Beta-blockers and Dobutamine in Heart Failure: a Safe Combination?

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The management of beta-blockers (BB) in acute heart failure (AHF) with low cardiac output requiring inotropic agents for compensation is controversial[1], especially when the agent to be used is dobutamine[2]. The guideline on AHF takes no definitive stand in this scenario, allowing the doctors to judge the maintenance, reduction or suspension of these drugs[1].

A study by Lima et al[3] examined the hospital evolution of 44 patients with AHF divided into groups according to the presence of BB on admission and maintenance during use of dobutamine. They observed a similar evolution between the group with BB suspended *versus* the group where it was maintained concurrently with dobutamine.

This study has important methodological limitations: non-probabilistic sampling, formation of small heterogeneous comparison groups, which compromises its internal validity, and therefore does not allow for statistical inference. From the clinical point of view, relevant information such as the reasons for maintaining or suspending BB were not presented; furthermore, it is a cohort of survivors, and therefore does not take into account the principal outcome of the AHF with low output, the fatality rate.

Is it recommended to maintain BB during cardiac decompensation in patients with signs of low output while using dobutamine? There is still no answer. However, the authors deserve credit for having underscored an important clinical issue.

Keywords

Heart failure; adrenergic beta-antagonists/dobutamine.

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Manuscript received December 20, 2010; revised manuscript received January 11, 2011; accepted January 11, 2011.

References

1. Montera MW, Almeida RA, Tinoco EM, Rocha RM, Moura LZ, Réa-Neto A, et al. / Sociedade Brasileira de Cardiologia. II Diretriz brasileira de insuficiência cardíaca aguda. Arq Bras Cardiol. 2009;93(3 supl.3):1-65
2. Metra M, Nodari S, D'Aloia A, Muneretto C, Robertson AD, Bristow MR, et al. Beta-blocker therapy influences the hemodynamic response to inotropic agents in patients with heart failure: a randomized comparison of dobutamine and enoximone before and after chronic treatment with metoprolol or carvedilol. J Am Coll Cardiol. 2002;40(7):1248-58.
3. Lima MV, Cardoso JN, Ochiai ME, Grativvol KM, Grativvol PS, Brancalhão EC, et al. É necessário suspender o betabloqueador na insuficiência cardíaca descompensada com baixo débito? Arq Bras Cardiol. 2010;95(4):530-5.

Reply

The finding that beta-blockers can be used concomitantly with dobutamine is of great interest and has been studied by several authors in recent years[1-5]. This paper objectively presents a prospective study of 44 patients hospitalized for heart failure decompensation who required the use of inotropic agents. So far, there have been no reports of a randomized study comparing the retention or suspension of beta-blocker when dobutamine is used in decompensation; however, there is evidence that maintenance of beta-blockers reduce mortality of these patients[1-4].

Non-probability sampling can be used if the simple random sampling did not include sufficient numbers of patients from the subgroup in which there is a particular interest[6]. The heterogeneous sample is inherent in a cohort of patients, because the formation of groups is not randomized. However, cohort studies are used to evaluate clinical problems.

Although it is not a randomized study, some aspects deserve attention: all groups had the same length of hospital stay, arguing that the maintenance of beta-blocker does not interfere with the time of use of dobutamine or the need for higher doses; the group that had the beta-blocker maintained was discharged with higher doses of medication (35.79 ± 17.25 mg/day), as recommended in studies in which beta-blockers reduced mortality and rehospitalization. Not discontinuing the beta-blocker optimizes treatment at discharge.

The *Hospital Auxiliar de Cotoxó* (HAC), where the study was undertaken, receives decompensated cardiopathy patients from the emergency unit of InCor - HCFMUSP. Upon admission, the attending physician decided whether or not to suspend the beta-blockers considering the use of dobutamine and thus sent them to clinical compensation with the conduct already established. The patients were screened, and those who met the inclusion criteria were organized into groups. Therefore, researchers did decide which patients would or would not have the beta-blocker suspended.

Mortality was not defined as an outcome in this article, mainly because of the number of patients studied. During follow-up, we found 1 death with no statistical difference between groups; therefore, it is not a population of survivors.

References

1. Lima MV, Cardoso JN, Ochiai ME, Grativol OS, Brancalhão EC, Munhoz RT, et al. É necessário suspender o betabloqueador na insuficiência cardíaca descompensada com baixo débito? Arq Bras Cardiol. 2010; [online]. ahead print, PP.0-0.
2. Metra M, Torp-Pedersen C, Cleland JGF, Di Lenarda A, Kornajota M, Remme WJ, et al. Should beta-blocker therapy be reduced or withdrawn after an episode of decompensated heart failure? Results from COMET. Eur J Heart Fail. 2007;9(9):901-9.
3. Orso F, Baldasseroni S, Fabbri G, Gonzini L, Lucci D, D'Ambrosi C, et al. Role of beta-blockers in patients admitted for worsening heart failure in a real world setting: data from the Italian Survey on Acute Heart Failure. Eur J Heart Fail. 2009;11(1):77-84.
4. Fonarow GC, Abraham WT, Albert NM, Stough WG, Gheorghiode M, Greenberg BH, et al. Influence of beta-blocker continuation or withdrawal on outcomes in patients hospitalized with heart failure: findings from the OPTIMIZE-HF program. J Am Coll Cardiol. 2008;52(3):190-9.
5. Jondeau G, Neuder Y, Eicher JC, Jourdain P, Fauveau E, Galinier M, et al. B-CONVINCED: beta-blocker continuation vs. interruption in patients with congestive heart failure hospitalized for a decompensation episode. Eur Heart J. 2009;30(18):2186-92.
6. Fletcher RH, Fletcher SW. Epidemiologia clínica: elementos essenciais. 3ª ed. Porto Alegre: Artes Médicas; 1996.