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ABSTRACT N. CO41

ALTERAZIONI DELLE PIASTRINE E CONDIZIONI GENETICHE

FAILURE IN ASSISTED REPRODUCTIVE TECHNIQUES: INSIGHTS FROM THE FIRST REGISTRY.

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Infertility affects approximately 9% of women aged 20-44 years, globally, with clinical pregnancy rates after embryo transfer (ET) through Assisted Reproductive Techniques (ART) ranging from 20% to 35%. Multiple factors influence pregnancy success, but evidence remains inconsistent. Prophylactic low-molecular-weight heparin (LMWH) has been explored in small randomized controlled trials for its potential to enhance outcomes and reduce thrombotic risk. Similarly, aspirin has been proposed to improve live birth rates by enhancing endometrial preparation, but findings have been inconclusive due to limited sample sizes and variability among studies.

The FIRST registry aimed to assess factors associated with reproductive outcomes in women undergoing ART cycles after experiencing ≥2 implantation failures (IF) or pregnancy losses (PL). Between 2015 and 2023, 904 women were prospectively enrolled, tracking pregnancy rates, live-birth rates, and thrombotic events. Of these, 459 (50.8%) achieved a positive pregnancy test, with 422 (91.9%) resulting in intrauterine pregnancies. However, 73 (15.9%) ended in miscarriage or ectopic pregnancy.

Analysis of antithrombotic treatment showed the following live-birth rates: 228/409 (55.7%) for LMWH, 92/139 (66.2%) for aspirin (ASA), and 76/102 (74.5%) for combined therapy, all with significant univariate associations compared with no treatment ($p < 0.001$). Logistic regression adjusting for confounders (age, BMI, previous conception history, previous VTE, and antithrombotic treatment) demonstrated that live birth was negatively associated with age and positively with use of ASA, LMWH, or both (Table 2).

In conclusion, among women with repeated IF or PL following ART, antithrombotic prophylaxis significantly improves the odds of live birth in the subsequent ART attempt.

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Main characteristics of women at enrolment and anti-thrombotic treatment in the index pregnancy.

Age, median (IQR)	37 (34- 40)
BMI, median (IQR)	22.3 (20.4- 24.7
Previous pregnancies, n (%)	380 (42)
Previous VTE, n (%)	17 (1.9)
LMWH in the index pregnancy, n (%)	409 (45.2)
Low -dose ASA in the index pregnancy, n (%)	139 (15.4)
LMWH+ASA in the index pregnancy, n (%)	102 (11.3)
Live-Births in the index pregnancy, n (%)	356 (39.4)

This table provides a detailed overview of baseline characteristics of the study population at the time of enrolment, including demographic, clinical, and obstetric history data. Additionally, it categorizes the women based on the type of antithrombotic treatment administered during their index pregnancy (e.g., LMWH, ASA, or combination therapy).

Logistic regression: Probability of live birth according to obstetric history and antithrombotic treatment

Variable	P	OR	95%CI
Age	<.001	.942	.913- .973
Previous at term pregnancy after ART conception	.002	4.825	1.8- 12.9
ASA	.007	2.744	1.3- 5.7
LMWH	<.001	4.169	3- 5.8
ASA+LMWH	<.001	12.448	7.4- 20.9

This analysis evaluates the likelihood of achieving a live birth, considering factors such as previous obstetric outcomes (e.g., implantation failure, pregnancy loss) and the type of antithrombotic therapy received. The findings underscore the significant associations between specific treatments (e.g., LMWH, ASA) and improved live-birth rates after adjusting for confounders.