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GH Therapy Increases the Prevalence of Aortic Dilation in Patients with Turner's Syndrome

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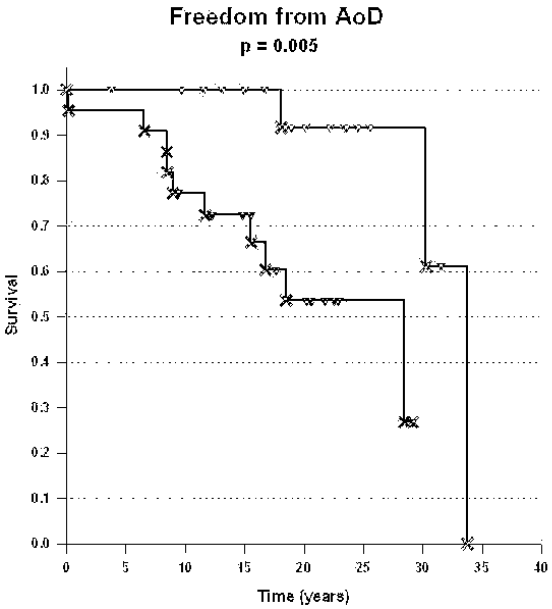
Introduction : Dilatation of the ascending aorta (AoD) is described in Turner's syndrome (TS) with variable prevalence according to different sources (6.8%-32%). Reported series typically include patients with associated cardiac anomalies, e.g. aortic coarctation, left outflow tract obstruction and bicuspid aortic valve. Objective: To characterize the prevalence, age of onset and the progress of AoD in TS patients free of structural cardiac anomalies. Potential risk factors, such as karyotype and growth hormone (GH) therapy, were analyzed for correlation with AoD.



Methods: Retrospective study with data collected from medical records and echocardiography studies. TS patients followed between 1992 and 2010, free of structural cardiac malformations were eligible when they had at least 2 echocardiography studies. Patients with previous cardiac surgery or those under anti-hypertensive medication were excluded. Ascending aorta diameter measurements were collected for all patients and adjusted for body surface area based. Regression equation was derived from our institution's echo laboratory from 1300 healthy children. AoD was defined as a Z-score > 2.

Results: From 120 patients, 33 were excluded due to associated cardiac anomaly, and 15 due to anti-HTA medication. Another, 28 patients were excluded due to incomplete data. The study population consisted of 44 patients, aged 11.9 $\pm$ 7.4 years at the first echocardiogram and 17.9 $\pm$ 7.3 years at last follow-up, with a follow-up duration of 6.0 $\pm$ 3.7 years. 13 (29.5%) patients exhibited an AoD during the follow-up period suggesting an actuarial estimate of the freedom from AoD dropping from 86 %, 70%, and then 37% at 10, 20 and 30 years old respectively. Increased prevalence of AoD was associated with GH therapy (n=23) compared to non treated patients (n=21) 39.1 % vs 9.5 % (p=0.036) and decreased survival with freedom of AoD (p=0.005). In contrast, there was no statistically significant impact of karyotype (X0 v.s. mosaic; p = 0.38).

Conclusions: The prevalence of AoD in TS free of structural aortic anomalies is comparable to published data with associated lesions. GH therapy increases significantly the likelihood of AoD irrespective of karyotype.