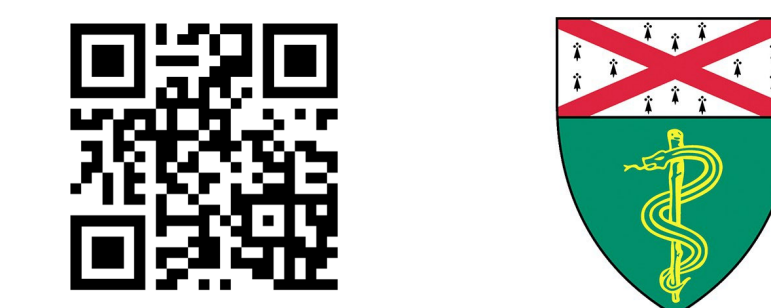


CV Risk Factor Control in Patients with T2D and CAD vs. Stroke



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INTRODUCTION

- Type 2 diabetes (T2D) is a major risk factor (RF) for stroke.
- Aggressive RF control is vital for prevention of recurrent strokes and atherosclerotic cardiovascular disease (ASCVD) events in patients with cerebrovascular disease.
- There are limited data on the comparison of the quality of CV risk factor control among patients with prior stroke and/or coronary artery disease (CAD).
- Aim:** To compare the quality of CV RF control in the two groups from 3 large CV outcome trials (OT) in T2D.

METHODS

- Data from 3 major T2D CVOTs: EMPA-REG OUTCOME, CAROLINA, CARMELINA
- RFs assessed: dyslipidemia, hypertension, use of anti-platelet/anti-coagulant drugs, and smoking.
- RF control defined as (a) LDL-C <100 mg/dL or statin use, (b) SBP<140 and DBP <90 mmHg, (c) prevalent use of anti-platelet/anti-coagulant drugs, and (d) not smoking.
- Comparison groups : Patients with (1) stroke alone; (2) CAD alone; and (3) both CAD and stroke.
- Odds ratio of (3-4; 'good') vs.(0-2, sub-optimal') CV RFs controlled was assessed.
- Subgroup analysis by age, sex and region performed.
- Analyses performed in each trial separately.
- Pertinent baseline characteristics by the CV disease groups for each of the 3 trials are shown in Tables 1-3.

RESULTS

Table 1: Baseline features by CV disease group in EMPA-REG OUTCOME

	Stroke alone n=1053	CAD alone n=4723	CAD + Stroke n=584
Male, n (%)	572 (54.3)	3617 (76.6)	432 (74.0)
Age, years, mean ±SD	62.3 ±8.6	63.2 ±8.6	66.0 ±7.7
BMI, kg/m², mean ±SD	30.1 ±5.4	30.8 ±5.2	30.8 ±5.3
HbA1c, %, mean ±SD	8.03 ±0.89	8.07 ±0.83	8.05 ±0.85
eGFR* mL/min/1.73 m²	75.83 ±22.2	73.58 ±20.7	68.49 ±20.0
Current Smoker	111 (10.5)	626 (13.3)	75 (12.8)
LDL, mg/dL, mean ±SD	98.0 ±40.6	81.5 ± 33.5	83.1 ±34.0
Statin use, n (%)	672 (63.8)	3866 (81.9)	484 (82.9)
Antithrombotics, n (%)			
• Aspirin	717 (68.1)	4150 (87.9)	490 (83.9)
• Clopidogrel	92 (8.7)	545 (11.5)	85 (14.6)
• Vit K antagonists	50 (4.7)	265 (5.6)	69 (11.8)

Not restricted to patients with available data for RF control, *eGFR by MDRD

Fig 1 - Proportion of patients with good vs. suboptimal RF control in EMPA-REG OUTCOME

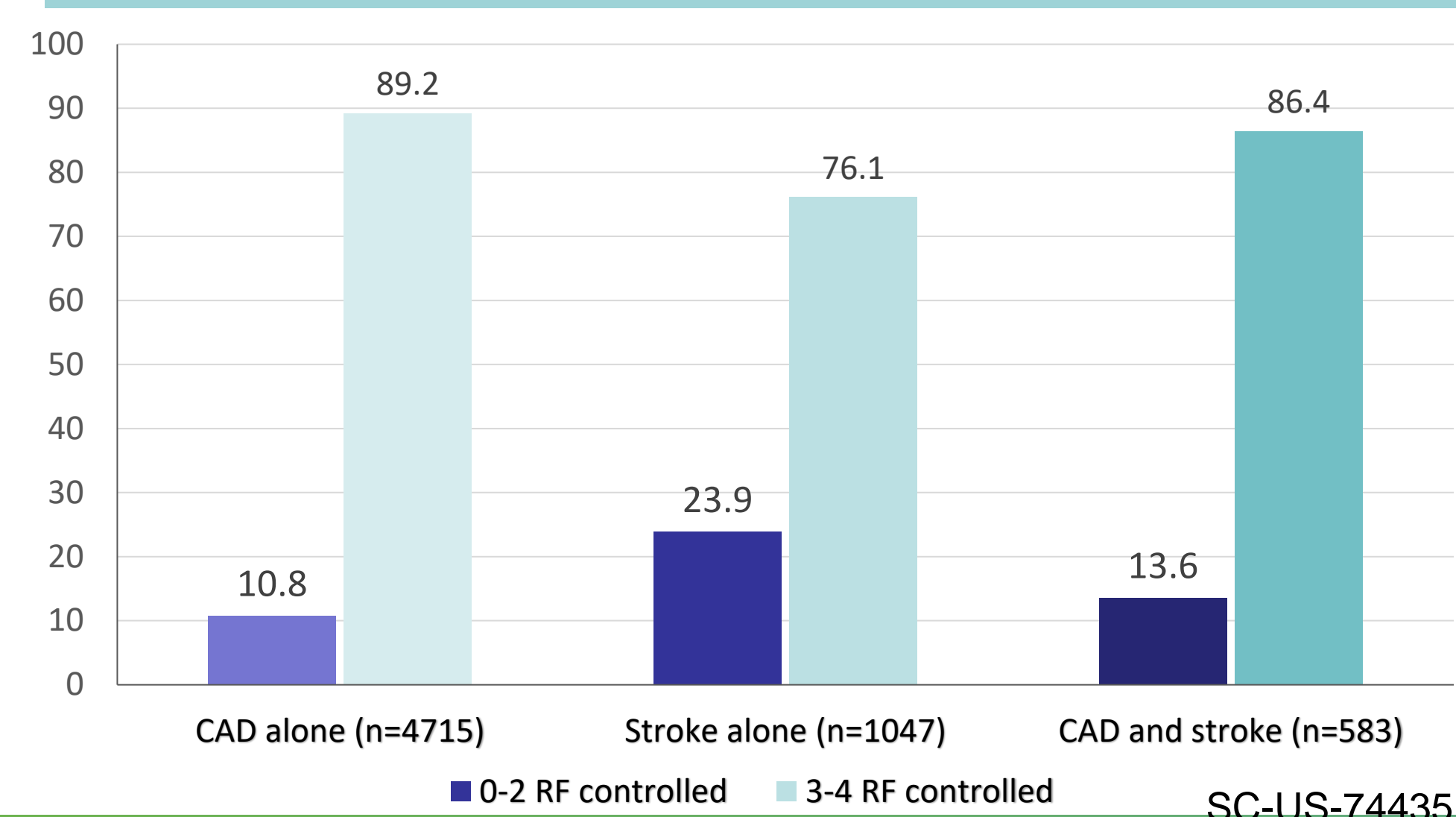


Table 2: Baseline features by CV disease group in CAROLINA

	Stroke alone n=306	CAD alone n=1343	CAD + Stroke n=162
Male, n (%)	180 (58.8)	1022 (76.1)	112 (69.1)
Age, years, mean ± SD	63.6 ±9.1	65.1 ±8.8	65.9 ±8.5
BMI, kg/m², mean ± SD	29.1 ±5.00	29.9 ±5.0	30.4 ±5.1
HbA1c, %, mean ± SD	7.13 ±0.62	7.15 ±0.56	7.11 ±0.59
eGFR* mL/min/1.73 m²	77.1 ±21.1	73.5 ±18.7	73.4 ±18.7
Current Smoker	42 (13.7)	220 (16.4)	21 (13.0)
LDL, mg/dL, mean ± SD	92.4 ±35.7	88.1 ±32.9	92.0 ±37.7
Statin use	201 (65.7)	1074 (80.0)	111 (68.5)
Antithrombotics, n (%)			
• Aspirin	182 (59.5)	1007 (75.0)	113 (69.8)
• Clopidogrel	59 (19.3)	280 (20.8)	30 (18.5)
• Vit K antagonists	24 (7.8)	94 (7.0)	20 (12.3)

Not restricted to patients with available data for RF control, *eGFR by MDRD

Fig 2 - Proportion of patients with good vs. suboptimal RF control in CAROLINA

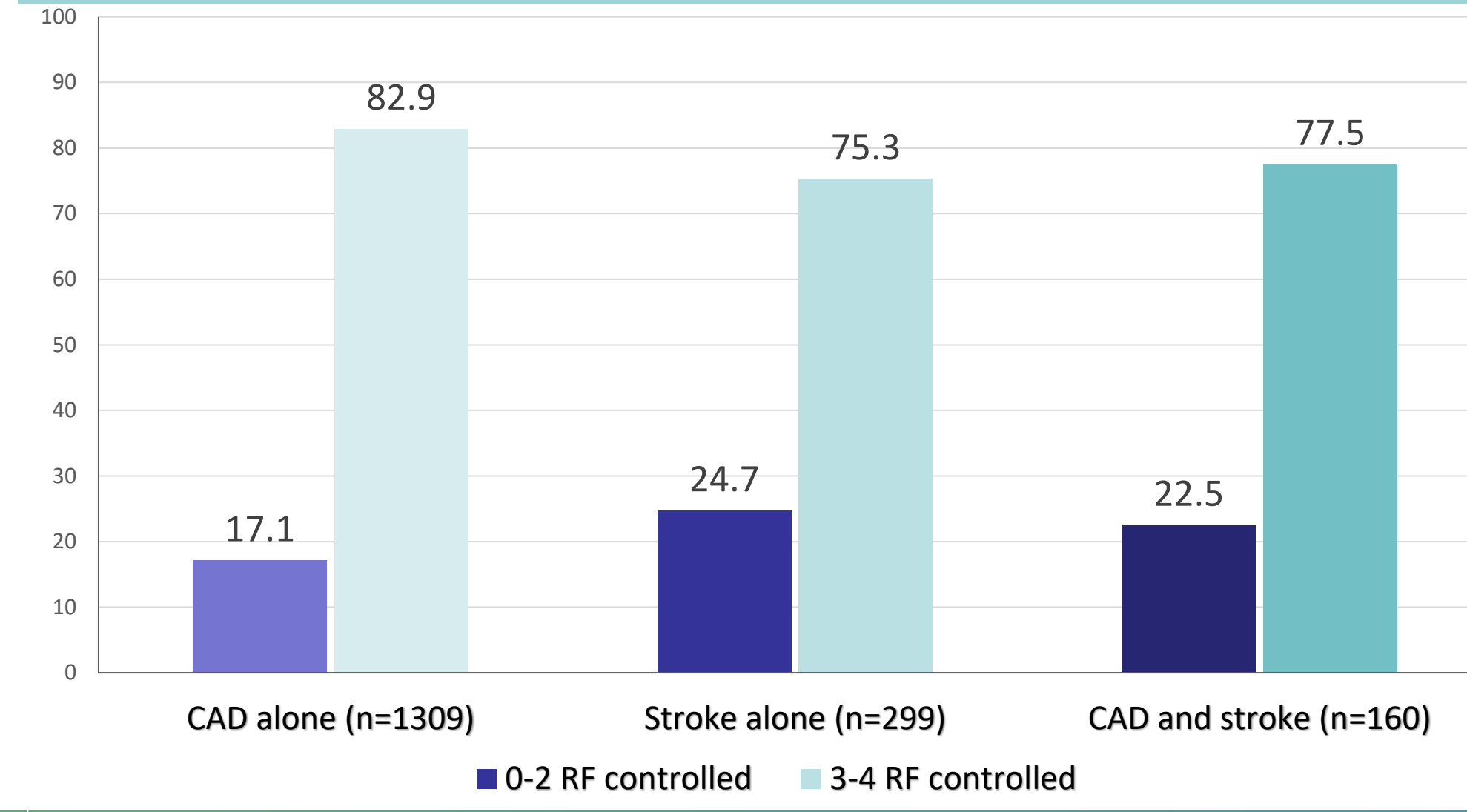
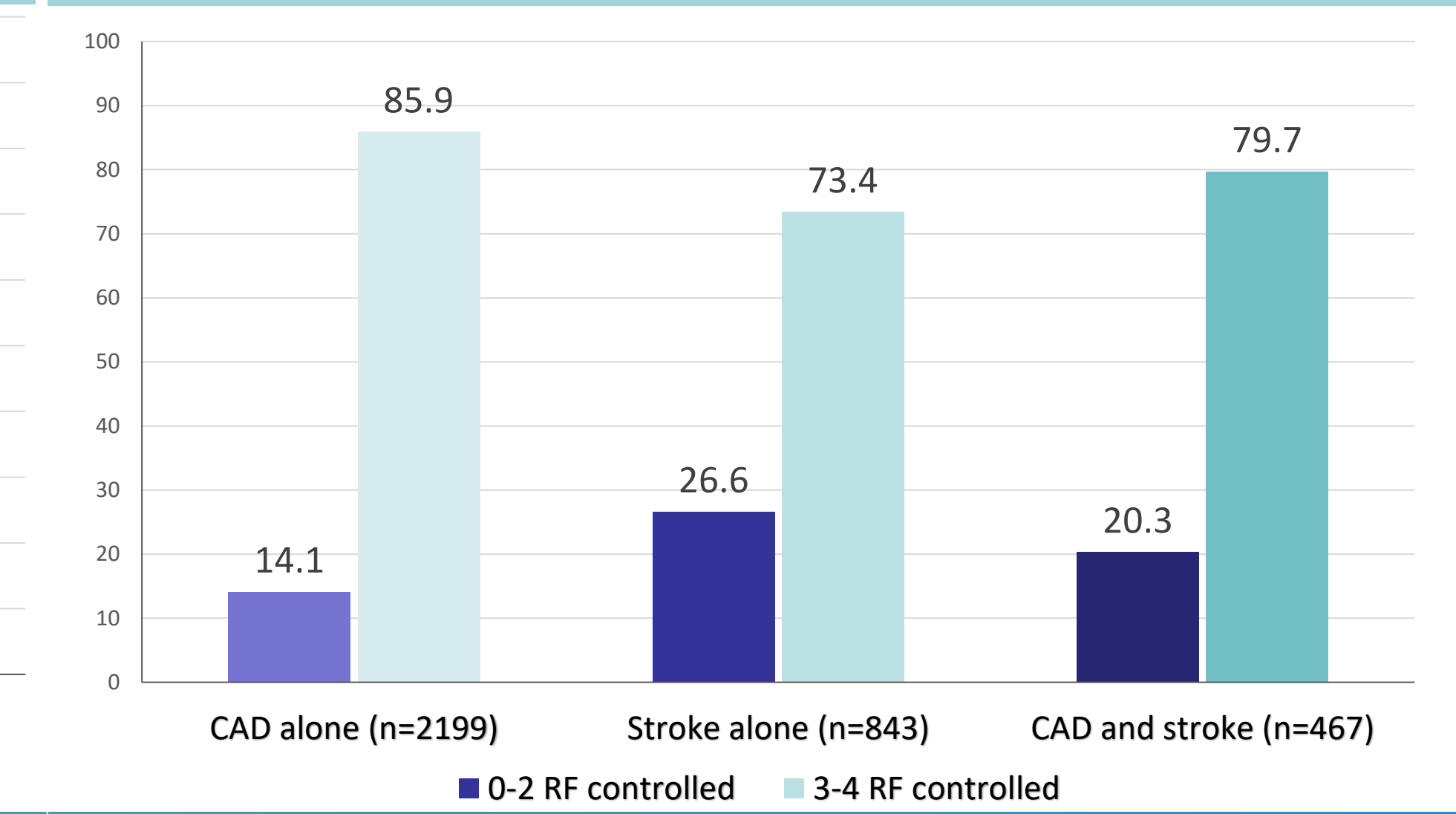


Table 3: Baseline features by CV disease group in CARMELINA

	Stroke alone n=853	CAD alone n=2216	CAD + Stroke n=470
Male, n (%)	511 (59.9)	1511 (68.2)	302 (64.3)
Age, years, mean ± SD	65.1 ±8.6	66.4 ±8.7	66.5 ±8.2
BMI, kg/m², mean ± SD	30.9 ±5.2	31.6 ±5.1	31.5 ±5.1
HbA1c, %, mean ± SD	8.00 ±1.05	7.95 ±0.99	7.95 ±0.99
eGFR* mL/min/1.73 m²	63.2 ±25.5	57.7 ±24.1	59.9 ±23.7
Current Smoker	87 (10.2)	243 (11.0)	52 (11.1)
LDL, mg/dL, mean ± SD	95.2 ±39.3	85.7 ±38.7	92.3 ±43.1
Statin use	593 (69.5)	1823 (82.3)	359 (76.4)
Antithrombotics, n (%)			
• Aspirin	531 (62.3)	1727 (77.9)	314 (66.8)
• Clopidogrel	142 (16.6)	582 (26.3)	131 (27.9)
• Vit K antagonists	61 (7.2)	178 (8.0)	50 (10.6)

Not restricted to patients with available data for RF control, *eGFR by MDRD

Fig 3 - Proportion of patients with good vs. suboptimal RF control in CARMELINA



MAJOR FINDINGS

- Overall RF control was variable across trials:
 - **84.9%** in EMPA-REG OUTCOME
 - **60.3%** in CAROLINA
 - **72.9%** in CARMELINA
- Proportion of patients with good vs. suboptimal RF control by CV disease group ranged from 73-89% vs. 11-27% (Fig 1-3).
- The odds of good vs. suboptimal RF control in patients with CAD alone was higher than in those with stroke alone across all 3 trials: Odds ratios (ORs) [95% CIs]:
 - **2.60 (2.19-3.08)** in EMPA-REG OUTCOME
 - **1.59 (1.18-2.15)** in CAROLINA
 - **2.20 (1.81-2.67)** in CARMELINA
- The corresponding ORs for CAD+stroke vs. stroke alone appeared intermediate across the 3 trials: **2.00 (1.52-2.64)**, **1.13 (0.72-1.79)**, and **1.42 (1.08-1.86)**, respectively.
- These results were consistent amongst relevant subgroups. (Data not shown.)

CONCLUSIONS

- Significant disparities in the management of CV RFs between stroke and CAD patients with T2D.
- Intermediate results in patients with both CAD and stroke suggests that possible clinician factors may be at play.
- Improving outcomes after stroke, will require a better understanding of the reasons behind these differences.