

slowed conduction and electrical uncoupling in electrical tissue, facilitating AF.¹⁰

Restoration of sinus rhythm and continuation with antiarrhythmic drugs allows us to fight electrical remodeling. In patients with structurally changed atria we need inhibition of angiotensin converting enzyme and angiotensin I receptors (as angiotensin II has a central role in the development of atrial fibrosis) as well as statins and antioxidants. Other substances, including antagonists of the TGF- β 1 pathway and corticosteroids, are under evaluation.¹⁰ Pulmonary vein antrum isolation, by eliminating focal triggers, may reverse electrical remodeling but cannot be expected to stop or reverse structural remodeling.

Two groups of patients described by Garcia,¹ without and with NTDV1 after cardioversion, most probably had electrical and structural remodeling of left atria, respectively. Modification of NTDV1 with pulmonary vein antrum isolation may be the result of cutting off depolarization of only the most posterior left atrial area.⁴ In these settings the standard 12-lead ECG tracing with additional evaluation of NTDV1 could appear to be the easiest everyday clinical tool for primary evaluation and further follow-up of patients with AF.

CONFLICTS OF INTEREST

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P-Wave Terminal Force and Atrial Fibrillation: A Lesson Learned From Old Masters. Response

Fuerza terminal de la onda P y fibrilación auricular: una enseñanza de los viejos maestros. Respuesta

To the Editor,

It was with great interest that we read the comments by Wojcik et al. on our recent publication.

It is true that in 1964, Morris et al.¹ were the first to discover the presence of P terminal force in lead V1 in patients who had left-sided valvular disease. At a later date, Robitaille et al.² demonstrated the presence of greater terminal P negativity in lead V1 in a group of patients with a history of atrial fibrillation (AF) and no structural heart disease. Recently, Ogawa et al.³ followed by Janin et al.⁴ showed that terminal negative deflection of the P-wave in lead V1 (NTDV1) often disappears after isolation of pulmonary veins in ablation procedures.

Our objective was not to analyze the mechanisms involved in cases of NTDV1 appearing after cardioversion for AF. Beyond any doubt, they are the result of changes in the electrical activation pattern of the left atrium. In any case, none of these studies refer to

prognostic implications of NTDV1, as Janin et al.⁴ have stated. In this context, our group demonstrated that NTDV1 (very likely to be a manifestation of a more advanced form of left atrial disease) is an independent marker of AF recurrence.⁵

We completely agree with Wojcik et al. that it is necessary to revisit lessons taught by the "Old Masters" so they will not be forgotten. If additional original contributions continue to be made, so much the better. After all, that is the purpose of scientific research: to rely on the support of existing knowledge and to contribute new findings, even modest ones like our own.

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Assessment of Renal Involvement by Cystatin C: A Forgotten Biomarker

Valoración de la afección renal mediante la cistatina C: un biomarcador olvidado

To the Editor,

We read with great interest the excellent article by Górriz Teruel et al.¹ on renal assessment in patients with cardiovascular disease. This extensive and excellent update did not mention cystatin C (CC), a biological marker that estimates kidney function and has lately gained importance due to its role in cardiovascular risk stratification.

Chronic kidney disease is usually associated with cardiovascular disease and greatly increases the patient's risk. Recent studies have shown that even mild renal impairment is associated with high risk, hence kidney function markers are now being considered true sentinel indicators of cardiovascular risk.²

CC is a cysteine protease inhibitor protein produced by all nucleated cells and exhibits a highly stable synthesis rate. Its low molecular weight and high isoelectric point mean that the protein is almost entirely excreted by glomerular filtration. Concentrations of the protein are unaffected by age, sex, or protein intake, and there is greater sensitivity to small changes in glomerular filtration rate. Because of these characteristics, plasma CC concentrations are one of the best markers of glomerular filtration rate.³ Several recent publications report a correlation between elevated CC concentrations and the development of cardiovascular complications in patients with coronary disease.

Koenig et al.⁴ studied the usefulness of CC to predict future cardiovascular events in a cohort of 1033 patients who had been diagnosed with coronary disease within 3 months before inclusion. Patients with renal failure as assessed by plasma creatinine or creatinine clearance (CrCl) presented CC values in the top quintile, compared to those who had mild renal impairment or normal kidney function. No significant differences in the incidence of cardiovascular adverse events were found among patients with differing degrees of renal dysfunction as assessed by plasma creatinine (5.4% incidence of events with creatinine >106 μmol/L vs 7% incidence with creatinine <106 μmol/L; *P*=.63) or by CrCl

(7% incidence of events in patients with CrCl <60 mL/min, 9% in patients with CrCl 60-90 mL/min, and 6.3% in patients with CrCl >90 mL/min; *P*=.1). There were significant CC-related differences in the probability of developing a cardiovascular event according to CC quintile (14% for the top quintile and 7.7%, 4.3%, 3.9%, and 5% for the remaining quintiles in descending order; *P*<.0001).

A Spanish study among patients with acute coronary syndrome showed that those with higher CC concentrations presented worse cardiovascular prognosis, even in the group of patients with normal estimated glomerular filtration rate, which could have implications for risk stratification in this patient group.⁵ Additionally, Cepeda et al.⁶ conducted the first study in Spain to determine the prevalence of high CC and its correlation with cardiovascular risk factors among the general population.

Based on the scientific evidence published in the literature in recent years, we believe that CC should be considered a better marker of kidney function than other common measurements (serum creatinine and glomerular filtration rate) and a practical application is likely to be found for the various clinical settings for cardiovascular diseases.

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