Comparison of patients managed by drug therapy vs. PVI in an Upper Austrian Atrial Fibrillation cohort

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Introduction

This is the first part of a PhD project at CARIM with the scope of a direct comparison of true healthcare expenditure and outcomes of drug therapy (non-PVI) vs. catheter ablation therapy (PVI) for atrial fibrillation (AF) in an Upper Austrian cohort.

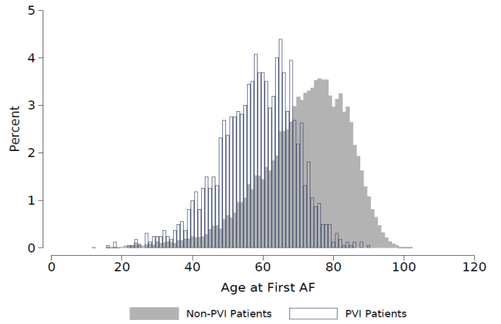
Methods

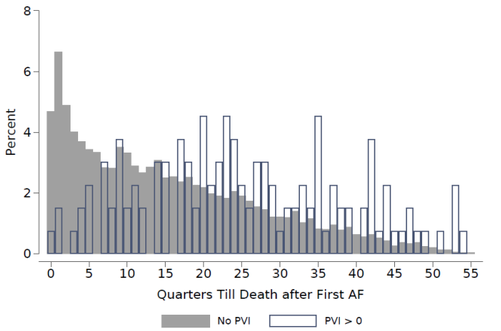
We included all patients who were first diagnosed with AF (LKF-codes I48.*) in the years 2005 to 2018 and were insured via the Upper Austrian Health Insurance Fund (OÖGKK). PVI patients were identified by the MEL-codes 6546 (2005-2007, 6547 (2008), and DE060 (from 2009 on). We aimed to describe the socio-demographic characteristics and the health care expenditure in both patient groups.

Results

The final dataset includes 21,791 patients - identified by their first hospitalization due to AF between Q1/2005 and Q4/2018. Of these, 1,624 (7,5%) were treated with at least one PVI (1,222 had one PVI and 404 individuals had up to 5 re-dos), the rest received other treatment.

We observe significant differences in health care expenditure and all demographic and socio-economic characteristics between non-PVI and PVI patients (Table Demographics). PVI patients are substantially younger (Figure 1) and show different mortality rates after first AF diagnosis (Figure 2).





	Ø Non-PVI	Ø PVI	Diff.	95 % CI		Sign.
Female	0.520	0.316	-0.204	-0.229	-0.179	***
Age†	71.557	58.267	-13.290	-13.926	-12.654	***
Age < 55†	0.095	0.337	0.241	0.226	0.257	***
Age 55 – 65†	0.176	0.395	0.219	0.199	0.239	***
Age > 65†	0.728	0.268	-0.460	-0.483	-0.438	***
Deceased until 2018 (HV)	0.314	0.081	-0.233	-0.256	-0.210	***
Employed†	0.164	0.531	0.366	0.346	0.387	***
Unemployed†	0.016	0.030	0.014	0.007	0.021	***
Retired†	0.838	0.466	-0.372	-0.392	-0.351	***
AF at Elisabethinen Linz	0.143	0.542	0.400	0.381	0.418	***
AF at AKH Linz/KUK	0.160	0.471	0.311	0.292	0.330	***
AF at Klinikum Wels	0.178	0.128	-0.050	-0.069	-0.031	***
Heart Failure	0.259	0.142	-0.118	-0.139	-0.096	***
Hypertension	0.148	0.123	-0.026	-0.044	-0.008	***
Diabetes	0.064	0.034	-0.030	-0.042	-0.018	***
TIA/Stroke	0.154	0.091	-0.064	-0.082	-0.046	***
Myocardial Infarction	0.237	0.280	0.044	0.022	0.065	***
Peripheral Artery Disease	0.076	0.033	-0.043	-0.056	-0.030	***
Hyperlipidemia	0.003	0.011	0.008	0.005	0.011	***
Renal Failure	0.067	0.023	-0.045	-0.057	-0.032	***
Dementia	0.044	0.009	-0.036	-0.046	-0.026	***
Four Quarters Before First AF						
Hospital Days	1.683	0.907	-0.776	-0.923	-0.630	***
LKF Points	750.880	429.658	-321.222	-398.021	-244.424	***
LKF Turnover	976.135	549.943	-426.192	-526.452	-325.932	***
Drug Expenditure	218.872	137.542	-81.330	-108.562	-54.099	***
Outpatient Medical Care	172.055	160.098	-11.957	-18.593	-5.321	***
Sick Leave Days	0.840	2.600	1.761	1.492	2.029	***
Quarter of First AF						
Hospital Days	8.538	6.311	-2.227	-2.668	-1.787	***
LKF Points	3,195.315	4,268.696	1,073.381	836.560	1,310.201	***
LKF Turnover	4,159.938	5,503.132	1,343.193	1,033.377	1,653.010	***
Drug Expenditure	308.309	222.561	-85.747	-138.807	-32.687	***
Outpatient Medical Care	226.005	212.559	-13.446	-26.165	-0.728	**
Sick Leave Days	2.116	7.786	5.670	4.996	6.343	***
Four Quarters After First AF						
Hospital Days	2.620	1.910	-0.710	-0.891	-0.530	***
LKF Points	1,103.234	1,417.350	314.116	222.959	405.273	***
LKF Turnover	1,441.653	1,836.759	395.105	275.492	514.719	***
Drug Expenditure	301.364	206.549	-94.815	-127.811	-61.819	***
Outpatient Medical Care	198.874	182.281	-16.593	-23.416	-9.770	***
Sick Leave Days	1.448	5.189	3.741	3.340	4.141	***

Conclusion

As expected, non-PVI and PVI patients in an AF cohort differ substantially in all characteristics. As a further step, we conduct propensity score matching and a differences in differences approach (DiD) to provide (some) comparability between the groups for a cost effectiveness analysis. Still a substantial selection bias between non-PVI and PVI patients may remain.