

Weight loss and QT interval changes

Kilo kaybı ve QT interval değişiklikleri

Several studies have reported that obesity is a significant and independent risk factor for cardiovascular diseases. It is also associated with a wide variety of electrocardiographic abnormalities, including leftward shifts of the P wave QRS and T wave axes, various changes in P wave morphology, low QRS voltage, various markers of left ventricular hypertrophy, T wave flattening in the inferior and lateral leads, lengthening of the corrected QT (QTc) interval and prolonged QT interval duration (1). Alterations in the signal-averaged electrocardiogram (ECG) and in heart rate variability may be arrhythmogenic, and many of these ECG abnormalities are reversible with substantial weight loss (1).

QT dispersion is increased in patients with heart disease compared to healthy subjects, and prospective studies have suggested that QT dispersion has prognostic value. However, there is a great degree of overlap between healthy subjects and cardiac patients, as well as between patients with and without adverse outcome. Many investigators studied QT interval in obese patients. For instance, Bilora and coworkers reported that obese patients presented a shorter PQ, a prevalence of left cardiac axis, a higher heart rate, a longer QT, but not QTc compared with normal males; however there was no correlation between QTc and obesity (2).

In a study, newly published in this issue of the *Anatolian Journal of Cardiology* (3), the authors investigated the changes in QTc and QTc dispersion in obese subjects after weight loss program with diet and medical treatment. They concluded that, substantial weight loss in obese subjects was accompanied with significant decreased level of QTc dispersion, and the degree of QTc dispersion reduction was associated with amount of weight loss.

Although the results presented are impressive, we have to pay more attention to a few remarkable points. For instance, we don't know how many patients had hypertension and left ventricular hypertrophy. It is important since, QT dispersion is increased in patients with hypertension and left ventricular hypertrophy of other causes (4-10). It is also known that correction of hypertension with regression of left ventricular hypertrophy is associated with improvement in QT dispersion (6-10). However, there is no evidence that increased QT dispersion was an independent predictive value for sudden cardiac death and cardiac mortality in these patients (11).

Orlistat may be a helpful component of treatment for overweight patients, along with diet, exercise, and behavior modification. It belongs to a class of anti-obesity agents, the lipase inhibitors, developed for long-term management of obesity and its associated co-morbidities, and it is currently the only drug

approved in the United States that alters fat digestion. It does so by inhibiting pancreatic lipases. Its major side effects are intestinal borborygmi and cramps, flatus, fecal incontinence, oily spotting, and flatus with discharge. Although we do not know enough its cardiovascular and pro-arrhythmic effects yet, in order to investigate the relationship between weight loss and QTc dispersion in obese subjects, it would be better to exclude the patients receiving orlistat.

The authors observed that, QTc dispersion (from 66 ± 18 ms to 52 ± 25 ms, $p=0.024$) significantly decreased after weight loss program. However, despite intensive research, QT dispersion has not yet evolved into a useful clinical tool because of measurement error and because it does not directly reflect, in a quantifiable way, the dispersion of the ventricular recovery times. Only significantly abnormal values of QT dispersion, i.e., >100 ms, that are clearly outside the possible measurement error, can be recommended for use as markers of generally abnormal repolarization (12).

As the authors concluded, the results of their study suggested that substantial weight loss may contribute to improvement of the hemodynamic and electrocardiographic abnormalities in obese subjects. However, we have to consider the other factors potentially may affect the results in those patients.

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