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Clinical spectrum of frequent premature ventricular contractions in children

Turska-Kmiec A., Ziolkowska L., Sobielarska D., Kawalec W., Czarnowska E., Kosciesza A., Daszkowska J., Biernatowicz M., Bieganowska K., Brzezinska G., Zuk M.
Department Pediatric Cardiology
Childrens Memorial Health Institute, Warsaw, Poland

Frequent premature ventricular contraction (FPVC), has been generally considered as benign, although some recent studies suggest that long-term FPVC may cause progressive ventricular dysfunction and tachycardia induced cardiomyopathy (TIC). PVC burden of 24% of total QRS/24h had a sensitivity in separating the adult patients (pts) with impaired versus preserved LV function. TIC is a rare entity, only few studies investigated the effect of ventricular arrhythmias (VA) on the "seemingly structurally normal heart" in children

The aim of the study was to evaluate clinical spectrum of FPVC in children with initial diagnosis of idiopathic VA (normal echocardiogram and QTc).

Material and methods: Retrospective review of complex cardiac examination from 260 pts with VA: 20pts- FPVC (50-85%QRS/24h, mean 61,6%), 240pts-non-FPVC (0,01-49%QRS/24h, mean 18,89%). Evaluated data pertain to clinical findings, ECG, Holter, echo, exercise test (203pts), radionuclide ejection fraction (EF)(280pts), magnetic resonance imaging MR (130pts)(focuses of fatty infiltration-FFI-31pts), endomyocardial biopsy (EMB-52pts; ARVD -12, Myocarditis-31pts), AA drugs (156pts), outcomes. Statistical analysis: $p < 0.05$ statistically significant, NS =non significant difference FPVC vs non-FPVC pts.

Results: EMB was normal in 2, suggestive of ARVC in 4 and MYO in 5 pts with FPVC(NS). FFI had 4/10 pts with FPVC who underwent MR (NS). No significant differences were found between FPVC and non-FPVC patients in age of VE diagnosis (8,5vs8,1yrs;NS), follow up (6,6vs6,2yrs;NS), radionuclide left (55,45vs56,3%;NS) and right ventricular EF (52vs53,87%;NS). During follow up in pts with FPVC arrhythmia completely disappeared in 40% (NS), augmented in 15% (NS), no deaths were observed. Pts with FPVC had more frequently but NS symptoms (15vs9,6%), PVC-RBBB morphology (45vs28,1%), FFI in EMB (36,4vs19,5%) or MR (40vs22,5%). Pts with FPVC had significantly more frequently diagnosed sVT (52,6vs13,7%; $p < 0,0001$), more episodes of VT/24h (6541vs360VT/24h; $p < 0,0001$), longer QTd (45,7vs27,4ms; $p = 0,001$), longer PVC-QRS (146vs129,7ms; $p = 0,002$), higher number of AAD (4vs2,1; $p < 0,0001$) and, longer time treatment (4,6vs2,2 yrs; $p < 0,0001$).

Conclusions: 1. In analyzed group of children with FPVC, normal echocardiogram and different etiology there was no evidence of decreased radionuclide LVEF for diagnosis of "latent" asymptomatic TIC, VA seems to be benign and in 40% of patients completely disappeared during mean 6yrs of follow-up. 2. Children with FPVC had longer QT dispersion and wider PVC-QRS duration.