Thin endometrium defined is frequent problem observed in ART. In different studies, a thin endometrium is defined by a thickness inferior to 5 to 8 mm and should be a possible complication of surgical curettage (Shufaro et al. 2008). Thin endometrium reduced PRs in relatively young patients (<38 years old), in patients who required more than 10 days of gonadotropin stimulation, or in patients whose embryo transfers consisted of poor quality embryos (Zhang et al 2005, Hassan et al. 1996, Dix et al. 2009). Basir et al. (2002) report an important intercycle reliability that should offer the possibility to determine before the IVF-ET the implantation failure.

Different treatments have been proposed to improve the ART outcomes like the use of triptorelin 0.1 mg on the day of ovum pickup (OPU), on the day of embryo transfer (ET) and three days thereafter (Qublan 2008), or extended estrogen therapy for 14 to 82 days (Chen et al. 2006), or Vitamin E, L-arginine, or sildenafil citrate treatment (Takasaki et al. 2010, Sher 2000, 2002). But the impact of sildenafil acetate remain discussed (Check et al. 2004). A thin endometrium is also the actual hypothesis explaining the lower implantation rate in In Vitro Maturation (IVM) (Holzer 2007, Child 2003) but the use of HMG or oestradiol didn’t improve the pregnancy rate during the ovum pickup cycle (Elizur et al. 2009).

However the good question is there a thin endometrium or a low endometrium volume? The new trend of 3-dimensional ultrasound offers new possibilities in endometrium exploration. A low endometrial volume is defined by < 2.5 ml. The global idea concerning the endometrium development is that endometrium growth is dependant of its vascularity. Ng et al. (2009) have show that endometrial and subendometrial vascularity measured by 3D power Doppler ultrasound was significantly lower (P <= 0.003) in patients with low volume endometrium, but not in those with thin endometrium. And Merce et al. (2008) conclude that Endometrial volume and 3D power Doppler indexes are statistically significant in predicting the cycle outcome. But this point needs several studies to be confirmed.

The next step will be to understand the physiology of this type of endometrium: their implantation rates are weak but not to zero. The study of cytokines environment should be explored more further to conclude to the receptivity potential of these patients (Ledee et al. 2008, 2007, Dekel et al. 2010) as the genetic aspect (Munro et al. 2010).