**Online Supplementary Materials**

**for the following *OpenHeart* article**

**TITLE:** **Prevalence of Left Ventricle Non-Compaction Criteria in Adult Patients with Bicuspid Aortic Valve versus Healthy Control Subjects**

**AUTHORS:** Mylène Shen1, MSc, Romain Capoulade1, PhD, Lionel Tastet1, MSc, Ezequiel Guzzetti1, MD, Marie-Annick Clavel1, DVM, PhD, Erwan Salaun1, MD, Élisabeth Bédard1, MD, Marie Arsenault1, MD, Philippe Chetaille2, MD, Helena Tizón-Marcos1, MD, MSc, Florent Le Ven1, MD, Philippe Pibarot1, DVM, PhD, Eric Larose1, DVM, MD, FRCPC, FAHA.

1 Institut Universitaire de Cardiologie et de Pneumologie de Québec / Quebec Heart & Lung Institute, Laval University, Quebec City, Quebec, Canada.

2 Department of Pediatrics, Centre Mère Enfants Soleil, Centre Hospitalier Universitaire de Québec, Laval University, Quebec City, Quebec, Canada

**ONLINE FIGURE 1**

**A**



**B**



**Prevalence of BAV patients with a NC/C ratio >2.0, 2.3 and 2.5 according to the presence of valve dysfunction. Caption**: **Panel A** – BAV patients without dysfunction, with significant aortic stenosis and with significant aortic regurgitation, with a NC/C ratio superior to 2.0, 2.3 and 2.5 in systole. **Panel B** – BAV patients without dysfunction, with significant aortic stenosis and with significant aortic regurgitation, with a NC/C ratio superior to 2.0, 2.3 and 2.5 in diastole. The number at the top of the bars are the number of patients in each subset.

**Legend**: AR, aortic regurgitation; AS, aortic stenosis; ED, end-diastole; ES, end-systole; NC/C, non-compacted/compacted myocardium ratio.

**ONLINE TABLE 1: NC/C ratios of control subjects versus bicuspid aortic valve patients in short-axis view, in end-diastole and end-systole**

|  |  |
| --- | --- |
|  | **Short-Axis** |
| **End-Diastole** | **End-Systole** |
| Segment | CTL(n=85) | BAV(n=79) | p value | CTL(n=85) | BAV(n=79) | p value |
| 1.Basal anterior | 1.31 [0.87-1.74] | 0.81 [0.57-1.10] | **<0.0001** | 0.33 [0.21-0.57] | 0.31 [0.19-0.51] | 0.27 |
| 2.Basal anteroseptal | 0.62 [0.31-1.02] | 0.51 [0.29-0.78] | 0.06 | 0.23 [0.16-0.32] | 0.24 [0.17-0.37] | 0.63 |
| 3.Basal inferoseptal | 0.27 [0.20-0.44] | 0.32 [0.21-0.51] | 0.27 | 0.27 [0.18-0.39] | 0.26 [0.19-0.35] | 0.58 |
| 4.Basal inferior | 0.50 [0.36-0.84] | 0.67 [0.31-0.97] | 0.38 | 0.27 [0.19-0.44] | 0.23 [0.15-0.40] | 0.18 |
| 5.Basal inferolateral | 0.86 [0.56-1.32] | 0.67 [0.41-0.97] | **0.01** | 0.31 [0.21-0.49] | 0.25 [0.15-0.40] | 0.052 |
| 6.Basal anterolateral | 0.97 [0.58-1.34] | 0.75 [0.51-1.19] | **0.02** | 0.29 [0.21-0.49] | 0.27 [0.17-0.44] | 0.22 |
| 7.Mid. anterior | 1.67 [1.17-2.48] | 1.11 [0.68-1.61] | **<0.0001** | 0.90 [0.65-1.34] | 0.58 [0.34-0.81] | **<0.0001** |
| 8.Mid. anteroseptal | 1.02 [0.59-1.51] | 0.65 [0.42-1.06] | **0.0005** | 0.43 [0.25-0.75] | 0.34 [0.23-0.55] | **0.02** |
| 9.Mid. inferoseptal | 0.34 [0.25-0.63] | 0.35 [0.20-0.66] | 0.88 | 0.21 [0.15-0.28] | 0.22 [0.16-0.35] | 0.20 |
| 10.Mid. inferior | 0.69 [0.41-1.23] | 0.68 [0.32-1.14] | 0.19 | 0.30 [0.17-0.64] | 0.27 [0.16-0.45] | 0.19 |
| 11.Mid. inferolateral | 1.12 [0.86-1.76] | 0.92 [0.67-1.35] | **0.007** | 0.53 [0.32-0.74] | 0.40 [0.24-0.64] | **0.003** |
| 12.Mid. anterolateral | 0.97 [0.60-1.47] | 0.88 [0.59-1.14] | 0.06 | 0.47 [0.28-0.70] | 0.39 [0.24-0.58] | 0.08 |
| 13.Apical anterior | 1.78 [1.31-2.39] | 1.15 [0.75-2.06] | **0.0001** | 0.68 [0.47-0.93] | 0.40 [0.24-0.53] | **<0.0001** |
| 14.Apical septal | 1.07 [0.60-1.67] | 0.74 [0.46-1.16] | **0.004** | 0.44 [0.24-0.68] | 0.32 [0.23-0.48] | **0.02** |
| 15.Apical inferior | 1.35 [0.98-1.95] | 0.88 [0.51-1.38] | **<0.0001** | 0.61 [0.30-0.89] | 0.35 [0.23-0.54] | **<0.0001** |
| 16.Apical lateral | 1.69 [1.29-2.09] | 1.18 [0.89-1.82] | **0.0006** | 0.71 [0.46-0.96] | 0.37 [0.26-0.54] | **<0.0001** |

**ONLINE TABLE 2: NC/C ratios of control subjects versus bicuspid aortic valve patients in 2-Chamber view, in end-diastole and end-systole**

|  |  |
| --- | --- |
|  | **2-Chamber** |
| **End-Diastole** | **End-Systole** |
| Segment | CTL(n=85) | BAV(n=79) | p value | CTL(n=85) | BAV(n=79) | p value |
| Basal inferior | 0.42 [0.30-0.63] | 0.21 [0.12-0.44] | **<0.0001** | 0.20 [0.15-0.31] | 0.09 [0.05-0.16] | **<0.0001** |
| Mid. inferior | 0.70 [0.42-1.02] | 0.42 [0.18-0.94] | **0.001** | 0.38 [0.18-0.60] | 0.21 [0.08-0.42] | **0.0005** |
| Apical inferior | 0.75 [0.54-1.18] | 0.77 [0.37-1.35] | 0.56 | 0.41 [0.27-0.58] | 0.40 [0.18-0.59] | 0.60 |
| Apical anterior | 0.79 [0.52-1.17] | 0.93 [0.47-1.60] | 0.33 | 0.38 [0.24-0.60] | 0.40 [0.15-0.61] | 0.65 |
| Mid. anterior | 0.46 [0.26-099] | 0.45 [0.23-0.96] | 0.59 | 0.24 [0.13-0.50] | 0.25 [0.14-0.48] | 0.96 |
| Basal anterior | 0.35 [0.22-0.63] | 0.27 [0.13-0.44] | **0.008** | 0.22 [0.13-0.31] | 0.13 [0.07-0.21] | **<0.0001** |

**ONLINE TABLE 3: NC/C ratios of control subjects versus bicuspid aortic valve patients in 4-Chamber view, in end-diastole and end-systole**

|  |  |
| --- | --- |
|  | **4-Chamber** |
| **End-Diastole** | **End-Systole** |
| Segment | CTL(n=85) | BAV(n=79) | p value | CTL(n=85) | BAV(n=79) | p value |
| Basal anterolateral | 0.32 [0.22-0.42] | 0.22 [0.08-0.52] | **0.03** | 0.19 [0.15-0.25] | 0.06 [0.04-0.12] | **<0.0001** |
| Mid. anterolateral | 0.28 [0.20-0.39] | 0.78 [0.24-1.27] | <0.0001 | 0.17 [0.12-0.21] | 0.26 [0.08-0.43] | 0.13 |
| Apical lateral | 0.75 [0.57-0.97] | 1.13 [0.50-1.75] | **0.03** | 0.34 [0.24-0.47] | 0.53 [0.23-0.95] | **0.006** |
| Apical septal | 0.79 [0.61-1.05] | 0.81 [0.37-1.41] | 0.92 | 0.45 [0.27-0.65] | 0.33 [0.21-0.63] | 0.23 |
| Mid. inferoseptal | 0.68 [0.46-0.97] | 0.21 [0.09-0.47] | **<0.0001** | 0.30 [0.18-0.45] | 0.15 [0.08-0.27] | **<0.0001** |
| Basal inferoseptal | 0.28 [0.20-0.43] | 0.17 [0.09-0.26] | **<0.0001** | 0.12 [0.09-0.15] | 0.12 [0.07-0.21] | 0.90 |

**ONLINE TABLE 4: NC/C ratios of bicuspid aortic valve patients according to valve function, in short-axis view, in end-diastole and end-systole**

|  |  |
| --- | --- |
|  | **Short-Axis** |
| **End-Diastole** | **End-Systole** |
| Segment | BAV with no aortic valve dysfunction (n=37) | BAV with AS (n=25) | BAV with AR (n=17) | p value | BAV with no aortic valve dysfunction (n=37) | BAV with AS (n=25) | BAV with AR (n=17) | p value |
| 1.Basal anterior | 0.80 [0.58-1.09] | 0.81 [0.54-1.11] | 0.91 [0.57-1.27] | 0.94 | 0.32 [0.23-0.61] | 0.24 [0.14-0.43] | 0.35 [0.22-0.53] | 0.16 |
| 2.Basal anteroseptal | 0.47 [0.30-0.68] | 0.62 [0.34-0.81] | 0.59 [0.27-1.02] | 0.45 | 0.25 [0.19-0.37] | 0.25 [0.15-0.35] | 0.24 [0.17-0.43] | 0.77 |
| 3.Basal inferoseptal | 0.34 [0.22-0.60] | 0.26 [0.14-0.53] | 0.33 [0.26-0.41] | 0.18 | 0.29 [0.19-0.47] | 0.26 [0.15-0.34] | 0.22 [0.20-0.29] | 0.19 |
| 4.Basal inferior | 0.60 [0.31-1.11] | 0.64 [0.25-0.79] | 0.91 [0.60-1.17] | 0.06 | 0.23 [0.15-0.52] | 0.21 [0.17-0.31] | 0.28 [0.14-0.48] | 0.78 |
| 5.Basal inferolateral | 0.67 [0.39-1.00] | 0.64 [0.43-0.98] | 0.73 [0.43-0.96] | 0.93 | 0.26 [0.15-0.40] | 0.20 [0.14-0.36] | 0.28 [0.19-0.67] | 0.46 |
| 6.Basal anterolateral | 0.79 [0.62-1.23] | 0.74 [0.46-1.17] | 0.71 [0.35-1.05] | 0.59 | 0.28 [0.18-0.46]\* | 0.21 [0.15-0.36]\*‡ | 0.32 [0.20-0.56]‡ | **0.049** |
| 7.Mid. anterior | 0.95 [0.55-1.36] | 1.17 [0.77-1.57] | 1.37 [0.82-2.19] | 0.08 | 0.58 [0.37-0.76] | 0.41 [0.22-0.97] | 0.63 [0.48-1.38] | 0.15 |
| 8.Mid. anteroseptal | 0.61 [0.45-1.01] | 0.71 [0.41-1.17] | 0.52 [0.33-1.32] | 0.69 | 0.33 [0.23-0.48] | 0.30 [0.21-0.50] | 0.53 [0.25-0.78] | 0.12 |
| 9.Mid. inferoseptal | 0.42 [0.27-0.66] | 0.29 [0.17-0.60] | 0.36 [0.24-0.96] | 0.27 | 0.22 [0.17-0.36] | 0.24 [0.15-0.31] | 0.22 [0.17-0.48] | 0.87 |
| 10.Mid. inferior | 0.75 [0.38-1.25] | 0.59 [0.21-0.96] | 0.66 [0.33-1.22] | 0.42 | 0.23 [0.14-0.52] | 0.21 [0.16-0.35] | 0.32 [0.25-0.43] | 0.22 |
| 11.Mid. inferolateral | 0.93 [0.69-1.35] | 0.91 [0.49-1.30] | 0.91 [0.63-1.44] | 0.90 | 0.39 [0.19-0.65] | 0.40 [0.25-0.47] | 0.61 [0.31-0.73] | 0.24 |
| 12.Mid. anterolateral | 0.86 [0.63-1.14] | 0.91 [0.53-1.18] | 0.94 [0.53-1.08] | 0.95 | 0.39 [0.19-0.57] | 0.39 [0.26-0.58] | 0.42 [0.31-0.70] | 0.42 |
| 13.Apical anterior | 1.11 [0.64-2.14] | 1.24 [0.70-1.95] | 1.37 [0.97-2.60] | 0.34 | 0.45 [0.32-0.62]\* | 0.29 [0.19-0.47]\* | 0.43 [0.23-0.52] | **0.02** |
| 14.Apical septal | 0.75 [0.44-1.09] | 0.72 [0.48-1.00] | 0.78 [0.52-1.28] | 0.48 | 0.41 [0.24-0.55] | 0.27 [0.19-0.40] | 0.35 [0.28-0.52] | 0.06 |
| 15.Apical inferior | 0.83 [0.51-1.38] | 0.69 [0.49-1.62] | 1.14 [0.73-1.35] | 0.53 | 0.38 [0.27-0.62] | 0.28 [0.22-0.43] | 0.38 [0.21-0.52] | 0.16 |
| 16.Apical lateral | 1.28 [0.84-2.04] | 1.21 [0.90-1.78] | 1.14 [0.81-1.74] | 0.76 | 0.44 [0.32-0.64]\* | 0.27 [0.24-0.38]\* | 0.40 [0.24-0.57] | **0.01** |

**\***: p<0.05 between BAV with no aortic valve dysfunction and BAV with AS ; **†**: p<0.05 between BAV with no aortic valve dysfunction and BAV with AR ; **‡**: p<0.05 between BAV with AS and BAV with AR

**ONLINE TABLE 5: NC/C ratios of bicuspid aortic valve patients according to valve function, in 2-Chamber view, in end-diastole and end-systole**

|  |  |
| --- | --- |
|  | **2-Chamber** |
| **End-Diastole** | **End-Systole** |
| Segment | BAV with no aortic valve dysfunction (n=37) | BAV with AS (n=25) | BAV with AR (n=17) | p value | BAV with no aortic valve dysfunction (n=37) | BAV with AS (n=25) | BAV with AR (n=17) | p value |
| Basal inferior | 0.21 [0.11-0.47] | 0.20 [0.07-0.35] | 0.29 [0.17-0.79] | 0.11 | 0.09 [0.05-0.20] | 0.08 [0.04-0.12] | 0.11 [0.06-0.18] | 0.30 |
| Mid. inferior | 0.39 [0.11-0.96] | 0.32 [0.15-0.85] | 0.48 [0.20-1.14] | 0.56 | 0.24 [0.09-0.48] | 0.11 [0.06-0.35] | 0.29 [0.13-0.42] | 0.25 |
| Apical inferior | 0.57 [0.29-1.25]† | 0.80 [0.43-1.08]‡ | 1.32 [0.58-2.85]†‡ | **0.03** | 0.45 [0.21-0.70]\* | 0.21 [0.10-0.41]\*‡ | 0.52 [0.34-0.82]‡ | **0.03** |
| Apical anterior | 0.83 [0.29-1.44]† | 0.78 [0.46-1.19]‡ | 1.60 [0.78-2.01]†‡ | **0.04** | 0.41 [0.12-0.77] | 0.28 [0.14-0.56] | 0.44 [0.29-0.65] | 0.30 |
| Mid. anterior | 0.52 [0.20-1.03] | 0.35 [0.21-0.56] | 0.79 [0.39-1.10] | 0.11 | 0.25 [0.13-0.48] | 0.25 [0.14-0.44] | 0.26 [0.18-0.53] | 0.77 |
| Basal anterior | 0.27 [0.12-0.46] | 0.26 [0.10-0.39] | 0.27 [0.21-0.68] | 0.33 | 0.13 [0.07-0.23] | 0.13 [0.06-0.17] | 0.15 [0.11-0.24] | 0.50 |

**\***: p<0.05 between BAV with no aortic valve dysfunction and BAV with AS ;

**†**: p<0.05 between BAV with no aortic valve dysfunction and BAV with AR ;

**‡**: p<0.05 between BAV with AS and BAV with AR

**ONLINE TABLE 6: NC/C ratios of bicuspid aortic valve patients according to valve function, in 4-Chamber view, in end-diastole and end-systole**

|  |  |
| --- | --- |
|   | **4-Chamber** |
| **End-Diastole** | **End-Systole** |
| Segment | BAV with no aortic valve dysfunction (n=37) | BAV with AS (n=25) | BAV with AR (n=17) | p value | BAV with no aortic valve dysfunction (n=37) | BAV with AS (n=25) | BAV with AR (n=17) | p value |
| Basal anterolateral | 0.22 [0.09-0.55] | 0.31 [0.09-0.57] | 0.20 [0.07-0.32] | 0.56 | 0.08 [0.04-0.20] | 0.06 [0.03-0.11] | 0.07 [0.04-0.11] | 0.35 |
| Mid. anterolateral | 0.65 [0.34-1.28] | 0.98 [0.44-1.18] | 0.51 [0.12-1.40] | 0.49 | 0.19 [0.09-0.46] | 0.24 [0.07-0.41] | 0.31 [0.07-0.44] | 0.95 |
| Apical lateral | 1.26 [0.53-1.96] | 1.09 [0.47-1.52] | 1.13 [0.43-2.17] | 0.82 | 0.49 [0.21-0.95] | 0.39 [0.27-1.29] | 0.58 [0.21-0.92] | 1.00 |
| Apical septal | 0.81 [0.32-1.81] | 0.66 [0.33-1.24] | 1.06 [0.67-1.62] | 0.10 | 0.34 [0.22-0.61] | 0.23 [0.10-0.46]‡ | 0.44 [0.30-1.04]‡ | **0.03** |
| Mid. inferoseptal | 0.29 [0.10-0.53]\* | 0.12 [0.08-0.30]\*‡ | 0.30 [0.13-0.88]‡ | **0.03** | 0.15 [0.08-0.25]† | 0.08 [0.05-0.20]‡ | 0.21 [0.15-0.39]†‡ | **0.003** |
| Basal inferoseptal | 0.17 [0.11-0.31] | 0.12 [0.08-0.23]‡ | 0.21 [0.12-0.80]‡ | **0.046** | 0.11 [0.07-0.18] | 0.09 [0.06-0.25] | 0.12 [0.08-0.21] | 0.91 |

**\***: p<0.05 between BAV with no aortic valve dysfunction and BAV with AS ;

**†**: p<0.05 between BAV with no aortic valve dysfunction and BAV with AR ;

**‡**: p<0.05 between BAV with AS and BAV with AR