

Re: Pregnancies in women with Turner Syndrome: A retrospective multicentre UK study

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Sir,

We read with interest the article by Cauldwell et al., which concluded that pregnancy in women with Turner syndrome is associated with major maternal cardiovascular risks and cardiovascular assessment and counselling prior to assisted or spontaneous pregnancy should be managed by a specialist team.

These conclusions are based on data from 127 pregnancies in 81 women with a Turner syndrome.

Cauldwell et al. describe data from 16 different centres with one to 42 pregnancies per centre over an observation period of 20 years. Details on pregnancies per centre are not presented but there must have been many centres where a Turners syndrome pregnancy was a rarity not even happening once a year. When analysing the numbers, it seems that the different centres beyond the centre with 42 cases will have seen an average of 6 pregnant women with Turner syndrome over 20 years. This must have had significant impact on the experience and expertise of the obstetricians in the different centres. Could this be the reason why the caesarean section rates were markedly higher than other wise reported?

In the present article the rate was 61-67 % compared to data from Sweden where it was 38 % and 47 % in France. ¹⁻²

Cauldwell et al. also state that pregnancies in Turner syndrome are associated with major cardiovascular risks based upon three events. One woman suffered a type A dissection at 18 weeks gestation despite a normal aortic size but a bicuspid aortic valve. No other details about hypertension, aortic morphology or growth rates are presented. The two other events were women with severe aortic disease that should have

been counselled and offered prophylactic aortic surgery before pregnancy. So, two out of three cases were not events but results of inadequate clinical care. In the Cauldwell cohort only 57.4% had seen a cardiologist within 24 months before getting pregnant, which is far from what is necessary in the caretaking of women with Turner syndrome and a childbearing potential.

Data from Scandinavia, France, and from the Alliance for Adult Research in Congenital Cardiology tells another story.²⁻⁴ In these cohorts the number of pregnancy related dissections was very low due to pre-pregnancy counselling, centralised follow-up, and timely prophylactic aortic surgery before considerations about normal pregnancy or egg donation. This simply generates better results.

A safe pregnancy and childbirth are very important for women with Turner syndrome. What we can learn from this article is what not to do. Pregnancy and delivery in women with Turner syndrome must be centralised and a timely cardiovascular assessment of women with Turner syndrome and a pregnancy wish should be obligatory. Otherwise, we will end with results as described in this article.

In other words, the conclusion of the article ought to have been lack of centralisation and appropriate cardiovascular pre-pregnancy assessment leads to increased morbidity and cardiovascular risk during pregnancy childbirth. If such pre-pregnancy assessment is in place and caretaking is centralised, cardiovascular risk during pregnancy is very low in Turner syndrome.¹⁻⁴

References

1. Hagman A, Källén K, Barrenäs M-L, Landin-Wilhelmsen K, Hanson C, Bryman I, et al. Obstetric outcomes in women with Turner karyotype. *J Clin Endocrinol Metab.* 2011; 96: 3475–82.
2. Bernard V, Donadille B, Zenaty D, Courtillot C, Salenave S, Brac de la Perrière A, et al. Spontaneous fertility and pregnancy outcomes amongst 480 women with Turner syndrome. *Hum Reprod* 2016; 31:782–8.
3. Hagman A, Loft A, Wennerholm U-B, Pinborg A, Bergh C, Aittomäki K, et al. Obstetric and neonatal outcome after oocyte donation in 106 women with Turner syndrome: a Nordic cohort study. *Hum Reprod* 2013; 28: 1598–609.
4. Grewal J, Valente AM, Egbe AC, Wu FM, Krieger EV, Sybert VP et al. Cardiovascular outcomes of pregnancy in Turner syndrome. *Heart* 2021;107 :61–6.