

Raised Liver Enzymes in Turner Syndrome

By Lynn Carter. This is my summary of the cited article. Please read it in full if possible

In 2008 "Clinical Endocrinology" No. 69; pp 306 – 310 * (see below) carried an article by three researchers reporting on liver dysfunction in TS women, and how oestrogen levels affected this. Three studies were reported.

The first, a cross-sectional study of 125 Turner women over two years, matched them with 30 women who have Premature Ovarian Failure (POF) and 30 normal controls. Turner women were shown to have over 50% higher incidence of raised liver enzymes. Age, body mass index (BMI), cholesterol level, total triglycerides (fats) and age at commencing oestrogen treatment all affected this figure. Women on HRT (Hormone Replacement Therapy) were found to have higher GGT (a liver enzyme) when compared with women on OCT (Oral contraceptive pill).

The second, longitudinal study followed 30 Turner women for at least seven years to assess liver enzyme changes. This showed annual liver enzyme rises of 2.1% over normal women. So, at an average age of 28 one or more enzymes were 52.4%, which rose to 64.3% over the next eight years.

The third study was a dose ranging study which looked at changes in liver function tests where doses of oral oestradiol were increased from one, through two, to four mgs. Four of five liver enzymes were reduced significantly.

Conclusions.

The studies reached several conclusions:

- That women with TS do have significantly higher enzyme levels. GGT in particular is affected by cholesterol, BMI, and the type of oestrogen replacement.
- Other studies have shown that many Turner women showed fatty liver changes on biopsy.
- Oral contraceptive pills, being more potent sources of oestrogen, may help reduce liver pathologies (diseases).
- Thyroid antibodies were found and may also be associated with high liver function tests. But anti-liver antibodies were not over-represented in TS women.
- Study outcomes suggested that liver dysfunction in TS women is slowly progressive and starts early in life.
- The authors suggested that maybe women with TS have a form of hepatic steatosis (fatty liver), and that research on interventions for this may be the next step.
- Increasing oestrogen treatment may improve liver enzyme levels so is being looked at, but there may be other down sides to this (increased thrombosis risk?).

* Koulouri, O., Ostberg, J., Conway, G. (2008.) "Liver dysfunction in Turner's Syndrome: prevalence, natural history and effect of exogenous oestrogen." Clinical Endocrinology **69**, 306-310.