NHS
Northumbria Healthcare
NHS Foundation Trust

Evaluating the Quality of Patient Follow-Up Post-Myocardial Infarction: An Audit of ACE inhibitor/ARB and Beta-Blocker Up-Titration in Primary Care

C.Madden, P.Davies

NHS
North Tyneside
Clinical Commissioning Group

Background

- ~1.4 million people alive in the UK today have survived a myocardial infarction (MI) (1).
- Cost of acute MI ~£4200 and acute heart failure (HF) exacerbation ~£3000 (2).
- NICE guidelines: An angiotensin-converting enzyme inhibitor (ACEi) or angiotensin receptor blocker (ARB) and a beta-blocker (BB) post-MI titrated to the maximum tolerated dose (3,4).
- Optimal doses (≥50%) shown to reduce mortality, morbidity and hospitalisation rates compared to suboptimal doses (<50%) (5–7).
- NICE standard maximum dose ACEi/ARB and BB to be achieved within 6 and 11 weeks of discharge, respectively.

Methodology

- Project setting: GP practice (patient population 19,000)
- Clinical system search conducted for patients coded with an acute MI in the previous 12 months.
- Data extracted from patient records to determine titration history.

Audit standard: Maximum dose ACE inhibitor/ARB and beta-blocker to be achieved within 6 and 11 weeks of discharge, respectively

Results

- 26 patients identified, 23 (88%) of which were eligible for and prescribed ACEi/ARB and BB therapy at discharge. Only 3 (12%) and 2 (8%) patients were at maximum doses of ACEi/ARB and BB, respectively.
- Of those not discharged on maximum doses, no patients achieved maximum doses of either ACEi/ARB or BB within 6 and 11 weeks, respectively. All patients failed to meet the audit standard.
- A HF nurse followed up 3 (12%) patients who all achieved maximum doses of ACEi/ARB and an increase in BB by 6 months.

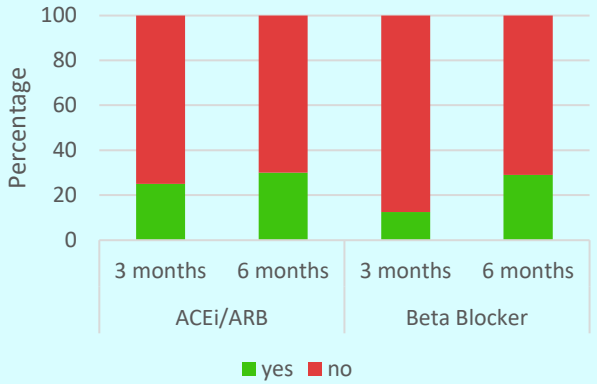

Fig 1. Percentage of patients who received at least one attempted increase in their ACEi/ARB or BB dose 3 months and 6 months post-discharge. Excludes patients discharged on maximum doses.

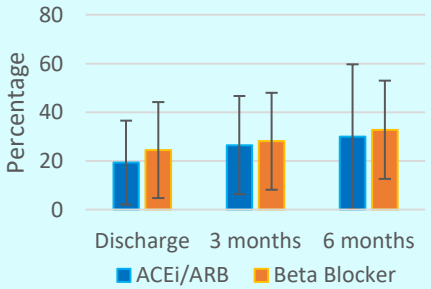

Fig 2. Mean percentage of maximum BNF dose ACEi/ARB and BB patient's were prescribed at discharge and at 3 and 6 months post-discharge. Excludes those discharged at maximum doses.

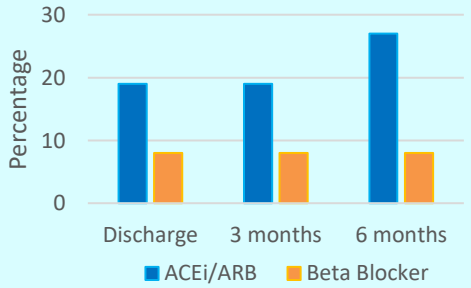

Fig 3. Percentage of patient on maximum BNF doses of ACEi/ARB and BB at discharge and 3 months and 6 months post-discharge. Includes those discharged on maximum doses.

Discussion

- Appeared that patient's followed up by a HF nurse up were more likely to have their treatment optimised compared to those who were not; potentially causing differing hospitalisation and mortality rates
- Below average compared to previous research where on average between 46%-48% of the maximum dose of ACE inhibitor/ARB and between 34%-41% of the maximum dose of beta-blocker were achieved after 3 months (7).

Conclusion

Up-titration of ACEi/ARB and BB in patient's post-MI was below the UK average reported in previous research. The average dose patient's received 6 months post-MI was below optimal doses shown to reduce hospitalisation and mortality rates. None of the patient's met the audit standard – no one received maximum dose ACEi/ARB and BB therapy within 6 and 11 weeks of discharge, respectively. Patient's followed up by HF nurses appeared to receive more intense therapy quicker. A quality improvement project is being established to develop processes to identify patients and support healthcare professionals with up titration.

References

1. British Heart Foundation. UK Circulatory Diseases Factsheet. Br Hear Found. 2021;(March):1–21.
2. Danese MD, Gleeson M, Kutikova L, et al. Estimating the economic burden of cardiovascular events in patients receiving lipid-modifying therapy in the UK. BMJ Open 2016;6:e011805. doi:10.1136/bmjopen-2016-011805
3. Recommendations | Acute coronary syndromes | Guidance | NICE National Institute of Clinical Excellence. 2020
4. Ponikowski P, Voors AA, Anker SD, et al. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. Eur Heart J. 2016;37(27):2129-2200m.
5. Hernandez AF, Hammill BG, O'Connor CM, et al. Clinical Effectiveness of Beta-Blockers in Heart Failure. Findings From the OPTIMIZE-HF (Organized Program to Initiate Lifesaving Treatment in Hospitalized Patients With Heart Failure) Registry. J Am Coll Cardiol [Internet]. 2009;53(2):184–92.
6. Flather MD, Yusuf S, Køber L, et al. Long-term ACE-inhibitor therapy in patients with heart failure or left-ventricular dysfunction: A systematic overview of data from individual patients. Lancet. 2000;355(1925):1575–81.
7. Ouwerkerk W, Voors AA, Anker SD, et al. Determinants and clinical outcome of uptitration of ACE-inhibitors and beta-blockers in patients with heart failure: A prospective European study. Eur Heart J. 2017;38(24):1883–90.