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Beta agonists and asthma

A recent letter[1] in the *NZMJ* advocated prescribing long-acting beta agonists (LABA) with care. The letter cited the recent meta-analysis of LABA which concluded that LABA were shown to increase severe and life-threatening asthma exacerbations as well as asthma-related deaths.[2] A previous meta-analysis of beta agonists concluded that regular beta agonist use for at least 1 week resulted in tolerance to their effects and poorer disease control compared to placebo. Regular use of beta agonist increased airway inflammation and increased asthma exacerbations.[3] The meta-analysis commented on the development of receptor desensitisation and down-regulation along with rebound bronchoconstriction after sudden withdrawal of beta agonists.[3] It was concluded that "to date no randomised trials (of beta agonists in asthma) have demonstrated a reduction in disease progression or in mortality."[3]

If short- and long-acting beta-agonists are associated with adverse outcomes such as increased airway inflammation; increased severe exacerbations of asthma, and increased deaths whilst lacking a convincing evidence base for use in chronic asthma, then perhaps we, as a profession, need to consider the apparent overuse of these therapies, and the related issue of continuing to ignore other promising approaches.

Are some of the latter overlooked because they are non-medication based? The Medical Council of New Zealand's position statement regarding relationships between doctors and health-related commercial organisations acknowledges research showing that medical practitioners are influenced and biased by pharmaceutical company interactions.[4]

The meta-analysis referred to above observed that if a study were funded or sponsored by a pharmaceutical company it was more likely to conclude that beta-agonists were helpful (73%) whereas only 10% of studies not declaring such support concluded that beta agonists were helpful.[3]

It is our view that management of asthma is potentially improved by considering other perspectives on the problem. While "inflammation of the airways" has preoccupied mainstream understanding, perhaps it is not the whole answer. Konstantin Buteyko observed that patients with asthma hyperventilated and hypothesised that the dysfunctional breathing caused the asthma, rather than the conventional view of the asthma causing hyperventilation. Buteyko then went on to develop what was later called the Buteyko Breathing Technique (BBT) claiming a positive therapeutic effect.[5]

The few published trials of BBT in adults with asthma have all found mean/median reductions in the order of 85% to 100% for beta agonist use and mean/median reductions of 40% to 50% for inhaled corticosteroid use whilst also decreasing symptoms and maintaining lung function.[6–8] In children with asthma, a small case series had mean reductions of 66% for beta agonists and 41% for inhaled corticosteroids.[9] BBT advice regarding medication use is consistent with the advice of the New Zealand Guidelines Group: to use beta agonists only when necessary with early use of inhaled (and/or oral) corticosteroids.[10]

While the mechanism of effect of BBT may not be accepted, or even thoroughly understood, it offers levels of impact that, if produced by a drug, would be adopted widely. Clearly, more research is urgently required before BBT or other breathing retraining approaches are incorporated, if appropriate, into the mainstream of asthma management to help reduce the mortality and morbidity resulting from beta agonist use.

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