ANCA-positive Vasculitides and Coronary Artery Pathology

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Vasculitides constitute a heterogeneous group of disorders affecting from large arteries to post-arteriolar capillaries. These disorders can affect all organs and are categorized on the basis of the affected artery diameter and the presence or absence of antibodies to neutrophil cytoplasmic antigens (ANCA). ANCA-positive vasculitides involve small to medium size arteries of many organs, primarily of the upper and lower respiratory system, the kidneys and the peripheral nervous system. Microscopic polyangiitis (MPA), Wegener granulomatosis (WG) and Churg-Strauss syndrome (CS) are forms of these vasculitides. Coronary arteries have been previously shown to be occasionally affected during the course of these diseases; however, this has never been formally assessed.

To evaluate non-invasively the coronary arteries of patients with ANCA-positive vasculitides, magnetic resonance angiography (MRA) was perfomed and the viability was studied using contrast enhanced MRI (ceMRI). Twelve patients with MPA, 13 with WG, 5 with CS and 2 with polyarteritis nodosa (PAN), all without any cardiac symptoms were included in the study and compared with 13 age- and sex-matched healthy controls and with a disease control group of 13 patients with rheumatoid arthritis (RA). The maximal diameter of the proximal 1/3 of each coronary vessel was recorded. MRA was performed using a 1.5 T system. Data acquisition was performed with ECG gating in mid-diastole and with the patient free breathing. ceMRI images were acquired 15 minutes after the IV injection of 0.15 mmol/kg gadolinium-diethylene triamine pentaacetic acid (Gd-DTPA) using an inversion recovery gradient echo pulse sequence.

As shown in the table, the diameter of all coronary arteries tested were found significantly increased in patients with MPA, PAN and WG ($p<0.001$ for LAD and RCA, $p<0.01$ for LCx) compared to controls, but not in those with CS. Criteria for ectasia were fullfiled by MPA and PAN patients, but not WG. The comparison of coronary vessel diameters revealed increased coronary artery diameter in the MPA+PAN patient group compared to that of WG ($p<0.05$ for LAD and LCx, $p<0.01$ for RCA). Coronary vessel diameters were increased in MPA+PAN group compared to RA ($p<0.01$ for LAD and RCA and $p<0.05$ for LCx), but there was no difference between WG or CS and RA. Evidence of myocardial scar in Gd-DTPA images was documented in 1 patient with MPA and in 1 patient with CS.

In conclusion, coronary artery ectasia appears a common finding in asymptomatic vasculitis patients, while scar is rare. Magnetic resonance evaluation is feasible in these forms of vasculitis and may prove of value for treatment guidance.

TABLE. Coronary vessel diameters (mean ± SD) in patients and controls

Coronary vessel	MPA+PAN	WG	CS	RA	Healthy controls
LAD (mm)	4.58±1.27	3.57±0.69	2.66±0.51	3.06±0.60	3.05±0.15
RCA (mm)	4.68±1.00	3.55±0.92	2.68±0.77	3.27±0.81	3.17±0.20
LCx (mm)	4.01±1.16	3.16±0.45	2.48±0.73	3.20±0.56	3.08±0.19

CS= Churg-Strauss syndrome; LAD= left anterior descending (coronary artery); LCx= left circumflex; MPA= microscopic polyangiitis; PAN= polyarteritis nodosa; RA= rheumatoid arthritis; RCA= right coronary artery; WG= Wegener's granulomatosis

REFERENCE

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