Dear Sir,

We appreciate the interest that Dickey and Pyrzak have expressed in our recent article (Dada et al., 2001; Dickey and Pyrzak, 2002). Blood flow may be analysed qualitatively, by waveform analysis, or quantitatively using resistance or blood flow indices. Most of the subfertility work on Doppler blood flow analysis to date has tended towards the use of quantitative criteria, and the more commonly used resistance

Ovarian artery resistance index as a marker of pituitary suppression

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indices are the RI and PI (resistance and pulsatility indices) or flow velocity indices, TAMX (time average maximum velocity) and PSV (peak systolic velocity).

Dickey and Pyrzak point out that waveform analysis has been employed with good correlation to normal and abnormal blood flow perfusion, as demonstrated by Goswamy and Steptoe (Goswamy and Steptoe, 1988). However the detection of normal/abnormal ovarian blood flow after GnRH analogue use was not our intention. We did not set out to analyse waveform patterns and so have no data on how many of our patients had abnormal flow. Furthermore whilst waveform analysis is successful with larger vessels, Goswamy and Steptoe employed the uterine artery in their classification system, we are unaware of sufficient evidence to show similar benefits with use of the ovarian artery. Uterine and ovarian artery waveform patterns are different, with ovarian artery signals being identified by low velocity and high resistance (Kurjak and Kupesic, 1995).

We set out to establish whether ovarian artery Doppler cut-offs could be employed to adequately identify GnRH analogue-suppressed women and we were able to show that this is possible. We used Doppler indices, as this form of assessment has been shown to be reproducible (Tekay and Joupilla, 1996) and is widely employed. RIs are superior to blood flow velocity indices in the measurement of flow in small vessels as they are independent of the angle of insonation. The RI is expressed by the formula RI = (S–D)/S where S is the peak systolic velocity and D the end diastolic velocity. As Dickey and Pyrzak submit, when there is no end diastolic flow the value of RI reverts to unity. Their reference to the figure in our paper as an example of abnormal flow is correct; however, there was diastolic flow and the RI was in fact 0.829.

Whether waveform analysis would be a better predictor of down-regulation than the RI is at the moment speculative. However, we would welcome studies that would assist in answering this question.

References

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