A REVIEW OF THE PRESCRIPTION PRACTICE FOR DUAL ANTI-PLATELET AGENTS IN NSTE-ACS

Anish George
Research Fellow
Scunthorpe General Hospital
Cliff Gardens
DN15 7BH
UK
anishgeorge@nhs.net

Dr Joseph John
Consultant Cardiologist
Scunthorpe General Hospital
Cliff Gardens
DN15 7BH
UK

ABSTRACT

Aim: To review the practice of prescribing dual anti-platelet agents for patients with NSTE-ACS (Non ST Elevation Acute Coronary Syndrome).

Methodology: The audit was done in 2 phases, a retrospective phase and a prospective phase, involving 329 patients.

Findings: The study revealed that 87.4% (277 out of 317) of patients received loading dose of aspirin, while 91.3% (251 out of 275) received Clopidogrel. It also showed that 13% (36 out of 279) of patients who were eligible for dual anti-platelet agents did not receive them. The retrospective part of the audit showed that only 37 out of 53 patients were on dual anti-platelets at end of the recommended 12 months.

Conclusion: The audit shows that greater awareness is needed, with regard to the role of dual anti-platelet therapy for NSTE-ACS, in the acute medical and community medical practice setting.

Keywords: NSTE-ACS, NICE guidelines, audit, aspirin, clopidogrel

INTRODUCTION

Unstable angina and non-ST segment-elevation myocardial infarction (NSTEMI) represent the most common presentations of acute coronary syndrome. They are attributed to unstable coronary plaque disease and are collectively classed as non-ST segment-elevation acute coronary syndrome (NSTE-ACS). Recent studies have shown an increase in the incidence of
NSTE-ACS, considered largely due to life style changes and increasing life expectancy. They constitute an important cause of emotional and psychological stress to the patients, and are associated with premature morbidity and mortality. [1, 2]

Evidence based clinical guidelines enable medical practitioners in the treatment of patients with Non ST-segment elevation acute coronary syndrome (NSTE-ACS), yet adherence and compliance to these guidelines remain sub-optimal. Despite established principles for the management of acute coronary syndromes, it is well recognised that there is considerable variation amongst various hospitals, when it comes to its implementation. The aim of this audit is to review the management of NSTE-ACS at a moderate sized district general hospital, especially with regard to the prescription practices for dual anti-platelet agents and compare it with the National Institute for Health and Clinical Excellence (NICE) guidance CG94 (Unstable angina and NSTEMI: the early management of unstable angina and NSTEMI).

**METHODOLOGY**

The audit study was carried out in 2 phases, a retrospective phase and a prospective phase. The required information was collected by interrogating the hospital coding database which contains the discharge diagnosis of all the patients admitted to the hospital. Patients who were discharged with a diagnosis of acute coronary syndrome (ACS) during the selected study period were considered for the audit.

The audit primarily looked at the adherence to the following the standards, which were essentially obtained from the NICE recommendations with regard to antiplatelet therapy in NSTE-ACS. [3, 4]

**Standard 1.** Loading dose of 300 mg Aspirin is recommended to all patients with NSTE-ACS as soon as possible, which is to be continued indefinitely unless contraindicated. [3]

**Standard 2.** Loading dose of 300 mg of Clopidogrel is recommended, in addition to aspirin, to all patients with moderate- high risk of MI or death (predicted 6 month mortality of greater than 1.5%) [3, 4]

**Standard 3.** It is recommended that the treatment with clopidogrel in combination with low dose aspirin is to be continued for 12 months after the most recent episode of NSTE-ACS. [3, 4]

For the retrospective audit, a six month period from October 2007- March 2008 was selected and the case notes of all the patients discharged in the period with the above mentioned diagnosis were reviewed. The reason for
A REVIEW OF THE PRESCRIPTION PRACTICE FOR DUAL ANTI-PLATELET AGENTS IN NSTE-ACS

adopting this particular time period and study design was so that details regarding compliance and duration of dual antiplatelet therapy (see standard 4 for details) could be ascertained. The latter was accomplished by sending a data collection form to all the relevant practice managers, who would then obtain the required data from their system and send it back to the audit department.

For the prospective audit, all patients discharged during the study period (March- August 2009) with a diagnosis of ACS were identified and their case notes reviewed and all patients with a diagnosis of ST-segment elevation myocardial infarction (STEMI) were excluded, along with patients who were inappropriately diagnosed as ACS.

FINDINGS

A total of 500 patients were coded as being admitted with acute coronary syndrome during the above period, which includes 282 patients in the 2009 prospective audit period and 218 during the retrospective audit period. However 166 patients were excluded at the time of analysis, since during the review of case notes they were found to have either STEMI (79), or were inappropriately diagnosed with ACS (71) or the relevant case notes or prescription charts were not located (21), resulting in a final study group of 329 patients.

While majority of patients in the study were elderly, the number of patients in the younger age groups was worryingly high, as shown in figure 1.

Standard 1. NICE recommends that a loading dose of 300 mg of aspirin for all patients with NSTE-ACS, which is to be given as soon as possible, if not contraindicated.

Out of 329 patients 12 patients had contra-indication to aspirin therapy. 277 (87.4%) of the remaining patients 317 patients received loading dose of aspirin, while 40 did not (figure 2).

Standard 2. NICE recommends the use of 300 mg of clopidogrel in addition to aspirin in patients with moderate-high risk of MI or death unless contraindicated. While the current NICE guideline (CG94) recommends the use of GRACE scoring for risk stratification, we have used the TIMI scoring, ECG changes and/or Troponin level. [5, 6]

It was noted that only 21 out of 334 patients had any form of risk stratification done at the time of admission. Hence we reviewed their notes and calculated their TIMI scores (as shown in figure 3), which along with the ECG changes and Troponin levels, showed that out of 329 patients, 275 were eligible for clopidogrel, however in 5 patients it was contra-indicated. The
audit showed that 7.0% (19 out of 270) of patients did not receive the loading dose of clopidogrel (figure 2). Furthermore 13% (36 out of 275) of patients were not started on dual anti-platelet therapy while in the hospital (Table 1).

*Standard 3.* NICE guidelines recommend the use of clopidogrel in combination with low dose aspirin for a period of 12 months after the most recent episode of NSTE-ACS, after which aspirin is to be continued indefinitely, unless contraindicated. To ascertain the compliance of this we collected information from General practitioners (GP) for all the patients belonging to the retrospective group in our audit.

Out of 144 patients in the retrospective group, 116 were found to be eligible for dual antiplatelet therapy for 12 months. Completed GP information sheets were available for 53 patients, who were then considered for further analysis, and the remaining were excluded. Out of 53 patients, 37 (70%) received clopidogrel for the 12 month period, while 43 patients received aspirin. Out of 37 patients who received dual antiplatelet therapy only 11 had a stop date documented. For the patients who failed to receive clopidogrel for the recommended 12 months period, the average duration was 4 months. There was no clear indication documented as to why they were stopped prematurely.

**DISCUSSION**

The advent and use of dual anti-platelet agents (aspirin and clopidogrel) has revolutionised the management of NSTE-ACS. It has not only improved current management regimes for ACS, but also improved the outcome for other procedures (e.g.: use of drug eluting stents). [7, 8] This study was aimed to look at the management of NSTE-ACS in a district general hospital setting. The study mainly concentrated on the management with dual anti-platelet agents and aimed to look at the adherence to the NICE guidelines (CG94). Some of the major issues that we noted in the study have been discussed below.

NICE guideline recommends that all patients with NSTE-ACS should receive 300 mg of aspirin as a loading dose, however only 277 amongst 317 patients received it. Findings reveal that 32 (9.8%) patients did not have any clear documentation with regard to receiving aspirin. While it may be due to that fact that in majority of cases of the loading dose of aspirin are given by paramedics, and in certain cases, this fact may not have been documented or filed in properly, it does brings our attention to the fact that a small but nevertheless significant group of patients are not receiving the loading dose of aspirin. In the case of clopidogrel therapy, around 93% (251 out of 270) of patients who had moderate- high risk for adverse cardiovascular events received the loading dose of clopidogrel. This probably reflects an increasing
A REVIEW OF THE PRESCRIPTION PRACTICE FOR DUAL ANTI-PLATELET AGENTS IN NSTE-ACS

awareness among junior medical staff regarding the prescription practices associated with clopidogrel and NSTE-ACS. [3]

NICE recommends that all patients with moderate-high risk for adverse cardiovascular events should be started on dual anti-platelet therapy using clopidogrel and low dose aspirin which are to be continued for 1 year, and aspirin to be continued from there-on indefinitely, unless any of the above are contraindicated. This being the case the audit revealed that, 36 (13%) patients failed to receive them. Furthermore no clear reason was documented in these cases for this failure of adherence. [3]

In the retrospective group of audit, where we tried to ascertain the duration of dual anti-platelet therapy, out of 53 patients only 36 (68%) received clopidogrel for a period of 12 months. Similarly only 43 (81%) received aspirin for the same duration. We unfortunately did not receive any information from the GPs regarding the reason for this. In most of the cases this was attributed to lack of proper communication between the hospital medical team and the general practitioners. While reviewing the case records and during discussion with the GPs, it emerged that some of the patients who were discharged on clopidogrel did not have the duration of therapy documented.

CONCLUSION

The above study highlights that a small but reasonable percentage of patients fail to receive recommended management for NSTE-ACS. It appears that, we need to concentrate more on documentation, especially with regard to using risk stratification scores like TIMI or GRACE while considering the management of NSTE-ACS. [7, 8, 9] The study also shows that the communication between medical practitioners and GPs needs to be improved especially with regard to the indications and durations of ACS medications.

It is also worth noting that the audit in itself has many limitations, especially with regard to the 12 month follow up sub-study. The number of patients in the group was relatively small, and hence the results can not be generalised. The audit has also not looked into the prescription practices of other medications used in the management of NSTE-ACS, especially low molecular weight heparin.
FIGURES

Figure 1: age wise distribution of the cohort.

Figure 2: Loading of dose of 300 mg of aspirin and clopidogrel given.
A REVIEW OF THE PRESCRIPTION PRACTICE FOR DUAL ANTI-PLATELET AGENTS IN NSTE-ACS

Figure 3: TIMI score distribution in the audit group

<table>
<thead>
<tr>
<th>Patients eligible for dual anti-platelet therapy (n=279)</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clopidogrel in combination with Aspirin</td>
<td>222</td>
</tr>
<tr>
<td>Aspirin or clopidogrel not given (reason not documented)</td>
<td>36</td>
</tr>
<tr>
<td>Aspirin contraindicated</td>
<td>12</td>
</tr>
<tr>
<td>Clopidogrel contraindicated</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 1: Clopidogrel in combination with low dose aspirin given

REFERENCES


