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**We should note that lower pressure of pulmonary capillary wedge than we expected lifts up central venous pressure in Fontan circulation**

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Background: In patients with chronic heart failure high pressure of pulmonary capillary wedge (PCWP), which is affected by decreased left-cardiac functions, provoked pulmonary hypertension. We predicted that increased PCWP in Fontan heart also induced high central-venous pressure (high CVP). We investigated minimum PCWP which caused high CVP in Fontan patients. Methods: The medical records of 174 Fontan patients were reviewed from 2 yrs to 18 yrs. They underwent cardiac catheterizations between 2010 and 2015. We defined CVP 16 mmHg or over as high CVP (CVP  $\geq$  16 mmHg: n=27). First, we examined whether the area under a receiving operating characteristics curve (AUROC) was calculated to determine the best discriminating PCWP for predicting high CVP. Second, we sought minimum PCWP which was connected with high CVP. Third, AUROCs were calculated about each cardiac performance for predicting minimum PCWP. Results: We gained quite a positive AUROC for predicting high CVP by PCWP  $\geq$  12 mmHg: 95% C.I. 0.713~0.934. The rate of patients with PCWP  $\geq$  12 mmHg in high CVP group was higher than that in non-high CVP group (48% vs. 1%: p<0.00001). Similarly, significant patient-rate differences between high CVP and non-high CVP were obtained by PCWP  $\geq$  11 mmHg (59% vs. 4%: p<0.00001), PCWP  $\geq$  10 mmHg (66% vs. 8%: p<0.00001), and by lower pressures. Significant differences were not obtained by PCWP  $\geq$  6 mmHg (85% vs. 65%: p=0.069), and by lower pressures. Minimum value of PCWP was 7 mmHg which was potentially connected with high CVP (85% vs. 43%: p=0.00016). We obtained significant AUROCs for predicting this minimum values of PCWP ( $\geq$  7 mmHg) by end-diastolic ventricular pressure (0.832, 95% C.I.=0.772-0.889), by end-diastolic ventricular volume (0.587, 95% C.I.: 0.502~0.672), and by end-systolic ventricular volume (0.599, 95% C.I.: 0.515~0.683). Conclusion: In Fontan patients PCWP  $\geq$  7 mmHg was potentially connected with high CVP. This PCWP value was not so higher than we expected. However, it was related to ventricular overloads, particularly end-diastolic ventricular pressure. We should employ the strategy avoiding high PCWP in Fontan candidate patients to acquire adequate CVP after procedure.