**P4758 | BENCH**

**Bicuspid aortic valve (BAV) phenotype relationship with aortic root morphology and elasticity**

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**Background:** Bicuspid Aortic Valve (BAV) affects about 0.5% to 2% of the population and is one of the most common congenital heart defects, is a genetic disorder of the aortic valve and ascending aorta. There is no uniform correlation between aortic valve morphology and ascending aorta. Aortic dilation is common in subjects with BAV. In the present study we aimed to determine the intermediate to long term risk of late development of aortic aneurysm or dissection.

**Methods:** This prospective study of 88 consecutive patients with BAV referred for their first echocardiogram, in order to determine aortic root size, aortic root morphology and elastic properties. Distensibility, strain and stiffness index were calculated using cuffed blood pressure in 37 patients without aortic stenosis or regurgitation.

**Results:** Mean age of the patients was 40.3 years and 64 (72.7%) were men. We detected 51 (58%) patients with type 1 (right-left leaflet orientation), 10 (11.4%) with type 2 (right-noncoronary leaflet orientation), 3 (3.4%) with type 3 (left-coronary leaflet orientation) and 24 (27.3%) patients without raphe. Among 51 patients with type 1 BAV with raphe, 31 (60.8%) had type A (severely stenosing) aortic valve morphology, 20 (39.2%) had type N (sealed leaflets size), 3 (5.9%) had type A (severely stenosing) aortic root morphology. Among patients with type 2 BAV with raphe 3 (60%) had type A (severely stenosing) aortic valve morphology, 4 (80%) had type N (severely stenosing) aortic root morphology. Among patients with type 3 BAV with raphe, 2 (40%) had type A (severely stenosing) aortic valve morphology, 3 (60%) had type N (sealed leaflets size), and 2 (40%) had type A (severely stenosing) aortic root morphology.

**Conclusions:** Type A aortic root morphology is associated with increased risk of late development of aortic aneurysm or dissection.
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Role of extracellular matrix proteins, matrix metalloproteinase activity and arterial stiffness in ascending aorta dilatation
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Objectives: The purpose of this study was to evaluate potential mechanisms promoting ascending aorta aneurysm (AAA) development in the pts with different pathology.
Design and methods: Aortic tissue samples were collected during operation from 50 pts with AAA. 16 pts with atherosclerosis (AS) (mean age 60.1±1.6 yrs; 15:1, ratio m:f); 22 pts with bicuspid aortic valves (BAV) (mean age 55.7±1.9 yrs; 16:1, ratio m:f) and 12 pts with tricuspid valves (TVV) (mean age 50.4±4.3 yrs; 17:1, ratio m:f). Tissue samples were collected from 17 pts without aortic pathology (mean age 56.3±3.5 yrs). Matrix metalloproteinase (MMP) -2,-9 activities were assessed in aortic tissue homogenates by substrate-specific zymographic analysis. Arterial stiffness was assessed by Sphygmocor device (Australia) using indirect carotid-femoral distance. The normal value of pulse wave velocity (PWV) was considered below 10 m/s.

Results: There were no significant differences in thoracic aorta diameter between the groups (65.4±13.3 mm in AS, vs. 58.0±4.8 mm in BAV vs 64.1±12.9 mm in TVV). Latent MMP2 was increased in all AAA groups compared with controls (BAV, TVV and AS p=0.003, p=0.02, p=0.007, respectively). But latent MMP9 was higher only in BAV group (p=0.04). Aortic dilatation in pts with BAV was associated with increased active MMP-9 level (r=0.66, p=0.037). There was increased collagen/elastic ratio in all pts with AAA, but significant only in BAV (3.2±2.3) compared with controls (1.1±0.5, p=0.018). An increase of collagen content was correlated with active MMP9 level in pts with AS (r=0.509, p=0.037), whereas change of collagen/elastic ratio in pts with BAV was associated with increased latent MMP2 (r=0.608, p=0.02). Tendency to increase of latent and active MMP9 level was related with increase of Index augmentation in all groups.

Conclusions: Composition of the extracellular matrix determines the MMP activity and plays an important role in the pathogenesis of AAA. More significant changes in the composition of the extracellular matrix proteins may explain the rapid increase in the aorta diameter in pts with BAV. Arterial stiffness can be used as a marker for noninvasive monitoring of patients with aortic dilatation.

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A new antimicrobial prophylactic regimen to prevent bacteriaemia following dental procedures
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Purpose: Despite the controversy about the risk of developing bacterial endocarditis of oral origin, numerous Expert Committees in different countries continue to publish prophylactic regimens. To date, the literature is unclear about the role of antimicrobial prophylaxis in the prevention of bacteremia following dental procedures. The aim of this study was to evaluate the efficacy of prophylactic dosage with Amoxicillin (AMX), Clindamycin (CM), a Chlorhexidine (CHX) mouthwash, and a combination of a CHX mouthwash and amoxicillin-clavulanic-avlanate (AMX-CLV) in the prevention of bacteremia following dental extractions.

Methods: A study group composed by 100 adults who required dental extractions under general anaesthesia were randomly assigned to: control group (receiving no prophylaxis), AMX group (receiving 2 g AMX i.v.), CM group (receiving 600 mg CM i.v.), CHX group (receiving a single 0.2% CHX mouthwash for 30 seconds) and CHX/AMX-CLV group (receiving a CHX mouthwash and 1000/200mg AMX CLV i.v.). Venous blood samples were collected from each patient at 30 seconds, 15 minutes and 1 hour after tooth extractions. Samples were inoculated in BACTEC plus aerobic and anaerobic blood culture bottles, and were processed in the Bactec 9240. The subculture and further identification of the isolated bacteria were performed by conventional microbiological techniques.

Results: The prevalences of BDE in the control group, AMX group, CM group, CHX group and CHX/AMX-CLV group were 96.6/6/89.7/9% at 30 seconds, 64.1/17/70/28/0% at 15 minutes and 74.8/22/0/27/70% at 1 hour later. Streptococci were the most frequently identified bacteria in all groups (40-65%).

Conclusions: Amoxicillin and a chlorhexidine mouthwash reduce the risk of bacteremia following dental extractions. Chlorhexidine mouthwash may be non-effective. The new antimicrobial regimen including a CHX mouthwash and amoxicillin-clavulanate showed the highest efficacy in reducing the prevalence and duration of bacteremia following dental extractions.

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(Figure 1). Aortic stenosis is typical of newborns and then is present in pts older than 50 years, when the senile calcification process of the valves develops.

Conclusions: According to our results norm-functioning valves appear to decrease after ten years of age and the most frequent valve dysfunction in BAV through life is aortic regurgitation.

Results: The prevalences of BDE in the control group, AMX group, CM group, CHX group and CHX/AMX-CLV group were 96.6/6/89.7/9% at 30 seconds, 64.1/17/70/28/0% at 15 minutes and 74.8/22/0/27/70% at 1 hour later. Streptococci were the most frequently identified bacteria in all groups (40-65%).

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Association between type of valve prosthesis and one year mortality in IE: an analysis of 1467 patients from the International Collaboration on Endocarditis prospective cohort study

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Purpose: Infective Endocarditis (IE) is a disease which continues to have high mortality and morbidity, including nearly half of patients requiring cardiac surgery during the acute phase of IE. There has been no large, multicenter, prospective series comparing mechanical and biological prostheses in IE. Our objectives were to describe the characteristics of patients according to the type of valve replacement (mechanical or biological), and to examine whether the type of prosthesis was independently associated with in-hospital and 1-year mortality.

Methods: The International Collaboration on Endocarditis - Prospective Cohort Study is a prospective, multicenter, international registry of IE cases. Among 5,591 patients 18 years or older, 1,467 patients with definite IE were operated on during the acute phase of disease and had a biological (550; 37%) or mechanical (917; 63%) valve replacement.

Results: As compared to patients who received mechanical prostheses, those who received bioprosthesis were older (62 vs 54 years; p<0.001), more often had a history of cancer (9% vs 6%; p=0.009), and had moderate or severe re-