430
Dilated cardiomyopathies in very high level endurance athletes: serial evaluation of 286 professional bicyclists of the “Tour de France”.

Methods and Results: Two groups of strictly age-matched males were studied (case-control study): twelve, young, a symptomatic and never treated essential hypertensive patients with a mild degree of left ventricular hypertrophy with a normal left ventricular function and eleven healthy controls. QMCE was performed in all study subjects. We used as echocardiography contrast agent the Sonovue TM, a second generation ultrasound micro bubbles. Real-time Color-coded Power Modulation was performed with a phased-array system interfaced to a S3 transducer (1.3–3.6 MHz). In healthy subjects there was a little increase in Myocardial Blood Volume (30%) between basal and hyperemic status (p < 0.05); so in hypertensives this parameter increases of 22% (p < 0.05). Coronary blood velocity (8) increased after per-fidyramide of 270 in healthy (p < 0.01), while in hypertensive this parameter increased only of 150% (p < 0.02). Coronary Blood Flow Reserve was significantly lower in hypertensive (C: 4.4±0.3; H: 3.3±0.3; p < 0.01).

Conclusion: Results of our study documented that coronary microcirculation in young adult hypertensive patients, showed an early impairment both in the vasodilatation capacity of the resistance arteries under fidyramide induced hyperemia, as demonstrated by a reduction of Coronary Reserve.

431
Intra-procedural myocardial contrast echocardiography in septal ablation for symptomatic hypertrophic obstructive cardiomyopathy. L. Faber1, D. Weihe1, H. Seggewis2, D. Fassbinder3, H.K. Schmidt1, U. Gleichmann1, D. Horstkotte1,1, Heart Center North Rhein-Westphalia, Cardiologie Dept., Bad Oeynhausen, Germany; 2Leopoldina Hospital, Department of Internal Medicine, Schweinfurt, Germany

Background and Introduction: Percutaneous septal ablation (PTSMA) for hypertrophic obstructive cardiomyopathy (HOCM) requires the exact definition of the septal myocardium to be attacked. We report on our cumulative experience with PTSMA guided by intra-procedural contrast echo (MCE) on an intention-to-treat basis in 344 patients (pts) from 1/1996 – 4/2003.

Results: Ethanol injection was withheld in 28 pts. (8%), predominantly due to an unwanted extension of the region at risk as documented by MCE in 20 pts. (6%). Furthermore, in 40 pts. (12%) a target vessel (TV) change was necessary for the same reason. In-hospital mortality in the 316 pts. who received a mean dose of 2.7±1.2 ml of ethanol was 1.2% (4 pts.). After 3 months, symptoms had improved in 262 pts. (90%) from NYHA class 2.9±0.4 to 1.5±0.7, 157 pts. (54%) reported to be a potential pitfalls in the diagnosis of HOCM as described in several case reports in the literature. The exclusion of discrete subvalvular aortic stenosis (DSAS) is of special importance in pts referred for catheter interventional therapy. To date, systematic investigations concerning the frequency of DSAS in symptomatic pts, referred for catheter interventional therapy of HOCM are lacking.

Methods: Therefore, we investigated for the first time in a systematic study 350 consecutive symptomatic (functional class 3 or 4 according to NYHA) pts with HOCM who were referred for this new catheter interventional therapy. In all pts TTE and bicyle exercise Doppler echocardiography were performed. Additionally in most pts multiplane TEE was performed.

Results: In 7 of 350 pts. (2%) subvalvular aortic stenosis (5 female pts and 2 male pts; age 16 to 63 years; functional class 3 according to NYHA; mean septal diameter 19 mm: mean diameter of the posterior wall 13 mm; Sarn-like motion in all pts) non compatible with HOCM was found. 6 of these pts. belonged to the membranous type of DSAS; in one pt a tunnel-form of subvalvular aortic stenosis was present. In all cases the diagnosis could be confirmed by surgical treatment. In most pts TEE evaluation was of crucial importance with demonstration of a typical subvalvular membrane (in 6 pts) which was situated a few millimeters below the aortic valve. In all cases asymptotic septal hypertrophy mimicking HOCM was seen. In all pts there were small changes only seen at echocardiography, however a very pronounced intraoperative finding was present.

Conclusion: The frequency of discrete subvalvular aortic stenosis (DSAS) is of special importance in pts referred for catheter based treatment of HOCM is unexpectedly high (2%). Especially in pts in whom TEE evaluation is of insufficient quality, the use of multiplane TEE with careful evaluation of the small poststenotic subvalvular area in HOCM is of importance in diagnosing and classifying DSAS (membranous type, fibromuscular ring, tunnel type). This is of special significance prior to catheter interventional therapy, because in pts with subvalvular aortic stenosis surgical treatment is mandatory.