Title: Diminished ovarian reserve in women with transfusion-dependent beta-thalassemia major: is iron gonadotoxic?

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Abstract:

Objective: Iron accumulation in the endocrine glands has been implicated in the aetiopathogenesis of decreased reproductive capacity in patients with beta-thalassemia major (β-TM). The aim of the current study was to investigate the serum concentration of anti-Müllerian hormone (AMH), a marker of **ovarian reserve, in women with transfusion-dependent β-TM.**

Study Design: In this case-control study, we recruited 43 women with transfusion-dependent TM and 44 age-matched healthy controls. Hormonal and haematological parameters, serum level of AMH, antral follicle count, and ovarian volume were assessed.

Results: Twenty-two of the 43 women were hypogonadotropic, 8 with primary amenorrhea and 14 with secondary amenorrhea. FSH, LH, estradiol, prolactin, and AMH levels; antral follicle count; and ovarian volume were significantly lower in women with TM compared with the control group ($p <$

0.05 for all).

Conclusion: AMH level and other ovarian reserve markers are significantly diminished in women with transfusion-dependent TM compared to age-matched controls. Our findings support a deleterious effect of iron overload on ovarian tissue.

Keywords: ovarian reserve; iron overload; thalassemia major