Real-world Assessment of Antiplatelet Treatment Therapies for Patients With Acute Coronary Syndrome (ACS) in the United Kingdom

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BACKGROUND

- Acute coronary syndrome (ACS) is one of the most common cardiovascular causes of death in the United Kingdom[1]
  - In the United Kingdom, there are >80,000 annual hospital admissions for ACS[2]
- Current guidelines in the United Kingdom recommend different treatment types for ACS[1,3]
  - Guidelines from the National Institute for Health and Care Excellence (NICE) recommend dual antiplatelet therapy (DAPT) for 1 year, while European Society of Cardiology (ESC) guidelines recommend DAPT for between 1 and 12 months, depending on bleeding risk and ischemic risk[1,3]
  - Single antiplatelet therapy (SAPT) or DAPT is recommended for long-term (>12 months) treatment, depending on a patient's tolerance of DAPT, bleeding risk, ischemic risk, and initial cardiovascular event[1,3]
- It is critical to understand the treatment landscape for ACS in a real-world UK setting

OBJECTIVE

- To evaluate outpatient antiplatelet treatment patterns among non–atrial fibrillation (AF) patients with a recent ACS event in the United Kingdom

METHODS

Study Source and Population

- This study used data from the Clinical Practice Research Datalink (CPRD Gold) database, which contains longitudinal, routinely collected, electronic health record data from a network of 984 UK primary care practices
- Inclusion criteria: adult (aged ≥18 years) patients with ≥1 outpatient diagnosis of ACS during the index period
- Exclusion criteria: diagnosis of AF any time prior to or on the index date and prescription of any oral anticoagulant (OAC) 1 year prior to or within 90 days of the index date

Study Design

- The study period was between 01/01/2011 and 30/06/2021, and the identification period was between 01/01/2012 and 31/03/2021
- The index date was defined as the date of the first ACS outpatient diagnosis occurring during the identification period
- The index treatment was defined as the first antiplatelet prescription between the index date and 90 days after the index date

Assessments

- Patient characteristics
- ACS subtypes (non–ST-segment elevation myocardial infarction [nSTEMI], ST-segment elevation myocardial infarction [STEMI], unstable angina, other acute myocardial infarction [AMI])
- Antiplatelet treatment type (ie, SAPT, DAPT, other, no antiplatelet therapy)
- Duration of treatment
- Treatment patterns (ie, discontinuation, de-escalation, nontreatment)

Statistical Analyses

- Baseline patient characteristics were summarized using frequencies and percentages for categorical values and descriptive statistics for continuous variables
- Descriptive statistics were used to report treatment patterns and duration

Key Findings

- **In this real-world study, the majority of patients received antiplatelet therapy within 90 days of an ACS event**
- **DAPT was prescribed more frequently than SAPT, and most patients who received DAPT de-escalated to SAPT within 1 year of the index ACS event**
- **Further analyses should explore patients' outcome assessments and any treatment differences between diverse patient subgroups and over time**

POSTER PRESENTED AT THE PROFESSIONAL SOCIETY FOR HEALTH ECONOMICS AND OUTCOMES RESEARCH (ISPOR) EUROPE; 6-9 NOVEMBER 2022; VIENNA, AUSTRIA AND VIRTUAL.

RESULTS

Baseline Characteristics and Treatments

- After screening, a total of 46,827 patients were included in this analysis (**Table 1**)

Table 1. Patient Attrition

Criteria	n (%)
≥1 ACS diagnosis during the index period	74,003 (100)
Aged ≥18 years on the index date	72,428 (97.9)
12 months of continuous enrollment in the baseline period	57,632 (77.9)
Excluded:	**n (%) remaining**
AF any time prior to or on the index date	50,885 (68.8)
OAC in year prior to the index date	49,737 (67.2)
0-day follow-up period	48,942 (66.1)
Pregnant at any time during the study period	48,763 (65.9)
OAC within 90 days from the index date (index date + 90 days)	46,827 (63.3)

- Baseline characteristics were similar among treatment groups (**Table 2**)
  - The mean age was 67.5 years, and 34.2% of patients were female

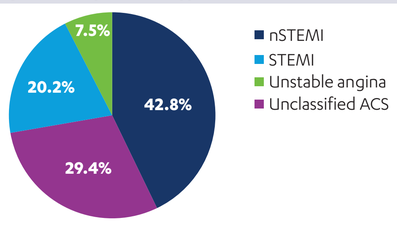
Table 2. Baseline Demographic and Clinical Characteristics

Characteristic	Overall (N = 46,827)	Aspirin (n = 8,038)	Clopidogrel (n = 4,485)	Aspirin + clopidogrel (n = 15,787)	Aspirin + ticagrelor (n = 11,253)	No treatment (n = 3,350)
Female, n (%)	16,016 (34.2)	3,178 (39.5)	1,825 (40.7)	5,540 (35.1)	3,029 (26.9)	1,490 (44.5)
Age, mean (SD), years	67.5 (13.3)	71.1 (12.6)	72.5 (12.2)	67.6 (13.5)	62.8 (11.7)	71.8 (15.0)
Antiplatelet usage (30 days prior to the index date), n (%)	11,009 (23.5)	3,345 (41.6)	2,149 (47.9)	2,830 (17.9)	1,167 (10.4)	551 (16.4)
Aspirin	9,153 (19.5)	3,011 (37.5)	1,405 (31.3)	2,447 (15.5)	963 (8.6)	448 (13.4)
Clopidogrel	2,901 (6.2)	455 (5.7)	837 (18.7)	1,112 (7.0)	236 (2.1)	157 (4.7)
Dipyridamole	196 (0.4)	30 (0.4)	35 (0.8)	59 (0.4)	10 (0.1)	6 (0.2)
Ticagrelor	285 (0.6)	36 (0.4)	5 (0.1)	6 (<0.1)	192 (1.7)	4 (0.1)
Prasugrel	73 (0.2)	7 (0.1)	2 (<0.1)	2 (<0.1)	1 (<0.1)	1 (<0.1)
Aspirin + dipyridamole	27 (0.1)	4 (<0.1)	4 (0.1)	10 (0.1)	1 (<0.1)	3 (0.1)
Comorbidities,[a] n (%)						
Bleeding	10,972 (23.4)	2,180 (27.1)	1,274 (28.4)	3,549 (22.5)	2,204 (19.6)	962 (28.7)
Diabetes	9,970 (21.3)	2,208 (27.5)	1,383 (30.8)	2,937 (18.6)	1,794 (15.9)	748 (22.3)
Ischemic stroke	1,367 (2.9)	304 (3.8)	333 (7.4)	370 (2.3)	145 (1.3)	136 (4.1)
Polyvascular disease	1,895 (4.0)	549 (6.8)	396 (8.8)	482 (3.1)	159 (1.4)	162 (4.8)
Renal disease	9,093 (19.4)	2,135 (26.6)	1,354 (30.2)	2,967 (18.8)	1,203 (10.7)	889 (26.5)
VTE	1,506 (3.2)	312 (3.9)	211 (4.7)	488 (3.1)	236 (2.1)	159 (4.7)
Previous ACS event during baseline period, n (%)						
Myocardial infarction	5,998 (12.8)	1,700 (21.1)	1,090 (24.3)	1,649 (10.4)	610 (5.4)	432 (12.9)
Unstable angina	1,079 (2.3)	331 (4.1)	201 (4.5)	293 (1.9)	86 (0.8)	76 (2.3)

SD, standard deviation; VTE, venous thromboembolism.
[a]Comorbidities were evaluated throughout the entire available baseline period.

- Approximately 42.8% of patients had nSTEMI, 20.2% had STEMI, 7.5% had unstable angina, and 29.4% had unclassified ACS (**Figure 1**)

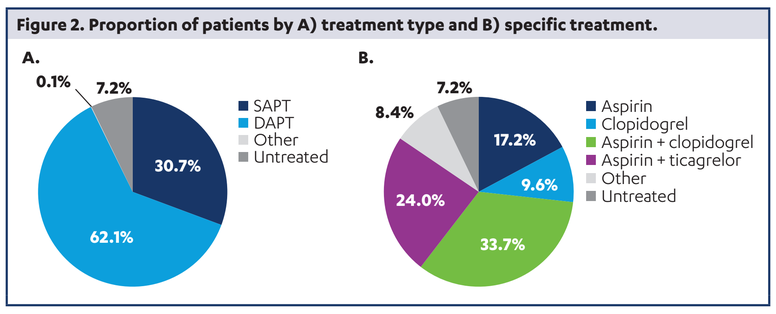
Figure 1. Proportion of patients by ACS subtype.



Treatment Types and Duration of Treatment

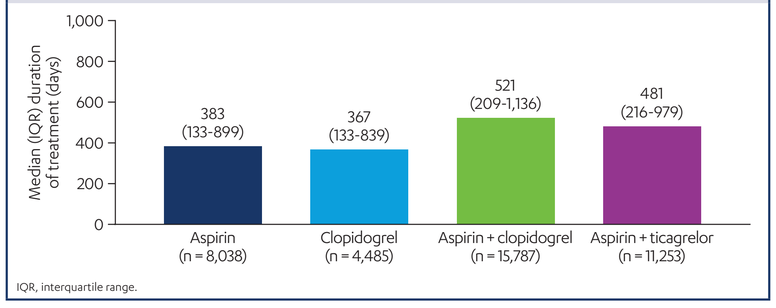
- Almost all (92.9%) patients received antiplatelet medication within 90 days of the index ACS event (**Figure 2**)
  - 30.7%, 62.1%, 7.2%, and 0.1% of patients were treated with SAPT, treated with DAPT, untreated, and treated with other antiplatelet regimens, respectively
  - Aspirin was the most frequently used SAPT, and aspirin + clopidogrel was the most frequently used DAPT

Figure 2. Proportion of patients by A) treatment type and B) specific treatment.



- The median antiplatelet treatment duration for overall treated patients was 462 days
- The median duration of any antiplatelet therapy was 383, 367, 521, and 481 days for patients who initiated treatment with aspirin, clopidogrel, aspirin + clopidogrel, and aspirin + ticagrelor, respectively (**Figure 3**)
- Of patients initiated on aspirin + clopidogrel, 67.1% de-escalated to SAPT, with a median time to switch of 228 days (54.5% to aspirin, 12.7% to clopidogrel); 69.8% of patients initiated on aspirin + ticagrelor de-escalated to SAPT, with a median time to switch of 169 days (61.1% to aspirin, 8.7% to ticagrelor)

Figure 3. Median (IQR) duration of any antiplatelet treatment by index treatment.

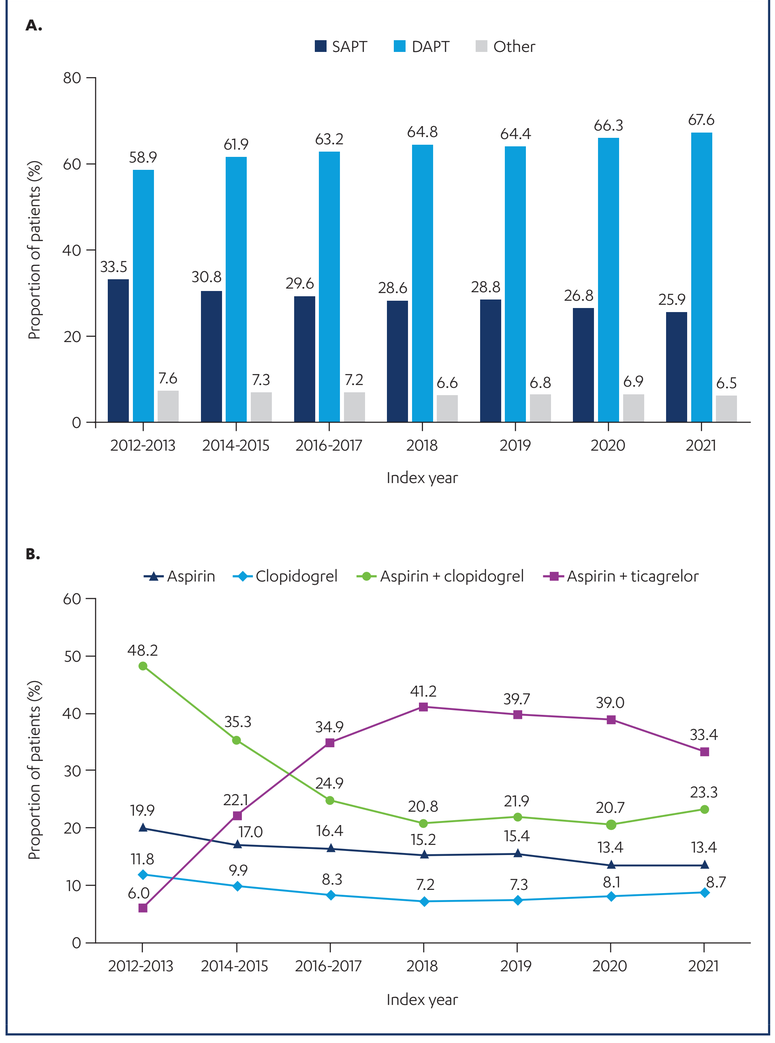


IQR, interquartile range.

Treatment Patterns Over Time

- Trends in overall treatment type were sustained for the duration of the study, while the use of clopidogrel versus ticagrelor as part of DAPT changed over time (**Figure 4**)

Figure 4. Proportion of patients who initiated treatment across index years by A) treatment type and B) most commonly prescribed SAPT and DAPT.



Limitation

- Potential misclassification of patients with ACS and missing data may have introduced bias and affected the generalizability of the results

REFERENCES

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DISCLOSURES

AK, JJ, RGS, XL, and JH are employees of Bristol Myers Squibb. DR is an employee of Mu Sigma Inc.

ACKNOWLEDGMENTS

This study was sponsored by Bristol Myers Squibb and Janssen Research & Development, LLC. Medical writing support was provided by Laura Weber, PhD, of Lumanity Communications Inc., and was funded by Bristol Myers Squibb and Janssen Global Services, LLC.