Fully Embedded Prophylactic Cervical Cerclage for Twin Pregnancies Achieved Following Fertility Treatment

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Editorial

Assisted Reproductive Technology (ART) has offered hope to a great number of couples in the past few decades. The rate of multiple pregnancies has increased after the use of ART; 19.6% of ART conceived infants were twins in 2015 according to the Centre of Disease Control (CDC) [1]. It is well known that multiple pregnancies are considered high risk due to the associated increased risk of maternal and neonatal complications [2]. Twin neonates show a higher incidence of prematurity, low birth weight, cerebral palsy [3] and need for Neonatal Intensive Care Unit (NICU). Furthermore, it has been estimated that in the US, preterm deliveries following ART cost approximately one billion US dollars every year [4]. One may argue that Single Embryo Transfer (SET) may offer a solution to the problem of multiple pregnancies achieved through IVF and ICSI. We have to bear in mind however, that SET is usually applied to younger women and there is still a 1.56% chance of a twin pregnancy due to zygotic splitting [5]. Furthermore, no such solution is available for couples undergoing Intrauterine Insemination (IUI) or Controlled Ovarian Stimulation (COS).

Numerous different strategies have been applied throughout the years in an attempt to minimise the rate of prematurity in multiple pregnancies and its associated risks. Vaginal progesterone has not been shown to prevent preterm delivery in twin pregnancies [6,7]. Bed rest (either inpatient or outpatient) shows no improvement in premature deliveries [8] and has been associated with a higher rate of maternal depression [9]. The efficacy of the Arabin pessary is under continuous investigation. In a recent randomised controlled trial, the routine use of pessaries in twin pregnancies did not show a reduction in the rate of early preterm birth [10].

Vaginal cervical cerclage was first introduced in the 1950s; a suture was used in order to reinforce the cervix, increase mechanical stretch thus avoiding cervical dilatation and premature delivery [11,12]. The beneficial effect of the application of a prophylactic vaginal cervical cerclage in multiple pregnancies was first described in 1999 by Eli-mian et al., who reported a lower rate of extremely low birth weight neonates in triplet pregnancies with a cerclage [13]. In 2016, a randomised controlled trial assessed the effect of a prophylactic vaginal cerclage in 120 ICSI twin pregnancies [14]. Once again, the cerclage group showed greater mean gestational age at delivery and neonatal delivery weight.

In a recently published article [15], our team presented the promising results of the use of a prophylactic modified Shirodkar vaginal cervical cerclage. The cerclage was applied in pregnancies achieved through fertility treatment in our Centre. The main difference between the classic Shirodkar cerclage and our modified type is the fact that the suture and the knot of the suture are embedded under the vaginal mucosa in order to minimise the complications associated with infection such as chorioamnionitis and premature rupture of the membranes. Our team investigated the effect of the cerclage in the following end points: gestational age at delivery, neonatal delivery rate, rate of admission and length of stay in the NICU.

The prophylactic modified vaginal cerclage was applied in 43 women with twin gestations achieved through ART treatments following local institutional review board approval. The operation was performed at 13 to 14 weeks gestation after the nuchal translucency scan as well as blood and vaginal tests to exclude infection. The operation has been previously described in detail by the authors [15]. The women were discharged following an overnight hospital stay; follow up included monthly CRP and white blood count measurement and routine obstetric ultrasounds. In an attempt to avoid obstetric and perinatal complications associated with vaginal deliveries of twin pregnancies all women delivered by elective Caesarean Section (CS) following the administration of antenatal corticosteroids. The suture was removed following the CS.

During our study period, 86 twin neonates were delivered. The results were very promising; the mean neonatal delivery weight was 2,238 ± 329 grams and the mean gestational age at delivery 35+4 weeks. 49 neonates (55.8%) required admission to NICU and the average length of stay was 7 days; that is 12 days less than the average length of stay reported from Pinborg et al., [16]. No significant differences were noted when comparing the type of ART treatment used or between neonatal sexes.

Is prematurity in twin pregnancies so frequent after ART? The data are clear. In 2014, according to the European IVF Monitoring Consortium, 17% of the deliveries from IVF and ICSI embryo transfers...
were twins, and the risk of extreme and very preterm birth (<32 weeks gestation) was 4.1% and 15.5% respectively [17]. In the US, the rate of very preterm birth was 10.5% in 2015 [2]. If we combine the above data and given the fact that annually about 500,000 neonates conceived through ART are born, one can estimate that approximately 30,000 twin pregnancies will be premature; this number may double if we add pregnancies conceived through IUI and COS. One must not forget the high incidence of cerebral palsy encountered in preterm deliveries reaching up to 20% in neonates delivered <32 weeks gestation [3].

It must be considered that prematurity related with multiple pregnancies, apart from the associated neonatal health risks is also associated with increased financial cost and most importantly social and psychological cost. In conclusion, based on the above data and our promising results, the modified prophylactic vaginal cervical cerclage may prove a very important tool to avoid prematurity in twin pregnancies achieved through ART treatment.

References


