Dramatic Improvement of the prognosis of idiopathic PAH in the young during the last 3 decade
- Predictive factors from a single center experience with 92 cases -

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Purpose
Idiopathic pulmonary arterial hypertension (iPAH) is an intractable and the prognosis treated at a single center with advanced therapy (AT) has not been well reported. Herein, we studied retrospectively for the significant prognostic factors of iPAH.

Subjects and Methods
Consecutive 92 patients with iPAH (47F/45M) since 1978 were enrolled. The age at onset was 11.7±8.4 y/o, and the median follow-up was 70 months (ranging 0.4m - 28y). Nearly 1/4 of patients were found by healthy screening in the school. We reviewed medical records for their clinical parameters such as the CTR, BNP, NYHA-FC, mode of advanced therapies, genetic analysis including BMPR2, ALK1, ALK6, and Smad8, and the outcome. Lung transplantation and the mortality were defined as an event. To assess the correlation between available therapeutic options and the prognosis, patients were divided into 4 subgroups depending on the era when vasodilator therapy was started as follows; that is, group A (~1993), B (~1999), C (~2003), and D (2003~). We started oral PGI2 from 1993, IV-PGI2 from 1996, Sildenafil from 2003, and Bosentan from 2005, Tadalafil from 2010, Ambrisentan from 2011.

Results
At June 2012, the 5y-survival of group A to D were 14.3±13%, 61.5±12%, 85.0±15%, 91.7±8%, respectively (p<0.0001). Sixty-four patients (69.6%) were alive including 7 (7.6%) after lung transplantation (LT). Twenty-eight (30.4%) deceased including 1 death after LT. The actuarial survival at 3, 5, 10 years are 88.8±11%, 74.1±26%, and 59.7±40%, respectively. Cox regression analysis revealed that CTR before treatment was the significant independent predictor of event-free survival (RR of 1.09, p=0.003). Their survival rate was significantly better than those with cardiomegaly of 50% or more (K-M curve with Log-rank test; p=0.02). Starting the AT with BNP<200 and NYHA-FC ≤ II, patients found by school healthy screening, and negative for ALK1 gene also showed excellent results.

Conclusions
We conclude that the prognosis of iPAH in the young has been improving significantly because of ATs, especially last 10 years. The prognosis is significantly affected by CTR, BNP, NYHA-FC before treatment and mode of combination therapy and genetic background.