

Dear Dave

Dave and other members of the bpac^{nz} team answer your clinical questions

Is it safe to use beta-blockers for cardiac disease in people with COPD?

Cardioselective beta-blockers such as metoprolol and atenolol are usually safe and effective in patients with well controlled COPD with or without a reversible obstructive component.

Carvedilol (a combined non-selective beta-blocker and alpha-blocker) also appears to be safe to use in COPD patients without reversible airways obstruction.

CHF and COPD often co-exist...

Cardiac disease and COPD frequently co-exist, for example the prevalence of known CHF in COPD patients ranges from 23 – 33 % (Sirak, 2004). Optimal treatment of both conditions is necessary to improve functional capacity. Beta-blockers have an important place in the treatment of ischaemic heart disease, hypertension and heart failure. In CHF they are the only intervention that both reverses cardiac dilation and enhances cardiac contractility. Beta-blockers have also been shown to reduce mortality after acute myocardial infarction in sub-populations of people with COPD.

Beta-blockers are often underused in COPD...

Although there is clear evidence of the effectiveness of beta-blockers there is a general reluctance to use them in patients with COPD as they are often considered to be contraindicated due to the risk of inducing bronchospasm. A recent study from the UK found that only 15% of COPD patients admitted with acute coronary syndromes were discharged on a beta-blocker, and COPD was frequently documented as the reason the drug was withheld (Egred, 2005). Reports of bronchospasm are largely anecdotal or based on case studies that have involved non-cardioselective beta-blockers such as propranolol.

Metoprolol and atenolol appear safe in patients with stable COPD...

In contrast to non-cardioselective agents such as propranolol, cardioselective beta-blockers do not significantly affect lung function or antagonise bronchodilator beta-2 agonist (e.g. salbutamol) response in patients with COPD. In a recent Cochrane systematic review update (Salpeter, 2005), cardioselective beta-blockers, given as a single dose or for longer, produced no change in FEV1 or respiratory symptoms compared to placebo and did not affect the treatment response to beta-2 agonists. Similar results were obtained from a sub-group analysis of patients with a reversible obstructive component. One limitation of this analysis is that studies were generally of short duration indicating the need to monitor symptoms and response during long-term treatment.

Carvedilol also appears safe in COPD patients without reversible airways obstruction...

Carvedilol is a combined non-selective beta-blocker and alpha-adrenergic blocker. In one study of patients with concomitant CHF and COPD, 76 of 89 patients tolerated carvedilol well for at least three months (Krum, 2000). Unfortunately the authors did not report why the 13 patients did not tolerate the drug or whether they had some reversible airways obstruction. In a long-term study of 31 COPD patients without reversible airflow obstruction (mean duration 2.4 years) only one patient did not tolerate carvedilol due to exacerbation of pulmonary disease (Kotlyar, 2002).

No safety data in COPD exacerbation...

There are no data on the safety of selective beta-blockers or carvedilol in COPD exacerbation. These drugs should be avoided or stopped during COPD exacerbation until more safety data becomes available (Sirak, 2004).

Who is Dave?

Pharmaceutical Programme Manager Dave Woods is a graduate of Manchester University (B.Sc. [Hons]) and the University of Otago (MPharm). Dave has extensive experience in hospital pharmacy, drug information, rational use of drugs and quality assurance. He has published on a range of subjects and holds editorial positions for several international journals.

If you have a clinical question email it to dave@bpac.org.nz

References

- Egred M, Shaw S, Mohammed B et al. Under-use of beta-blockers in patients with ischaemic heart disease and concomitant chronic obstructive pulmonary disease. *QJM* 2005;98(7):493-497.
- Kotlyar T, Keogh A, Macdonald P et al. Tolerability of carvedilol in patients with heart failure and concomitant chronic obstructive pulmonary disease or asthma. *J Heart Lung Transplant* 2002;21:1290-5.
- Krum H, Ninio D, MacDonald P. Baseline predictors of tolerability to carvedilol in patients with chronic heart failure. *Heart* 2000;84:615-9.
- Salpeter S, Ormiston T, Salpeter E. Cardioselective beta-blockers for chronic obstructive pulmonary disease. *Cochrane Database Syst Rev* 2005;(4):CD003566.
- Sirak T, Jelic S, Le Jemtel T. Therapeutic Update: Non-selective beta- and alpha adrenergic blockade in patients with coexistent chronic obstructive pulmonary disease and chronic heart failure. *J Am Coll Cardiol* 2004;44:497-502.

At Otago you can do postgraduate study in Dunedin, Christchurch and Wellington

Health professionals will find a wide range of papers and postgraduate qualifications through the University's three Schools of Medicine and Health Sciences. There are options for distance learning at your place as well as on-campus.

FIND OUT MORE

Tel 0800 80 80 98

www.otago.ac.nz/healthsciences/postgrad

Otago

