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PREVALENCE OF CARDIOVASCULAR CO-MORBIDITIES IN PATIENTS TREATED WITH ANTIMUSCARINICS FOR OVERACTIVE BLADDER (OAB)

Hypothesis / aims of study

Antimuscarinics are the main drugs used to treat patients with the overactive bladder (OAB) syndrome. They have proven efficacy, and they are generally considered to be safe and tolerable drugs. However, the introduction of new antimuscarinics has brought to mind the negative experiences with terodiline which were due to serious cardiac side effects, and interest has therefore been refocused on potential cardiovascular problems. In general, prolongation of the QT interval with the risk of polymorphic ventricular tachycardia (torsade de pointes) is the most frequent reasons for the withdrawal of drugs from the market or precautionary warning in the labeling (1). These adverse effects do not seem to be linked to antimuscarinic action, but to be caused by inhibition of the hERG potassium channel in the heart (2). However, classical antimuscarinics have the ability to increase heart rate, and many epidemiological studies have suggested an association between an increased resting heart rate and morbidity and mortality in patients with cardiovascular diseases (3). Since both OAB and cardiovascular diseases increase with age and many OAB patients will have simultaneous cardiovascular disorders, the aim of the present study was to identify the presence of cardiovascular co-morbidities in a large population of OAB patients.

Study design, materials and methods

The study was a retrospective administrative claims analysis from a large managed care organization. In the United Healthcare data base, 78,291 OAB patients were identified from at least one prescription fill for an antimuscarinic (tolterodine or oxybutynin). Patients were ≥ 18 years of age, and initiated antimuscarinic OAB treatment between January 1, 2000 and September 30, 2005. Pre-existing cardiovascular conditions were identified from medical claims only that were related to QT prolongation (ventricular arrhythmias, other conduction disorders), and other cardiovascular conditions (hypertension, ischemic heart diseases, heart failure, cerebrovascular disease).

Results

In the data base, 78,291 OAB patients, treated with antimuscarinics, were identified. They were on average 57 years old. The total prevalence of cardiovascular diseases was 47%. As can be seen from Table 1, over 1/3 of the 78,291 patients had hypertension.

Table 1. Cardiovascular co-morbidities from United Healthcare database (N=78,291)*

Diagnosis (ICD-9)	% of patients
Hypertension	36.2%
Acute Coronary Syndrome	1.5%
Myocardial infarction	1.0%
Other Ischemic Heart Disease	9.7%
Ventricular arrhythmias	9.9%
Other conduction disorders	3.2%
Cerebrovascular disease	6.4%
Congestive heart failure	4.3%

* United Healthcare Insurance claims (mean age: 57 years) from 1/1/2000 through 9/30/2005.

Interpretation of results

A high proportion of OAB patients treated with antimuscarinics had cardiovascular diseases. These patients may be at high risk for future cardiovascular adverse events. Non-subtype receptor selective antimuscarinics can depress the cardiac parasympathetic tone, which leads to a diminished protective effect on the heart and finally increased resting heart rate. Many epidemiological studies have suggested an association between an increased resting heart rate and morbidity and mortality in patients with cardiovascular diseases. It has not been established whether the presently utilized antimuscarinics, can produce changes that may impose a risk for the patients with coexisting cardiac disease.

Concluding message

In view of the high prevalence of cardiovascular disease amongst OAB patients, the potential for increased risk of future cardiovascular adverse events, and the frequent use of antimuscarinic agents in these patients, further study is urgently needed.

References

1. N Engl J Med (2004) Mar 4; 350 (10);1013-22.
2. Nature (2006) Mar 23; 440 (7083); 463-9.
3. Adv Cardiol (2006) 43;1-16

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HUMAN SUBJECTS: This study did not need ethical approval because This is a retrospective study using data from a database of healthcare administrative claims and did not follow the Declaration of Helsinki - with approval by the ethics committee - in the sense that The is a retrospective study using data from a database of healthcare administrative claims Informed consent was not obtained from the patients.