

Atenolol - Newer Perspectives

Aspi R Billimoria

In the last few decades the efficacy and safety of beta blockers in the treatment of hypertension, coronary artery disease and arrhythmias has been well established. Alquist, in 1948, formulated the concept of alpha and beta receptors based on the response to various agents on various organs. This led to the development of various drugs that would work on both alpha and beta receptors.

The first beta blocker to be used was pronethalol. However, because of various side effects its use was discontinued. Propranolol was the first beta blocker to be used safely on a long-term basis. However, its half-life was short and it had to be used in multiple doses. Further research led to the development of various longer acting beta blockers and specific beta 1 blockers.

Atenolol is one such newer and frequently used beta blocker. It is water soluble and does not cross the blood-brain barrier.

Hypertension remains one of the major risk factors for Cardiovascular /Cerebrovascular disease. With the current rate of increase in the incidence of hypertension, India will have the largest number of people with hypertension in the world, with the potential of becoming the 'Hypertension capital of world'. Data suggest that the prevalence of hypertension in the youngest age group (30-39 yr) was 13.7 per cent and increased to a peak of 64 per cent in the age group 60-69 yr, while prevalence of pre-hypertension was highest in the group 30-39 yr (36%).

Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths. This fact is important because hypertension is a controllable disease and a 2 mm Hg population-wide decrease in BP can prevent 151,000 stroke and 153,000 coronary heart disease deaths. In India about 70% of coronary heart disease-related deaths occur in people younger than 70 years compared with 22% in the West and 94% stroke deaths occurs in people less than 70 years of age in contrast to 6% in developed countries

Over the last three decades recommendations from JNC / European guidelines have evolved from stepped-care approaches to individual strategies. The most recent guidelines of the European Society of Hypertension/European Society of Cardiology (ESH/ESC) have decisively moved away from the stepped-care approach. Instead, they recommend that evidence-based antihypertensive treatment should be adapted to a patient's clinical characteristics. The most recent 2007 ESH/ESC guidelines maintain beta-blockers among the drug classes that

can be used to initiate and maintain antihypertensive treatment, together with diuretics, ACE-inhibitors, calcium antagonists, and angiotensin receptor antagonists. Beta blockers are among one of the safest and most effective antihypertensive drugs available. The discovery was described by the Nobel committee as the "greatest breakthrough in pharmaceuticals against heart illness since the discovery of digitalis 2000 years ago".

Atenolol, a cardioselective beta blocker was first introduced in 1976 and has been approved by the US FDA from August 1981 as a therapeutic agent for both hypertension and coronary heart disease. Atenolol is one of the most commonly prescribed beta blockers all over the world with more than 40 million prescriptions per year in the US alone.

With newer classes of antihypertensives being introduced and existing paradigms in treatment recommendations, it becomes imperative to re-evaluate the role, position and clinical consequences of betablockers particularly atenolol offers in this day and time.

This special issue is an attempt to virtually dissect the manifold characteristics and clinical applications of Atenolol in Hypertension / co-morbidities, arrhythmias, ischemic heart disease and even non-cardiac role it plays. With this objective in mind, the authors have evaluated the role of this cardio selective beta blockers vis a vis newer treatments options, evolving recommendations in the treatment of essential hypertension, IHD, arrhythmias, non-cardiac indications etc. An objective evaluation of beta blockers and its place in therapy and in the future alongside the fast track development in newer treatment options as well as newer insights into the disease process is an integral part of the review.

We sincerely hope that this effort of the authors will help you put this very important drug in perspective, more so in a resource limited setting like ours.

Recommended Reading

1. Lancet, 2005; 365,217-223
2. Current Science Vol 97, No-3,10 Aug 2009
3. ESC Guidelines Desk Reference 2007; Chapter 1 page 24
4. Clin. Cardiol. 2008, 31; 6:249-252
5. J.Am.Coll .Cardic-1, 2007; 50:563-572

Former Head, Dept. of Cardiology, St. George's Hospital and Grant Medical College, Mumbai; Cardiologist, Conwest Jain Clinic Group of Hospitals, Mumbai