

THE LANCET

Supplementary appendix

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Supplement to: Katsoularis I, Fonseca-Rodríguez O, Farrington P, Lindmark K, Fors Connolly A-M. Risk of acute myocardial infarction and ischaemic stroke following COVID-19 in Sweden: a self-controlled case series and matched cohort study. *Lancet* 2021; published online July 29. [http://dx.doi.org/10.1016/S0140-6736\(21\)00896-5](http://dx.doi.org/10.1016/S0140-6736(21)00896-5).

Supplementary Table 1. Intervention codes used to specify the date of AMI if the date of hospitalization and the date of intervention differed by more than 3 days.

OP-Code	Description
<i>AF</i>	<i>Heart and the large intrathoracic vessels, investigation</i>
AF003	Angiography, left atrium
AF004	Angiography, left ventricle
AF006	Angiography, coronary bypass incl. a. mammaria interna
AF034	Intravascular ultrasound (performed during coronary angio)
AF037	Coronary angiography
<i>FNA</i>	<i>Connection to coronary artery from internal mammary artery</i>
FNA00	Anastomosis to coronary artery from internal mammary artery
FNA10	Sequential anastomoses to coronary arteries from internal mammary arteries
FNA20	Anastomosis to coronary arteries from bilateral internal mammary arteries
FNA96	Other connection to coronary artery from internal mammary artery
<i>FNB</i>	<i>Connection to coronary artery from gastroepiploic artery</i>
FNB00	Anastomosis to coronary artery from gastroepiploic artery
FNB20	Sequential anastomoses to coronary arteries from gastroepiploic arteries
FNB96	Other connection of gastroepiploic artery to coronary artery
<i>FNC</i>	<i>Aorto-coronary venous bypass</i>
FNC10	Aorto-coronary venous bypass with single distal anastomosis
FNC20	Aorto-coronary venous bypass with two distal anastomosis
FNC30	Aorto-coronary venous bypass with three distal anastomosis
FNC40	Aorto-coronary venous bypass with four distal anastomosis
FNC50	Aorto-coronary venous bypass with five distal anastomosis
FNC60	Aorto-coronary venous bypass with six distal anastomosis
FNC96	Other aorto-coronary venous bypass
<i>FND</i>	<i>Aorto-coronary bypass using prosthetic graft</i>
FND10	Aorto-coronary bypass using single prosthetic graft
FND20	Aorto-coronary bypass using two prosthetic grafts
FND96	Other aorto-coronary bypass using prosthetic graft
<i>FNE</i>	<i>Coronary bypass using free arterial graft</i>
FNE00	Coronary bypass using free arterial graft of internal mammary artery
FNE10	Coronary bypass using free arterial graft of gastroepiploic artery
FNE20	Coronary bypass using free graft of radial artery <i>Includes: As the only anastomosis or part of composite Y-graft (T-graft), i.e. interposed between the recipient coronary artery and internal mammary or gastroepiploic artery, when one of these arteries is connected directly to another coronary artery. Additional code for the direct arterial connection, see: FNA, FNB</i>
FNE96	Coronary bypass using other free arterial graft
<i>FNF</i>	<i>Coronary thrombendarterectomy</i>
FNF00	Thrombendarterectomy of right coronary artery
FNF10	Thrombendarterectomy of anterior descending branch
FNF20	Thrombendarterectomy of circumflex branch

FNF30	Thrombendarterectomy of left main coronary artery <i>Includes: Use of patch</i>
FNF96	Other coronary thrombendarterectomy
FNG	<i>Expansion and recanalization of coronary artery</i>
FNG00	Dilatation of coronary artery
FNG02	Percutaneous transluminal coronary angioplasty <i>Additional code for specification of technique, see: ZFX, ZXC</i>
FNG05	Percutaneous transluminal coronary angioplasty with insertion of stent <i>Additional code for specification of technique, see: ZFX, ZXC</i>
FNG10	Embolectomy of coronary artery
FNG20	Removal of foreign body from coronary artery
FNG22	Percutaneous transluminal removal of foreign body from coronary artery
FNG30	Expansion of coronary artery using patch
FNG96	Other recanalisation of coronary artery
FNH	<i>Repair of coronary artery</i>
FNH00	Suture of coronary artery
FNH10	Suture of coronary artery
FNH20	Repair of coronary artery with bypass
FNH96	Other repair of coronary artery
FNW	<i>Other operations on coronary arteries</i>
FNW98	Other percutaneous transluminal procedure on coronary arteries

Supplementary Table 2. Intervention codes used to specify the date of ischemic stroke if the date of hospitalization and the date of intervention differed by more than 3 days.

OP-Code	Description
AA004	Angiography of vertebral artery
AA005	Angiography of internal carotid artery
AA006	Angiography, combination of two or more angiographies
AA011	Computer tomography, brain
AA012	CT, with IV contrast
AP070	Ultrasound of arteries, simple (duplex technique)
AP071	Ultrasound of arteries, extensive (duplex technique)
AP072	Ultrasound of veins, extensive (duplex technique)
AP073	Ultrasound of neck blood vessels (duplex technique)
AAL10	Intracranial endovascular thrombolysis
AAL15	Intracranial endovascular thrombectomi

Supplementary Table 3. Source of COVID-19 date

Source of COVID-19 date	Frequency (%)	
	AMI	Stroke
<i>Self-controlled case series study</i>		
Date of COVID-19 symptom onset	73 (39)	115 (45)
Date of contact with outpatient clinic or hospitalization	66 (36)	65 (26)
Sample date	47 (25)	74 (29)
<i>Matched cohort study</i>		
Date of COVID-19 symptom onset	29 916 (36)	29 687 (36)
Date of contact with outpatient clinic or hospitalization	6 850 (8)	6 879 (8)
Sample date	44 778 (54)	44 561 (53)
Date of diagnosis	212 (0.3)	208 (0.3)
Date of report to Public Health Agency of Sweden	2151 (3)	2160 (3)
Date of death	31 (0.04)	27 (0.03)
Source of COVID-19 date for day 0 (SCCS and MCS studies)		
Date of COVID-19 symptom onset	1 (3.7)	2 (8)
Date of contact with outpatient clinic or hospitalization	21 (77.8)	19 (76)
Sample date	5 (18.5)	4 (16)

Supplementary Table 4. The number of events per day in the first two-week period following COVID-19 for both the self-controlled case series and the matched cohort study. The events shown are only for COVID-19 cases.

Days from COVID-19	Frequency	
	AMI	Stroke
0	27	25
1	0	4
2	3	1
3	0	3
4	3	2
5	2	2
6	3	1
7	1	3
8	2	5
9	2	3
10	1	0
11	0	1
12	1	1
13	2	1
14	4	3

AMI Acute myocardial infarction

Supplementary Table 5. Effect modification of sex and age in the self-controlled case series analysis.

	Event	Effect modification	test	df	p-value
Excluding day 0	AMI	Sex	1.82	5	0.87
		Age	6.77	5	0.24
	Stroke	Sex	2.44	5	0.79
		Age	4.33	5	0.5
Including day 0	AMI	Sex	0.74	5	0.98
		Age	6.48	5	0.26
	Stroke	Sex	6.19	5	0.29
		Age	4.47	5	0.48

AMI Acute myocardial infarction; df degrees of freedom

Supplementary Table 6. Unadjusted and adjusted conditional logistic regression models. Acute Myocardial Infarction (AMI) within 14 days following COVID-19 onset. A matched cohort study. Day 0 is included in the study period.

Variable	Categories	AMI		Univariable models	Multivariable model
		No (n=424293)	Yes (n=77)	OR (95% CI)	OR (95% CI)
COVID-19 diagnosis	No (%)	340,406 (99.99)	26 (0.01)	Ref.	Ref.
	Yes (%)	83,887 (99.94)	51 (0.06)	8.34 (5.09 - 13.6), p<0.001	6.61 (3.56 - 12.2), p<0.001
WCCI	mean (SD)	1.06 (2.07)	3.81 (2.62)	1.31 (1.18 - 1.45), p<0.001	1.38 (1.18 - 1.62), p<0.001
Income (Quintiles)	Richest (%)	82,969 (99.99)	10 (0.01)	Ref.	Ref.
	Rich (%)	83,049 (99.99)	9 (0.01)	1.29 (0.49 - 3.44, p=0.61)	1.39 (0.39 - 4.88, p=0.61)
	Middle (%)	82,605 (99.98)	13 (0.02)	1.51 (0.57 - 4), p=0.41)	1.54 (0.42 - 5.61, p=0.51)
	Poor (%)	80,242 (99.97)	21 (0.03)	1.64 (0.68 - 3.92, p=0.27)	0.97 (0.29 - 3.21), p=0.96)
	Poorest (%)	81,285 (99.97)	24 (0.03)	3.4 (1.41 - 8.19), p=0.01	2.94 (0.79 - 10.9, p=0.11)
	Missing (%)	14,143 (3.33)	0 (0)	-	-
Education	Tertiary (%)	15,4661 (99.99)	14 (0.01)	Ref.	Ref.
	Secondary (%)	172,922 (99.98)	32 (0.02)	2.26 (1.1 - 4.65), p=0.03	1.5 (0.58 - 3.87, p=0.4)
	Primary (%)	76,236 (99.96)	28 (0.04)	2.42 (1.14 - 5.14), p=0.02	1.18 (0.42 - 3.32, p=0.75)
	Missing (%)	20,474 (4.83)	3 (3.9)		
Country of birth	Sweden (%)	324,716 (99.98)	54 (0.02)	Ref.	Ref.
	HIC (%)	33,372 (99.97)	11 (0.03)	1.79 (0.82 - 3.93, p=0.15)	1.84 (0.59 - 5.72, p=0.29)
	MIC (%)	45,124 (99.98)	10 (0.02)	4.44 (1.73 - 11.4), p<0.001	1.68 (0.34 - 8.24, p=0.52)
	LIC (%)	20,869 (99.99)	2 (0.01)	1.68 (0.3 - 9.41), p=0.56)	0.92 (0.08 - 10.5, p=0.94)
	Missing (%)	212 (0.05)	0 (0)	-	-

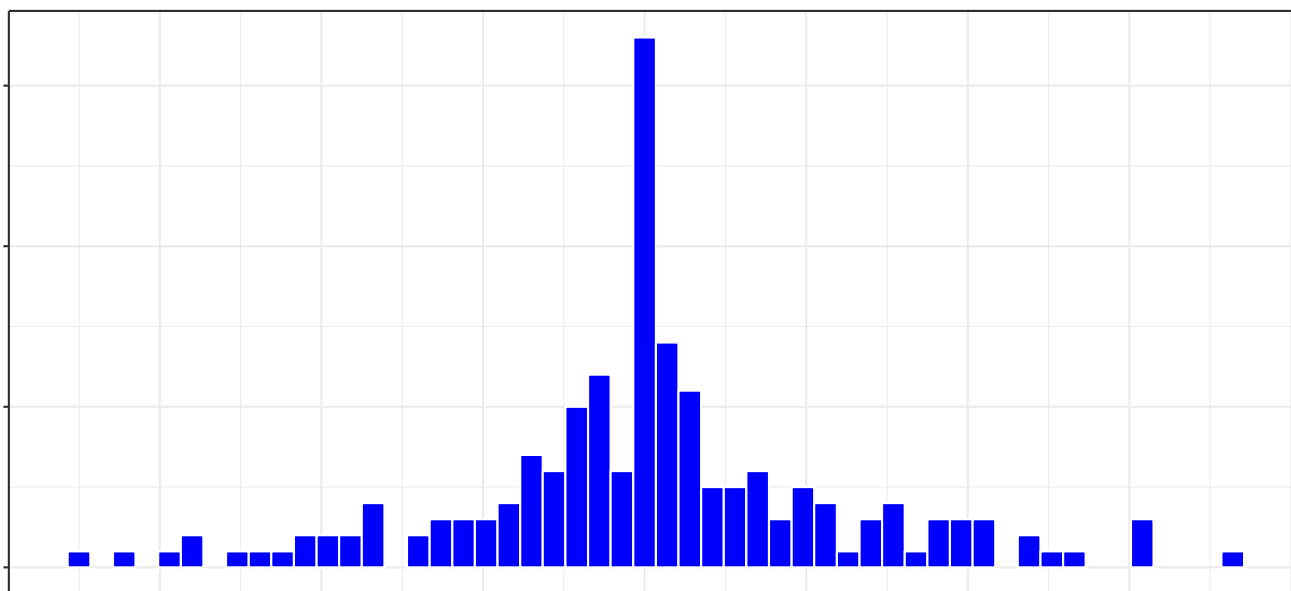
AMI Acute myocardial infarction; CI confidence intervals; wCCI weighted Charlson Comorbidity index; OR Odds Ratio; SD standard deviation; HIC High Income Countries; MIC Middle Income Countries; LIC Low Income Countries

Supplementary Table 7. Unadjusted and adjusted conditional Logistic regression models. Stroke within 14 days following COVID-19 onset. A matched cohort study. Day 0 is included in the study period.

Variable	Categories	Stroke		Univariable models	Multivariable model
		No (n=424,383)	Yes (n=92)	OR (95%CI)	OR (95%CI)
COVID-19 diagnosis	No (%)	340,916 (99.99)	37 (0.01)	Ref.	Ref.
	Yes (%)	83,467 (99.93)	55 (0.07)	7.03 (4.47 - 11.0, p<0.001)	6.74 (3.71 - 12.2, p<0.001)
WCCI	mean (SD)	1.05 (2.06)	4.55 (3.50)	1.37 (1.24 - 1.51, p<0.001)	1.37 (1.22 - 1.54, p<0.001)
Income (Quintiles)	Richest (%)	83,118 (99.98)	14 (0.02)	Ref.	Ref.
	Rich (%)	83,329 (99.99)	10 (0.01)	0.72 (0.29 - 1.8), p=0.48	0.61 (0.18 - 2.09, p=0.43)
	Middle (%)	82,621 (99.99)	10 (0.01)	0.86 (0.34 - 2.12, p=0.74)	0.59 (0.18 - 2.01, p=0.4)
	Poor (%)	80,137 (99.97)	28 (0.03)	1.53 (0.72 - 3.27, p=0.27)	1.28 (0.44 - 3.75, p=0.65)
	Poorest (%)	81,047 (99.96)	30 (0.04)	1.91 (0.91 - 3.98, p=0.08)	0.8 (0.27 - 2.41, p=0.69)
	Missing (%)	14,131 (3.33)	0 (0)	-	-
Education	Tertiary (%)	154,512 (99.98)	25 (0.02)	Ref.	Ref.
	Secondary (%)	173,068 (99.98)	34 (0.02)	1.04 (0.59 - 1.85, p=0.89)	1.02 (0.47 - 2.22, p=0.96)
	Primary (%)	76,401 (99.96)	31 (0.04)	1.35 (0.74 - 2.47, p=0.32)	1.22 (0.51 - 2.9, p=0.65)
	Missing (%)	20,402 (4.81)	2 (2.17)	-	-
Country of birth	Sweden (%)	324,539 (99.98)	64 (0.02)	Ref.	Ref.
	HIC (%)	33,285 (99.96)	12 (0.04)	1.27 (0.6 - 2.67), p=0.53	1.04 (0.4 - 2.74, p=0.93)
	MIC (%)	45,436 (99.98)	10 (0.02)	2.34 (1.03 - 5.33, p=0.04)	2.2 (0.63 - 7.72, p=0.22)
	LIC (%)	20,911 (99.97)	6 (0.03)	12.97 (2.54 - 66, p<0.001)	16 (0.91 - 2.51, p=0.06)
	Missing (%)	212 (0.05)	0 (0)	-	-

CI confidence intervals; wCCI weighted Charlson Comorbidity index; OR Odds Ratio; SD standard deviation; HIC High Income Countries; MIC Middle Income Countries; LIC Low Income Countries

Supplementary Figure 1. Distribution of acute myocardial infarction relative to COVID-19 date.



Supplementary Figure 2. Distribution of ischaemic stroke relative to COVID-19 date.

