Assessment of Gonadal Function Using Ovarian Doppler and Serum Hormone Levels in SLE

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Sir,

I read with interest the original article “Menstrual and Gonadal function alterations in women with systemic lupus erythematosus” by Mandal et al in August 2015 issue of JAPI. I have a few questions however, for which I hope the authors can provide answers.

The study by Mandal et al is a prospective cohort study of 110 patients of SLE. 21.8% of patients had normal menstrual cycles and these have been compared to 78.18% patients with abnormal menstrual cycles. Why normal healthy females were not included as a control group? Why patients with regular menstrual cycles were compared with patients with abnormal menstrual cycles?

Regular menstrual periods are an easily ascertainable external parameter of intact ovarian function. However the presence of regular bleeding is not synonymous with non-impaired ovarian reserve as shown by a recently published study. This study compared twenty three SLE patients naıve to cytotoxic agents with twenty one age matched healthy women who served as controls. This study shows that SLE cases not receiving alkylating therapy and who had normal menstruating cycle and short illness had an impaired ovarian reserve.1

Absence of healthy control population and lack of data on estradiol (E2) and anti-mullerian hormone (AHA) levels in the Mandal et al study, makes it difficult to assess how many of 24 SLE patients with normal menstrual cycle had an impaired ovarian reserve.

Folliculogenesis in the human ovary is complex process regulated by a variety of endocrine and paracrine signals. The availability of an adequate vascular supply to provide endocrine and paracrine signals may play a key role in the regulation of follicle growth. It is postulated that increased ovarian stromal vascularity may lead to a greater delivery of gonadaotrophins to the granulosa cells of the developing follicles. Ovarian stromal vascularity can be assessed by colour or power Doppler ultrasound. Power Doppler is better suited to the study of the ovarian stromal vascularity, as it is more sensitive to lower velocities and essentially angle-independent. One publication examined serum hormone levels, ovarian volume, stromal artery Doppler parameters of patients with Behcet disease (BD) to assess whether there are vascular changes in the gonads patients. This study could not find any significant difference in terms of ovarian volume, ovarian stromal artery Doppler velocimetric parameters or endocrine hormones between patients with BD and healthy controls.2

Ovarian stromal blood flow in the early follicular phase of spontaneous cycles is found to be related to ovarian follicular response. Lower values of pulsatility index (PI) suggests availability of good quality oocytes revealing increased blood flow in the ovarian stromal artery. This implies an improved supply of oxygen, nutrients, hormones and growth factors in turn. In the study by Mandal et al, PI valves were higher in the patients with abnormal menstrual cycles as compared to patients with normal menstrual cycle but the values were not statistically significant. Again, with the absence of normal healthy controls this finding is difficult to interpret.

Never the less, the study by Mandal et al is a step forward in assessing gonadal function alterations in women with SLE. However future studies on the subject should have a case control study design and more detailed hormonal assessment including anti mullerian hormone which has shown to have great promise as a possible marker of ovarian function in women with SLE.3

References