

AN UNUSUAL ECG PATTERN IN TWO HEALTHY IDENTICAL TWINS

Sir:

There are only very few studies correlating the ECG patterns of twins for genetic purposes (Wisn et al. 1939, Mathers et al. 1961, Takkunen 1964). Although some of them conclude for a greater concordance in MZ vs. DZ twins, the most recent quantitative approaches have given different results (Mathers et al. 1961, Takkunen 1964, Feinleib et al. 1970).

I should therefore like to report on two 23 year-old MZ twins I recently had the opportunity to observe.

The first twin presented an abnormal ECG: low take-off of ST in V_4 - V_6 with a diphasic low T and high R wave in V_4 - V_6 , and a deep S in V_2 . All other clinical and laboratory findings, including chromosome analysis, were completely normal. After a beta-blocking drug was administered (Propranolol test: 60 mg \times 3 days), the ECG too became normal. (Since then, however, I have modified the beta-blocking test using Propranolol or Oxprenolol, 40 mg in a single dose, 2 hours before recording the ECG.)

The same findings were observed on the MZ cotwin.

This pattern of ECG being rather rare in young healthy men, our observation seems to indicate a genetic origin of the abnormality.

It may be worthwhile to recall the findings obtained by Wasserburger (1961) on colored young patients, consisting of ECGs with negative T waves from V_2 to V_6 , with an otherwise normal heart. And the same finding was obtained on young sportsmen taking part to the 1960 Olympic

Games (Masini 1962), clearing out that it was not an expression of coronary insufficiency.

We think that the ECG pattern is conditioned by the alpha- and beta-receptors sensitivity, which should be related to a dominant gene. In our case, a hereditary hypersensitivity of the beta-receptors of the myocardium would have produced the above described unusual ECG pattern, as a result of the beta-stimulation.

References:

- Feinleib M., Havlik R.J., Kwiterovich P.O., Tillotson J., Garrison R.J. 1970. The national heart institute twin study. *Acta Genet. Med. Gemellol.* (Roma), 19: 243.
- Masini V. 1962. Sulla lettura dell'elettrocardiogramma. *Il policlinico* (sez. Prat.), 59: 1393.
- Mathers J.A.L., Osborne R.H., DeGeorge F.V. 1961. Studies of blood pressure, heart rate, and the electrocardiogram in adult twins. *Am. Heart J.*, 62: 634.
- Takkunen J. 1964. Anthropometric, electrocardiographic, and blood pressure studies on adult male twins. *Ann. Acad. Sci. Fenn. (Med.)*, 107: 1.
- Wasserburger R.H. 1961. In C. Dal Palú: *Errori e Limiti della Diagnostica ECG* (p. 41). Firenze: Ed. Mediche Italiane.
- Wisn B., Comeau W.J., White P.D. 1939. An electrocardiographic study of twins. *Am. Heart J.*, 17: 701.

PIER ANDREA MACCARINI
*Cardio-Rheumatological Center
S. Maria Nuova County Hospital
Reggio Emilia, Italy*