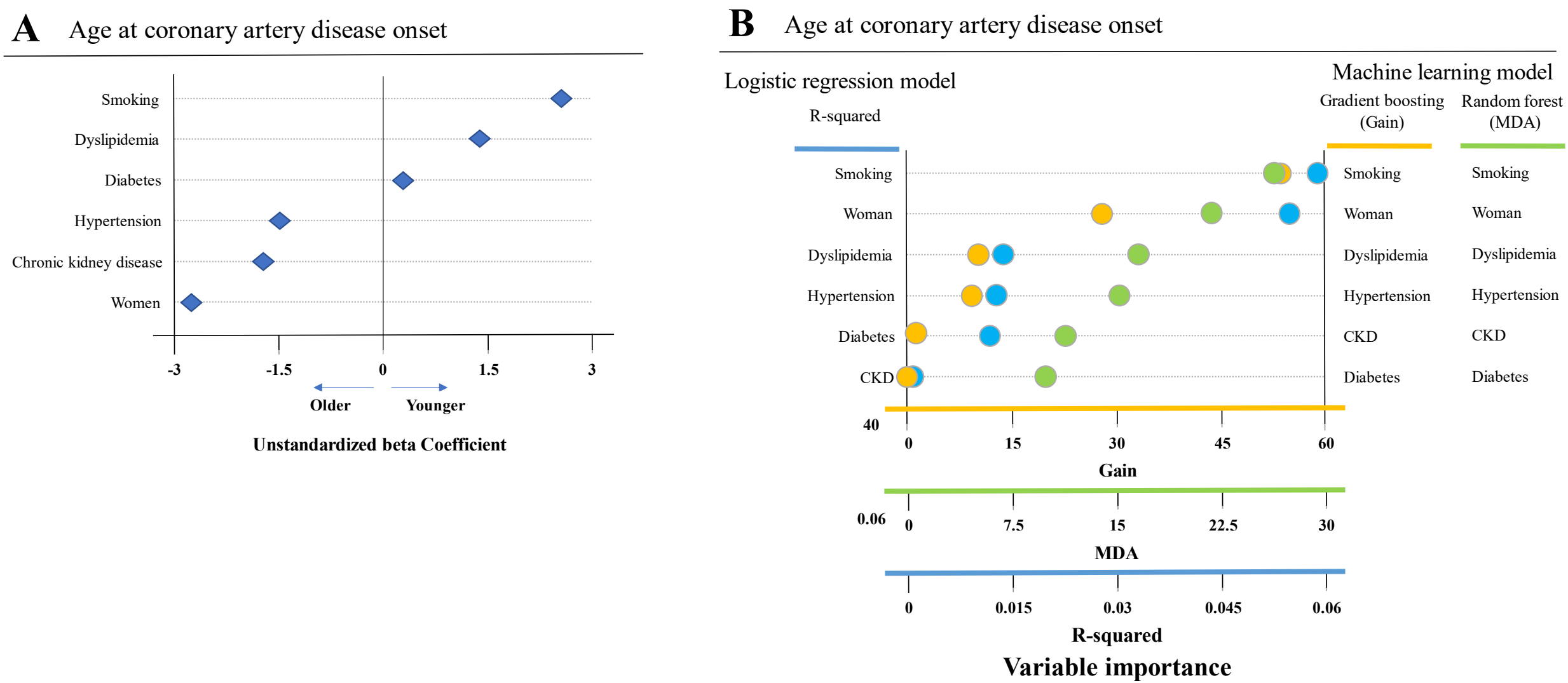
The relative prognostic importance in all variables for in-hospital death



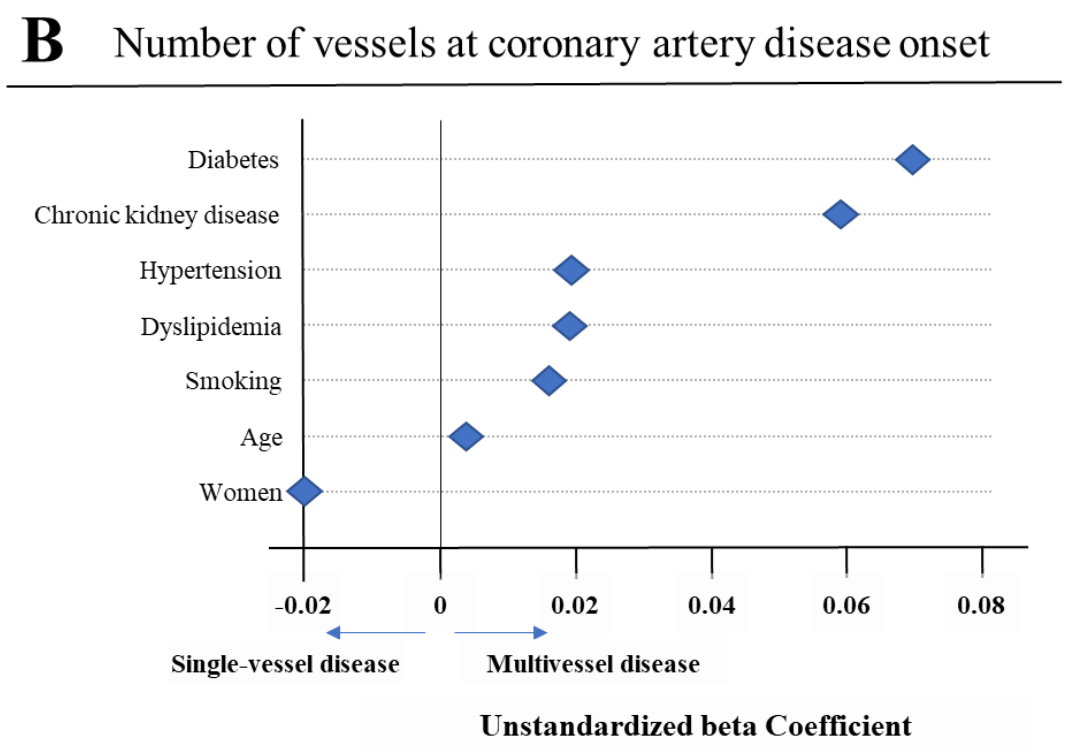
Machine learningおよびR-squared (Logistic regression model)を用いて、In-hospital deathに影響力の強い変数を算出した。

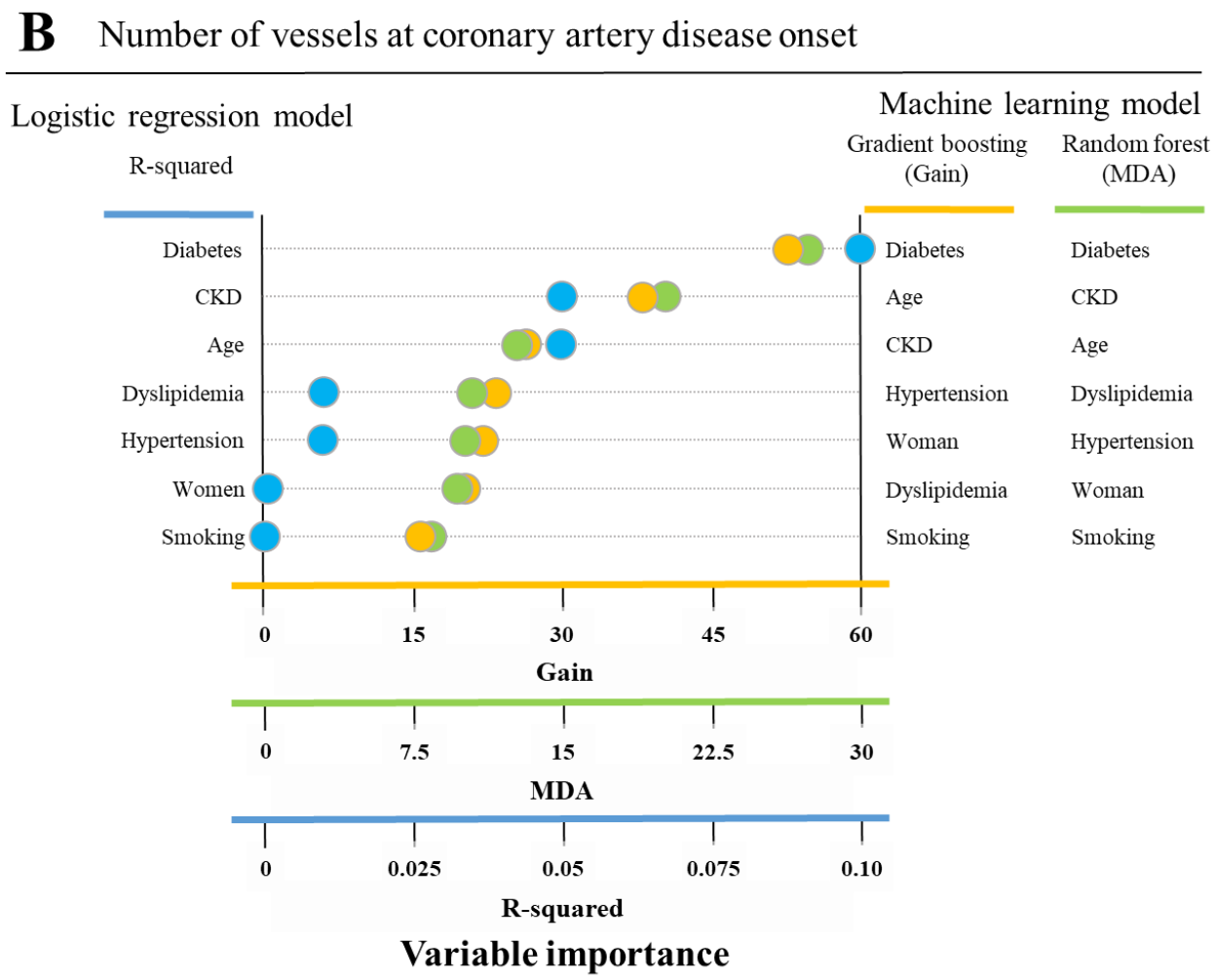
⇒Critical condition（中でもcardiogenic shock)、MI、Age、Multi-vessel diseaseとTraditional risk factorsの関連性について調べた

The relative importance for age at CAD onset in traditional risk factors for CAD

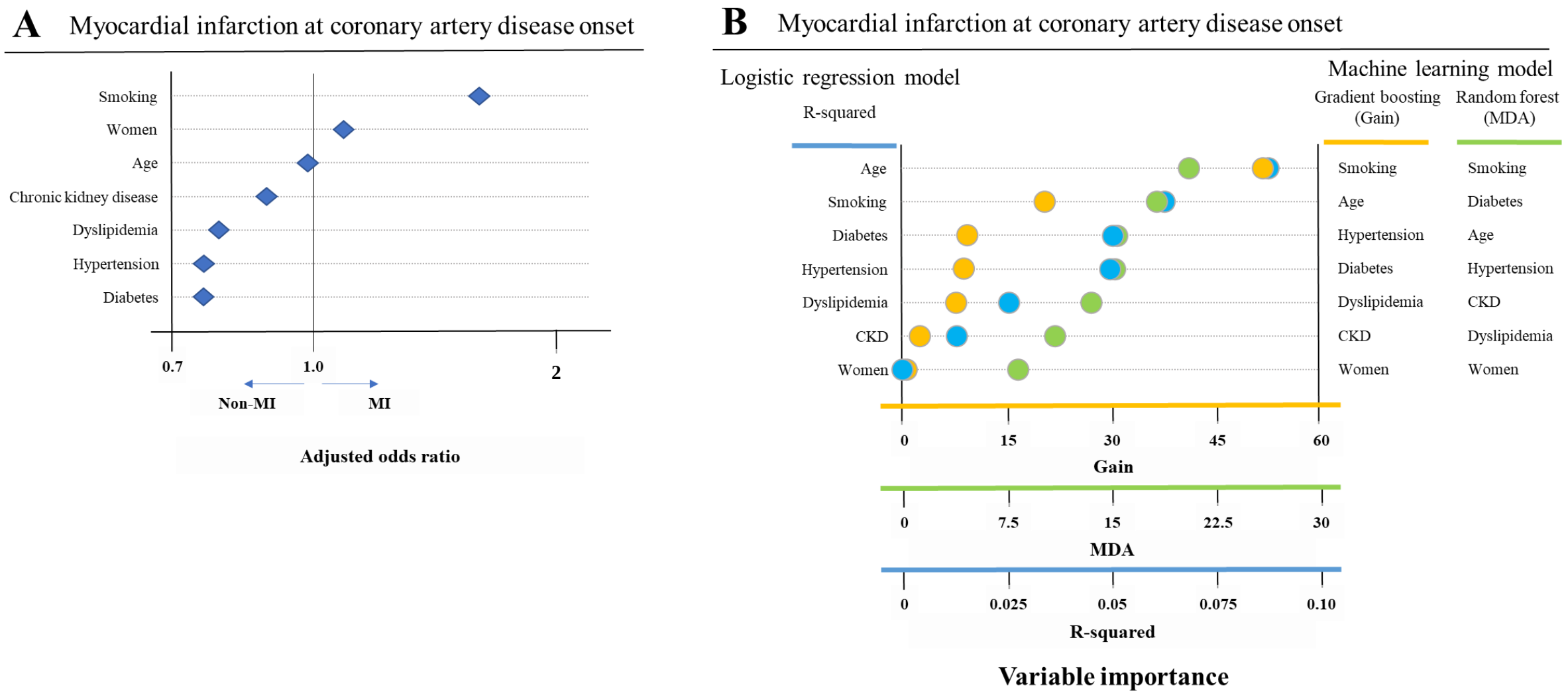


The relative importance for multi-vessel disease in traditional risk factors for CAD

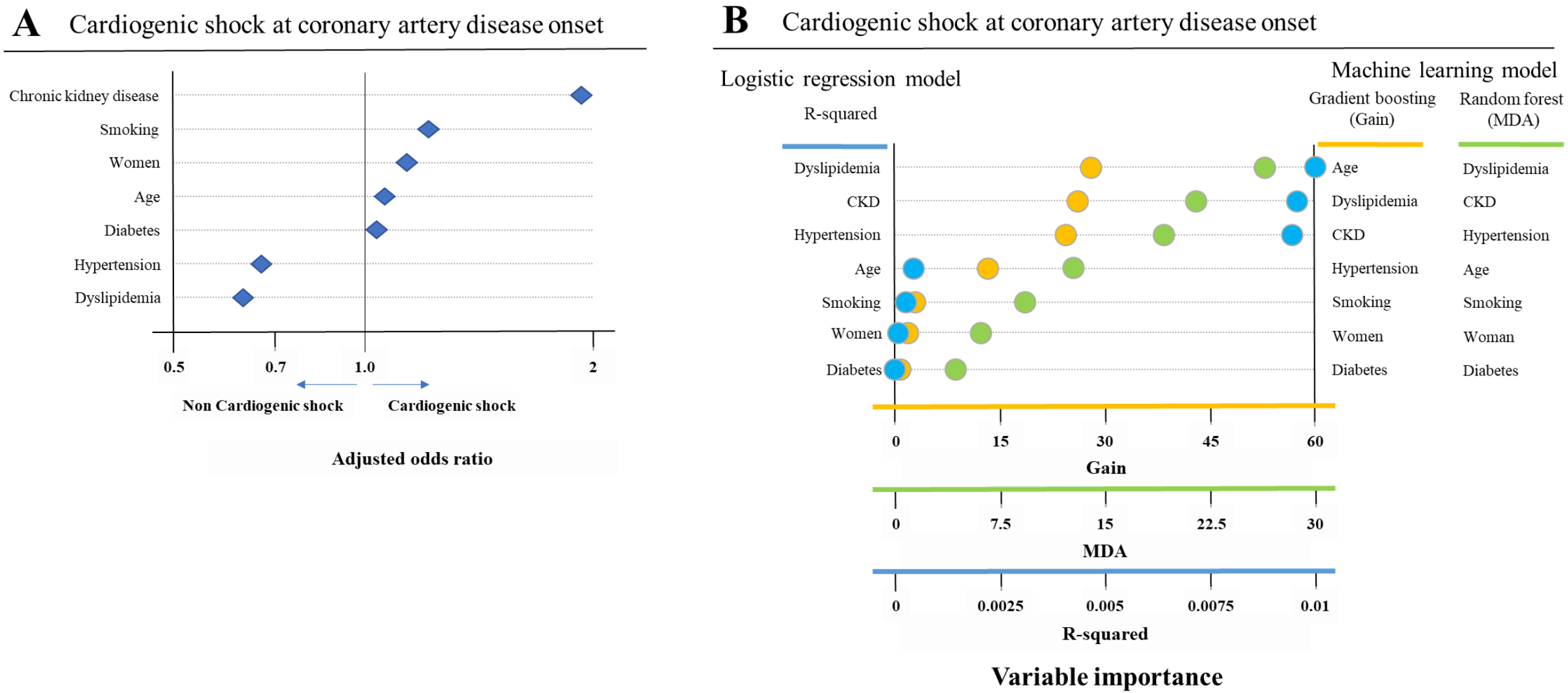




The relative importance for MI in traditional risk factors for CAD

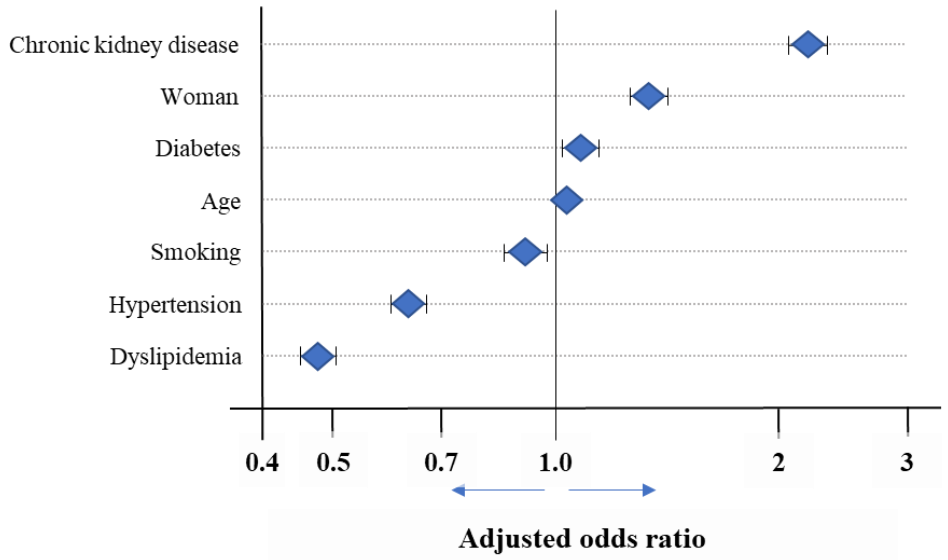


The relative importance for cardiogenic shock in traditional risk factors for CAD

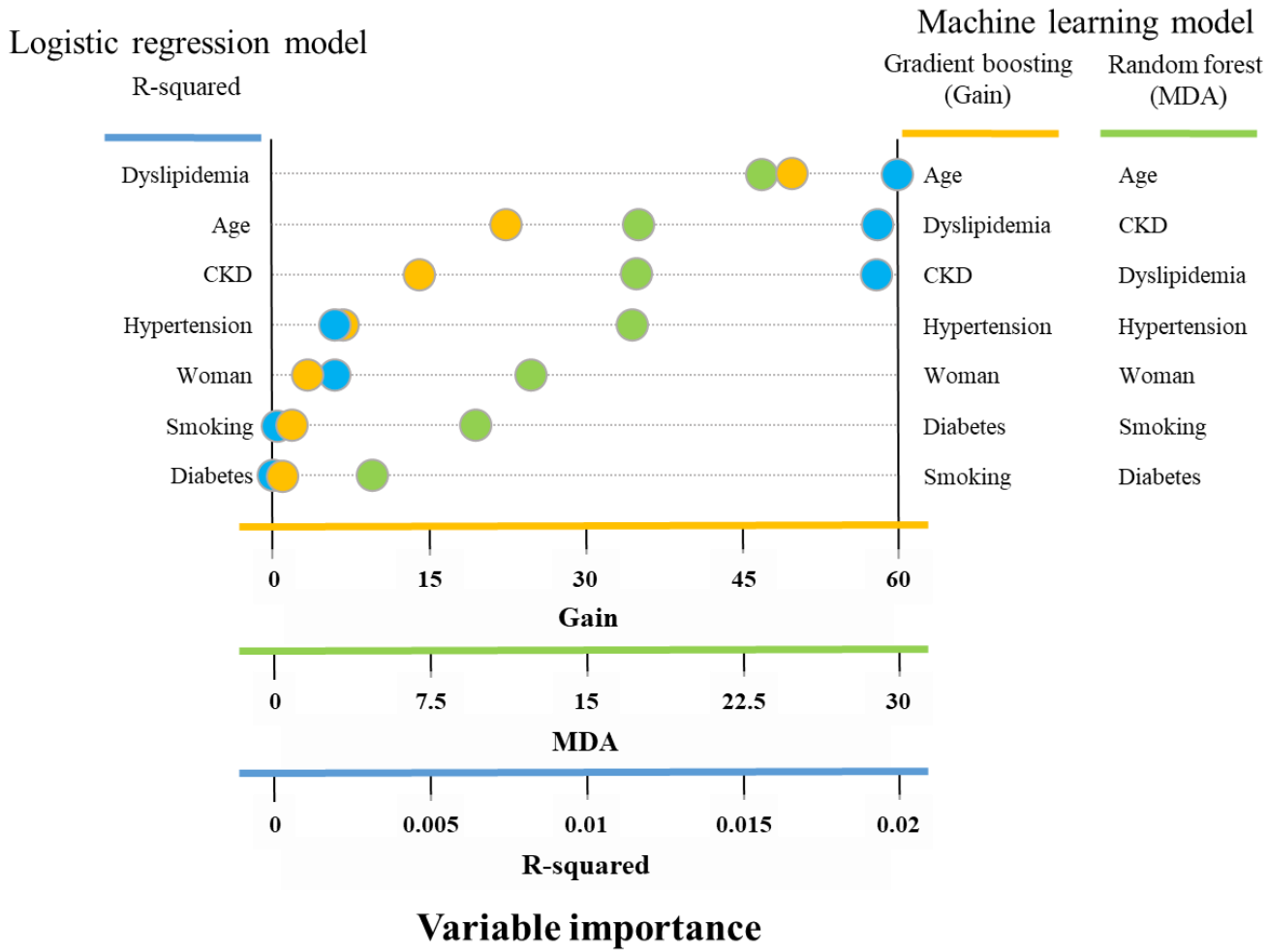


The relative prognostic importance for in-hospital death in traditional risk factors for CAD

A In-hospital death
(Odds ratio in logistic regression analysis)



B In-hospital death (Variable relative importance)



Summary

- 個々の古典的な動脈硬化リスク因子は年齢やpresentationによって有病率が異なる。
- Traditional risk factorの中でも早発冠動脈疾患には喫煙と男性が強く関連する。さらには喫煙はMIを発症しやすく、一方で高齢者や糖尿病はnon-MIを呈しやすい。多枝病変は糖尿病・CKD患者で認めやすい。
- PCIが施行された患者という限定的な条件の中では、特に脂質異常症の存在がCritical condition(cardiogenic shock)およびin-hospital deathの抑制に寄与している。

Conclusion

- Traditional risk factorsはpresentationや年齢により有病率が異なる。また Traditional risk factorsがPCI患者のclinical profile・in-hospital deathに与える影響は一様ではない。

論文投稿の現状

- 現在、作成中です。投稿に遅れが生じており大変申し訳ございません。

終わりに

- この研究課題に対する論文作成および発表の機会を頂き、CVIT関係者皆様に、深く感謝申し上げます