

PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Metoprolol vs carvedilol in heart failure

ArticleInfo		
ArticleID	:	49
ArticleDOI	:	10.1186/cvm-2001-72005
ArticleCitationID	:	72005
ArticleSequenceNumber	:	28
ArticleCategory	:	Paper Report
ArticleFirstPage	:	1
ArticleLastPage	:	3
ArticleHistory	:	RegistrationDate : 2001-10-17 Received : 2000-10-4 OnlineDate : 2001-10-17
ArticleCopyright	:	Biomed Central Ltd2001
ArticleGrants	:	

Michael Norton,^{Aff1}

Corresponding Affiliation: [Aff1](#)

Aff1 [Freeman Hospital](#), [Newcastle Upon Tyne](#), [UK](#)

Keywords

[?-blockers](#), [heart failure](#), [medical therapy](#)

Context

This paper describes a randomised, double blind controlled trial comparing the haemodynamic and clinical effects of metoprolol and carvedilol in 150 patients with chronic heart failure.

This research was undertaken because there is very little evidence from data comparing β -blockers in heart failure, although trials have shown that β -blockers produce consistent benefits in patients with chronic heart failure. Metoprolol and bisoprolol selectively inhibit β_1 receptors but increase the density of β -receptors and tend to raise cardiac norepinephrine during long-term administration. Carvedilol blocks α_1 , β_1 and β_2 receptors, decreases cardiac norepinephrine, suppresses β -receptor density and appears to have additional anti oxidant and anti proliferative effects.

Significant findings

All patients had New York Heart Association class II, III or IV symptoms for at least 6 months and an ejection fraction of 35% or less by radionuclide ventriculography. Carvedilol also produced greater decreases in mean pulmonary artery and pulmonary wedge pressures (both at rest and during exercise). Metoprolol produced greater increases in maximal exercise capacity. The two drugs produced similar increases in symptoms, submaximal exercise tolerance and quality of life. During the 23 \pm 11 month study period, 21 patients in the metoprolol group and 17 patients in the carvedilol underwent urgent transplantation.

Comments

I found this article interesting because it attempted to address a question that is being asked by a significant percentage of clinicians trying to remain up to date in the ever-evolving field of heart failure; which β -blocker to use?

Possible implications of these findings are that carvedilol improves cardiac performance to a greater extent than metoprolol. It is possible that this is due to the greater antiadrenergic effect of carvedilol. It must also be remembered that this study did not show a difference in quality of life measurements. The COMET trial is currently underway and will evaluate whether either of these drugs can confer a greater survival advantage.

Methods

A randomised double blind controlled trial

Additional information

References

1. Metra M, Giubbini R, Nodari S, Boldi E, Modena MG, Dei Cas LD: Differential effects of β -blockers in patients with heart failure: A prospective, randomized, double-blind comparison of the long-term effects of metoprolol versus carvedilol. *Circulation* 2000, 102:546-551. *Circulation*. 2000, 102: 546-551.