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HEART RATES IN OAB PATIENTS PRIOR TO INITIATION OF TREATMENT WITH ANTIMUSCARINICS

Hypothesis / aims of study

There are several long-term follow-up studies suggesting that an elevated heart rate increases all-cause mortality, cardiovascular disease, and sudden death in patients with hypertension, known or suspected coronary heart disease, and survivors of myocardial infarction (1; 2). An independent relationship between increased heart rates and mortality has been demonstrated, and there seem to be no gender or racial differences. Since both OAB and cardiovascular disease increase with age, many OAB patients will have simultaneous cardiovascular disorders. The association between heart rate and cardiovascular mortality may be important when treating OAB patients with antimuscarinics, because antimuscarinics have the potential to increase heart rate depending on their muscarinic receptor profile. In the present study, the distribution of heart rates just before the initiation of treatment with antimuscarinics was explored, utilizing a large data base.

Study design, materials and methods

Data was obtained from the GE healthcare database which contains data that has electronic medical records as its source. We identified all patients with OAB that were treated with oxybutynin (any formulation) or tolterodine (any formulation) from January 1995 through November 2006. We then evaluated the recorded heart rate from the electronic medical record database on the day the drug was prescribed. The percent of patients with a certain heart rate were categorized according to the evaluated levels from a previous study evaluating the impact of multiple factors on the prevention of heart disease (3) (<60, 60-69, 70-79, 80-89, 90-99 and ≥100 beats per minute; bpm).

Results

We identified 16,833 treated OAB patients with a heart rate recorded on the same day their OAB medication was prescribed. 87.0% were male and 56.9% were ≥ 65 years. The mean heart rate was 76 bpm. As can be seen in Figure 1, 38.8% of patients had heart rates exceeding 80 bpm on the day OAB therapy was prescribed. Females were more likely than males to have a heart rate ≥80 bpm (39.6%vs. 32.9%, respectively; p<0.001). Those <65 years of age were more likely than those ≥65 years to have a heart rate ≥80 bpm (43.9% vs. 34.8%, respectively; p<0.001).

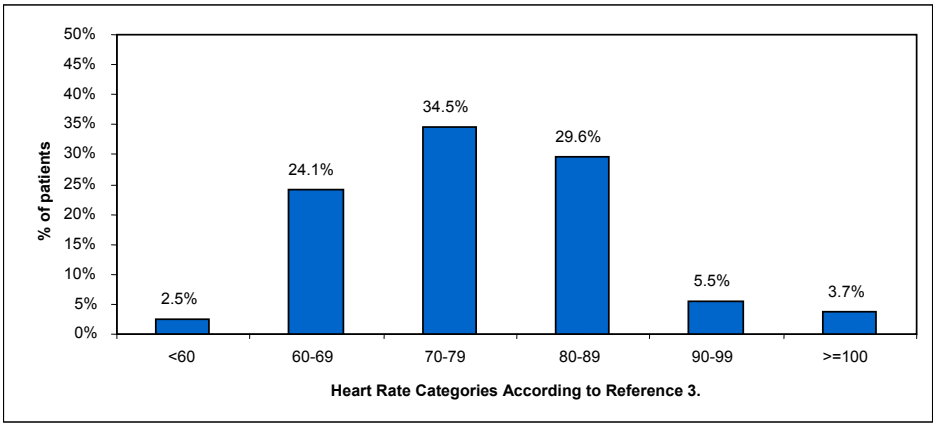

Figure 1

	<60	60-69	70-79	80-89	90-99	≥100	≥80
Users of OAB medication	2.5	24.0	34.7	29.6	5.5	3.7	38.8
Males	4.0	31.3	31.8	24.5	4.7	3.7	32.9
Females	2.3	23.0	35.1	30.3	5.6	3.7	39.6
<65 years	1.6	20.2	34.3	32.8	6.3	4.8	43.9
≥65 years	3.2	26.9	35.0	27.1	4.8	2.9	34.8

Table 1. Distribution (%) of heart rate (bpm) on day OAB medication prescribed

Interpretation of results

Data from several studies demonstrate that the risk of cardiovascular disease, sudden death in patients with cardiovascular disorders and all cause mortality increases as resting heart rate rises or when pulse rate exceeds 84 bpm. This has been shown in both black and white men and women (1).

The unfavourable prognostic effect of increased heart rate may reflect a harmful autonomic imbalance, which is characterized by sympathetic predominance and vagal depression. However, an increased heart rate may directly affect cardiovascular function, by inducing an increase in cardiac work and myocardial oxygen consumption in addition to a reduction of the diastolic time and therefore insufficient myocardial blood supply. These conditions favor the development of myocardial ischemia, besides facilitating arrhythmias in myocardial ischemic areas (2).

Concluding message

In the present OAB patient population, 35% had heart rates ≥80 bpm prior to initiating OAB drug treatment. Antimuscarinics are the first line treatment of OAB and some have a potential to increase heart rate depending of their muscarinic receptor profile. The present results suggest that baseline heart rate should be considered when prescribing antimuscarinics to OAB patients.

References

(1) Clin Ther (1997) 19 Suppl A; 39-52
(2) Adv Cardiol (2006) 43;1-16
(3) Eur Heart J (1986) 7; 279-88

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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 This is a retrospective study using data from a database of healthcare administrative claims Informed consent was not obtained from the patients.