

The evaluation of departmental adherence to the European Society of Cardiology guidelines in the assessment of ventricular function after Myocardial Infarction.

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Introduction: The European Society of Cardiology (ESC) guidelines recommend that all patients with ST elevation myocardial infarction (STEMI) should have an assessment of left ventricular systolic function (LVSF) prior to discharge (Recommendation level 1, Level of evidence B.). When severe LV systolic dysfunction (LVSD) is identified, the ESC recommends echocardiography in 6 to 12 weeks to re-assess LV systolic function [1] (Recommendation class I, Level of evidence B). This would identify patients who may benefit from specialist assessment for advanced therapy and device therapy in particular.

Aim: To evaluate the adherence of the adult cardiology department at Glenfield Hospital to international guidelines in identification and follow up of patients with significant left ventricular systolic dysfunction (LVSD), following ST Elevation Myocardial infarction (STEMI).



We performed a retrospective review of electronic records of all patients who underwent primary percutaneous coronary intervention (PPCI) for ST elevation Myocardial Infarction (STEMI) in the 3 month period between the 1st of February and the 30th of April 2019. Patients treated with PPCI were identified using the British Cardiovascular Intervention Society (BCIS) database. Patients who died prior to discharge were excluded.

In all selected patients, we used electronic records (BCIS database, hospital electronic results reporting systems, discharge letters, hospital and community imaging reporting systems, clinic letters and imaging requests) for data collection.

Significant LVSD was defined as an LV ejection fraction (EF) < 35%, severe LVSD, moderate to severe LVSD, significant LVSD and on rare occasions “at least moderate LVSD” using any imaging modality.

In patients with significant LVSD prior to discharge, we evaluated if a second assessment of LVSF was carried out, the findings of this assessment and the time interval between assessments.

A total of 93 patients underwent PPCI for STEMI between the first of February 2019 and the 30th of April 2019. Patients who died during their hospital stay (n=11) and patients out of area were excluded (n=1) leaving a final number of 81 patients included in the analysis.

The majority of patient (80%, n=65) had pre discharge assessment prior to discharge. Echocardiography was the predominant imaging modality used with 12.5% of scans performed as focused bedside scan without formal reporting. Most of the 16 patients who did not have pre-discharge assessment of LV function, had a post discharge assessment. These scans were performed after an average of 44 days (range 10-97 days) from discharge. Only 2 patients did not have any assessment of the LV function following PPCI and both were offered an assessment but did not attend.

A quarter of patients (n=16) who had LV function assessment prior to discharge had severe LVSD. The majority of patients with severe LVSD had PPCI involving the left main coronary artery LMS or the Left Anterior Descending coronary artery LAD (87.5%).

A quarter of patients (n=4) with severe LVSD prior to discharge did not have documented evidence of repeat assessment of LV function.

Of patients with severe LVSD and repeated assessment of LV function (n=12), improvement of LV function was seen in 58% (n=7). The LAD was the culprit artery on 4 of 5 patients who did not show improvement of LV function on repeat imaging.

Out of 12 patients with severe LVSD who had repeat imaging only 3 (30%) had repeat scans within 12 weeks. Almost all patients had repeat scans within less than 19 weeks and one patient after 45 weeks

The majority of patients (80%) who undergo PPCI for STEMI have an assessment of LV function prior to discharge. However one fifth do not have documented evidence of LV function prior to discharge, a significant deviation from recommended practice. Most patients do have an LV function assessment within 3 months of MI.

A quarter of patients with documented significant LVSD prior to discharge do not have documented evidence of repeat assessment of LV systolic function to guide further management. Additionally only 30 % of these patients have a repeat assessment of LV function within the recommended 12 weeks

RECOMMENDATIONS

The development of a standard protocol for LV assessment prior to discharge following admission with an MI.

Education of clinical teams, junior doctors and nurses in particular, involved in the management of patients following MI regarding the importance and implications of inpatient LV function assessment.

When severe LVSD is identified following MI an investigation pathway on the electronic request and report system can be triggered and followed unless specifically over ruled by the clinician. This pathway is easy to design and this was confirmed in early discussions with relevant personnel.

REFERENCES

(1) Borja, I. and others, 2018. 2017 ESC Guidelines for the Management of Acute Myocardial Infarction in Patients Presenting With ST-segment Elevation: The Task Force for the Management of Acute Myocardial Infarction in Patients Presenting With ST-segment Elevation of the European Society of Cardiology (ESC). *European Heart Journal*, 39, 119–177.