POST-MI CARE: Medication Adherence for Secondary Prevention after Myocardial Infarction (MI) in Switzerland - Evidence from a Large "Real-World" Database

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Background and aim

International guidelines strongly recommend the use of angiotensin-converting enzyme inhibitors or angiotensin receptor blockers (ACEs/ARBs), lipid-lowering drugs (LLD), beta blockers (BB), and dual antiplatelet therapy (DAPT) in patients after acute myocardial infarction (MI) for at least one year. However, data investigating the adherence to all recommended drug therapies are very scarce - especially in Switzerland. The aim of our study was to examine the 1-year medication adherence after MI by analyzing Swiss "real-world" data.

Methods

Using a large Swiss healthcare claims database (Helsana Group) from 2012 to 2015, we selected patients, who had been admitted to hospital with acute MI (ICD-10: "I.21 or I.22" as principal diagnosis) and survived at least 1 month after discharge. Adherence to medication after discharge was measured as the proportion of days covered (PDC) over one year (0-39% "low", 40-79% "intermediate", ≥80% "high") and subdivided for the classes of drugs mentioned above. The PDC counts the number of days where a defined daily dose is available between the first and last prescription within a 1-year interval, divided by the total days of the interval. Figure 1 provides a hypothetical example:

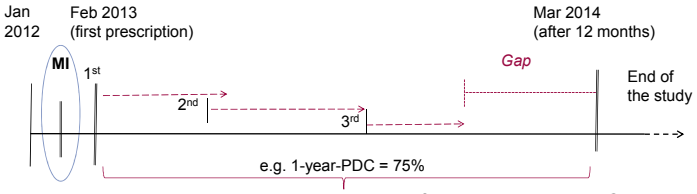

Figure 1: Medication adherence: one example for calculating the PDC

Issues considered when constructing the PDC:

1) Oversupply → values over 100% will be truncated
2) Medication provided during hopsital stays → hospital days will be substracted from the total interval (denominator)
3) Switching drugs from the same group "statin" (e.g. Simavastatin to Lovastatin) → drugs were considered interchangeable

Results

We identified a total of 4'349 persons with a principal diagnosis of MI from 2012 to 2015. The baseline characteristics of the patients are presented in Table 1.

Table 1: Patient characteristics of the MI-cohort

Variable	N (=4'349)	%
Male	3'015	69.3
Mean age (±SD)	68.5 ± 12.9	
History of		
MI	461	10.6
Diabetes	290	6.7
Hypertension	696	16.0

The mean 1-year adherence, defined as the PDC, was overall low: 62.5% (SD, 36.7) for ACEs/ARBs, 78.6% (SD, 33.5) for lipid-lowering drugs, 32.9% (SD, 28.5) for beta blockers, and 56.9% (SD, 37.4) for the dual antiplatelet therapy (Figure 2).

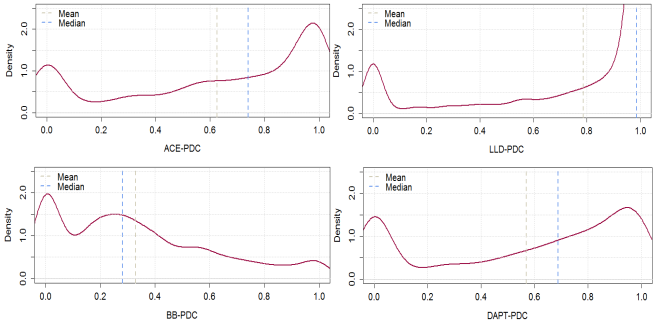

Figure 2: Medication adherence (PDC) for all drug classes

A high proportion of patients with low adherence was consistently observed in all drug treatment groups (27.5% for ACEs/ARBs, 15.8% for LLDs, and 32.2% for DAPT), but with the highest percentage in the BB-group (PDC "0-39%": 65.9%). In contrast to all other drug classes, the 1-year adherence to ACEs/ARBs was highest with a PDC of 70.4%.

Table 2: Medication adherence by drug treatment group

Drug	Low adherence PDC "0-39%" N(%)	Intermediate adherence PDC "40-79%" N(%)	High adherence PDC "≥80%" N(%)
ACEs/ARBs	1'195 (27.5)	1'217 (28.0)	1'937 (44.5)
Lipid-lowering drugs	689 (15.8)	597 (13.7)	3'063 (70.4)
Beta blockers	2'866 (65.9)	1'089 (25.0)	394 (9.1)
Dual antiplatelet therapy	1'400 (32.2)	1'260 (29.0)	1'689 (38.8)

Conclusion

Medication adherence for secondary prevention after MI is low in this Swiss cohort after acute MI. This finding is surprising since medication adherence is one of the key issues in healthcare quality with an important impact on clinical outcome. Nonadherence leads to poor health outcomes and has a substantial clinical impact. The present study provides valuable information for a more coherent policy as well as for potentially initiated interventions in health care delivery for secondary prevention after an acute MI in Switzerland.

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