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Beta Blocker Management Post MI: Navigating Continuation and Interruption Strategies

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Abstract- This study examines the effects of interrupting versus continuing beta-blocker therapy in post-myocardial infarction patients. The ABYSS trial, a multicenter noninferiority study, found that interrupting beta-blocker therapy did not offer any advantages over continuation in reducing major cardiovascular events or improving quality of life. The interruption group experienced a slight increase in hospitalizations for coronary-related conditions. These findings challenge existing guidelines recommending beta-blocker discontinuation after one year for certain patients. The trial highlights the necessity for additional research to clarify the role of beta-blockers in modern post-MI care, especially for patients with preserved left ventricular function.

Index Terms- Beta-blocker; post-myocardial infarction; Quality of life; coronary-related hospitalizations; heart disease outcomes

I. INTRODUCTION

Beta-blocker therapy following post-myocardial infarction (MI) is widely recognized for its role in reducing recurrent MI and mortality and has long been a standard quality measure in clinical practice(4). Administering beta-blocker therapy at discharge has been a key component of clinical performance and quality measures in the management of MI patients (1). However, the evidence supporting beta-blocker use after MI largely originates from a time before the widespread adoption of reperfusion therapies and when adjunctive treatments were more limited(2). Beta-blockers were traditionally believed to limit infarct expansion, prevent sudden cardiac death, and, in the chronic phase after MI, reduce adverse cardiac remodeling and heart failure(5). This underscores the need for further evaluation of beta-blockers in the context of modern treatments, as their role in post-MI management remains less clearly defined(3). Despite the long-standing use of beta-blocker therapy following MI, recent advances in reperfusion therapies and adjunctive treatments have raised questions about the continued benefit of long-term beta-blocker use, especially in patients with preserved left ventricular function(6).

In the recent issue of The New England Journal of Medicine,(6) the ABYSS trial evaluated the safety and quality of life outcomes of interrupting versus continuing beta-blocker therapy in patients with a history of myocardial infarction and a left ventricular ejection fraction of at least 40%. This review examines the trial's findings in the context of current post-MI treatment practices.

In this study, the ABYSS trial, a multicentred noninferiority trial conducted across 49 sites in France, aimed to compare the safety and quality of life outcomes of beta-blocker interruption versus continuation in post-myocardial infarction patients using a randomized PROBE design, and the study was conducted by the ACTION Group.

In this trial, the eligible patient population consisted of individuals with a history of myocardial infarction (MI) that occurred at least 6 months prior, and who had received beta-blocker therapy. Patients were excluded if they had chronic heart failure, a reduced left ventricular ejection fraction (<40%), or any other primary indication for beta-blocker therapy, such as arrhythmias or uncontrolled hypertension.

The patient population was randomly assigned to either continue or discontinue beta-blocker treatment, with randomization in a 1:1 ratio and stratification by center. In instances where beta-blocker therapy was discontinued, dose reduction was allowed at the physician's discretion. Follow-up evaluations were conducted at 6 and 12 months, and then yearly.

In this trial, the primary outcomes evaluated included death, nonfatal myocardial infarction (MI), nonfatal stroke, and cardiovascular-related hospitalizations. Additionally, secondary outcomes were assessed, focusing on improvements in quality of life, which were measured using the EQ-5D questionnaire.

The study employed a noninferiority design with 3,700 patients to compare outcomes between beta-blocker continuation and interruption. Statistical methods, including multiple imputation and Kaplan-Meier survival models, were used to handle missing data and time-to-event analysis. All clinical events were adjudicated independently to ensure accuracy, reinforcing the reliability of the result.

An ABYSS trial found that stopping beta-blocker therapy in post-myocardial infarction patients was not as effective as continuing it. There was no reduction in death, nonfatal myocardial infarction, stroke, or cardiovascular hospitalizations, nor improvement in quality of life. Beta-blocker interruption slightly increased recurrent angina and coronary-related hospitalizations, highlighting potential risks.

Advances in myocardial infarction care have questioned the long-term need for beta-blockers, except in cases like heart failure or arrhythmias. Guidelines had recommended discontinuation after one year for certain patients, but the ABYSS trial did not support this, as it found no quality-of-life improvement and higher hospitalization rates in the interruption group.

The trial faced limitations, such as a lack of blinding, which could have influenced outcomes like quality of life, and its single-country design, which may affect the generalizability of the findings. Similar findings were reported in the REDUCE-AMI trial, which showed no benefit in continuing beta-blockers post-myocardial infarction but observed higher cardiovascular-related hospitalizations with interruption.

In the ABYSS trial, 98% of patients completed baseline and 90% of follow-up EQ-5D questionnaires, showing no significant quality-of-life differences between beta-blocker interruption and continuation.

II. CONCLUSION

This study concluded that discontinuing long-term beta-blocker therapy in post-myocardial infarction patients was not as effective as continuing it in reducing major cardiovascular events.

Additionally, no improvements in quality of life were observed, and there was also a slight increase in hospitalizations for coronary-related conditions in the interruption group. Despite guidelines recommending discontinuation after one year for some patients, the trial did not support this approach. Ongoing research, including the SMART-DECISION trial, provided further insights into the role of beta-blockers for this patient population

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