XXIX CONGRESSO NAZIONALE FCSA

EPARINE E GRAVIDANZA: LA STORIA CONTINUA?

Elvira Grandone
Unita' di Emostasi e Trombosi
I.R.C.C.S. " Casa Sollievo della Sofferenza"
S. Giovanni Rotondo (Foggia)

Le Eparine per:

1. Prevenzione del TEV in Ostetricia

2. Prevenzione delle Complicanze Ostetriche

Pubmed: heparin, PREGNANCY, guidelines

230 Voci bibliografiche

Arco temporale: 1976-2018

Pubmed: heparin, PREECLAMPSIA, guidelines

18 Voci bibliografiche

Arco temporale: 1998-2018

Pubmed: heparin, VENOUS THROMBOEMBOLISM, guidelines

941 Voci bibliografiche

Arco temporale: 1967-2018

Heparins
Pregnancy

- Both unfractioned- (UFH) and low molecular weight- heparins (LMWHs) exert their role by interacting with Antithrombin (AT).
- Heparin-AT complex is able to accelerate the inhibition of thrombin, and also that of factors (F) Xa, IXa, XIa and XIIa by antithrombin.
- However, thrombin and FXa are more available to the Heparin-AT inhibition in respect to other factors [*Hirsch J, Chest 2001*].
- LMWHs have advantages over UFH in terms of pharmacokinetics and convenience of administration.

Grandone E. et al, Exp Opin Pharmacoth, 2015

Table 2. Use of LMWHs to prevent GVCs or VTE: evidence from RCTs and prospective studies

Reference	Year	Type	N of women/studies	Enrollment criteria	Outcome	Use of LMWHs
Kaandorp (65)	2010	RCT	384 women	Pregnancy loss	Live birth	NR
Clark (66)	2010	RCT	294 women	Pregnancy loss	Live birth	NR
Rodger (78)	2014	RCT	292 women	High risk of GVCs or VTE, with thrombophilia	Composite (GVCs/VTE)	NR
Pasquier (67)	2015	RCT	258 women	Pregnancy loss , no thrombophilia	Live birth	NR
Schleussner (68)	2015	RCT	449 women	Pregnancy loss	Live birth	NR
Rodger (80)	2014	Meta-analysis	848 women (6 RCTs)	Previous placenta-mediated GVCs	Pre-eclampsia, Small for Gestational Age newborns, placenta abruptio, IUFD	R
Akthar (83)	2013	Systematic Review	386 women (3RCTs)	IVF/ICSI	Live birth	R *
Dentali (89)	2011	Systematic Review and meta-analysis	405 women (3RCTs)	IVF/ICSI	Live birth	R *
Dodd (15)	2013	Systematic Review	2592 women (16 RCTs)	Pregnant women	Pregnancy-related VTE	NR *

Grandone E et al, Expert Opinion in Pharmacotherapy, 2015

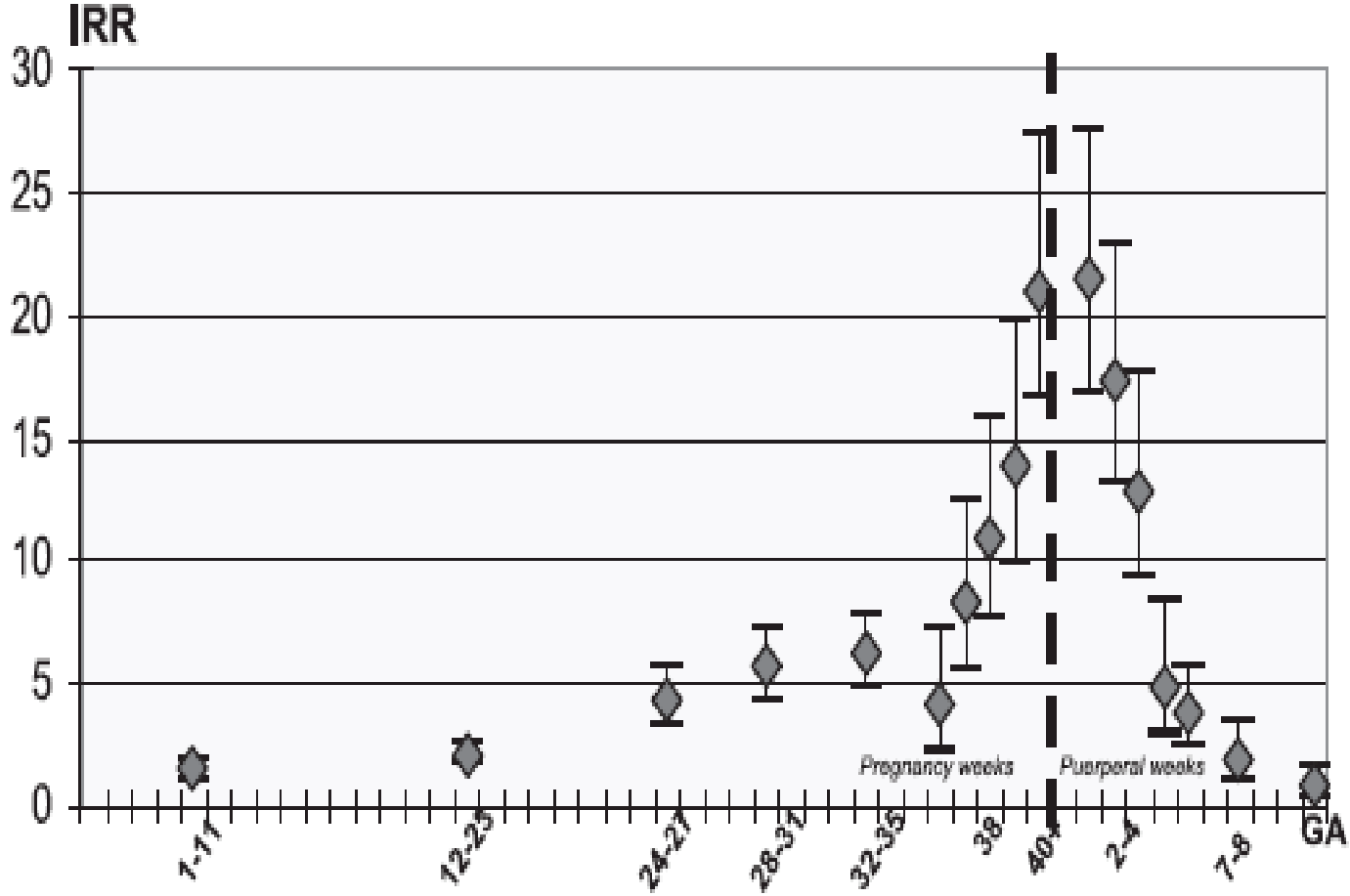

Figure 1: Adjusted* incidence rate ratios (IRR) of thromboembolism in pregnant and puerperal women versus non pregnant women not using oral contraceptives.
*Adjusted for age, calendar year and education.

Virkus RA et al, Thromb Haemost 2011

	Non-pregnant		Pregnant	
	VTE/ WY	IR (95% CI)	VTE/ WY	IR (95% CI)
Age				
15–19	79 / 827,356	1.0 (0.8–1.2)	12 / 11,577	10.4 (5.9–18.3)
20–24	152 / 622,863	2.4 (2.1–2.9)	65 / 67,951	9.6 (7.5–12.2)
25–29	298 / 889,932	3.4 (3.0–3.8)	185 / 172,126	10.8 (9.3–12.4)
30–34	392 / 1,225,052	3.2 (2.9–3.5)	161 / 147,666	10.9 (9.3–12.7)
35–39	505 / 1,468,824	3.4 (3.2–3.8)	60 / 52,684	11.4 (8.8–14.7)
40–44	707 / 1,573,804	4.5 (4.2–4.8)	7 / 8,088	8.7 (4.1–18.2)
45–49	839 / 1,548,251	5.4 (5.1–5.8)	1 / 373	26.8 (3.8–190.2)
Education				
Edu 1[a]	1272 / 2,366,661	5.4 (5.1–5.7)	109 / 96,969	11.2 (9.3–13.6)
Edu 2[b]	145 / 821,139	1.8 (1.5–2.1)	40 / 35,700	11.2 (8.2–15.3)
Edu 3[c]	984 / 2,803,864	3.5 (3.3–3.7)	196 / 182,886	10.7 (9.3–12.3)
Edu 4[d]	497 / 2,042,273	2.4 (2.2–2.7)	143 / 140,623	10.2 (8.6–12.0)

[a]Edu 1: Elementary school and no ongoing or completed education, [b]Edu 2: High School and no completed education, [c]Edu 3: Any schooling and an ongoing or completed middle education (3–4 years), [d]Edu 4: High school and ongoing or completed long education (5–6 years).

Virkus RA et al, Thromb Haemost 2011; 106: 304–309

TABLE 4
Multivariable models of factors predictive of venous thromboembolism prophylaxis during a vaginal delivery hospitalization *(continued)*

Covariate	Any prophylaxis, risk ratio (95% confidence interval)
History of thromboembolism	10.14 (9.74—10.56)
Obesity	1.29 (1.25—1.34)
Smoking	1.03 (1.00—1.07)
Immobility	5.71 (4.03—8.07)
Varicose veins	3.23 (2.89—3.60)
Multiparity	1.17 (1.09—1.25)
Hyperemesis	1.88 (1.34—2.60)
Multiple gestation	1.48 (1.39—1.59)
Assisted reproductive technology	1.04 (0.84—1.28)
Preeclampsia	1.23 (1.19—1.27)
Placental abruption	1.62 (1.53—1.72)
Endometritis	1.15 (1.04—1.28)
Pneumonia	1.32 (1.15—1.51)
Pyelonephritis	1.50 (1.24—1.80)
Influenza	0.83 (0.57—1.20)
Adult respiratory distress syndrome	1.59 (1.28—1.97)
Postpartum hemorrhage	1.50 (1.45—1.56)
Transfusion	1.66 (1.57—1.75)
Heart disease	1.02 (0.95—1.08)
Sickle cell disease	0.99 (0.74—1.33)
Systemic lupus erythematosus	1.32 (1.18—1.48)
Renal disease	0.91 (0.79—1.05)
Hypercoagulable state	9.32 (8.96—9.71)
Surgical procedure	2.75 (2.45—3.08)
Cancer	1.87 (1.23—2.86)

All of the variables in the table were included in the multivariate analysis. Risk ratios for each of the demographic and hospital level variables are reported in relation to a referent. Medical and obstetric variable risk ratios are reported with absence of the condition as the referent.

Friedman. Vaginal delivery and thromboprophylaxis. Am J Obstet Gynecol 2015.

OBSTETRICS

Thromboembolism incidence and prophylaxis during vaginal delivery hospitalizations

Alexander M. Friedman, MD; Cande V. Ananth, PhD, MPH; Eri Prendergast, MA; Suneet P. Chauhan, MD; Mary E. D'Alton, MD; Jason D. Wright, MD

Cite this article as: Friedman AM, Ananth CV, Prendergast E, et al. Thromboembolism incidence and prophylaxis during vaginal delivery hospitalizations. Am J Obstet Gynecol 2015;212:221.e1-12.

OBSTETRICS

Thromboembolism incidence and prophylaxis during vaginal delivery hospitalizations

Alexander M. Friedman, MD; Cande V. Ananth, PhD, MPH; Eri Prendergast, MA;
Suneet P. Chauhan, MD; Mary E. D'Alton, MD; Jason D. Wright, MD

Analysis of medical and obstetric risk factors for VTE demonstrated that patients with ***thrombophilia and previous thromboembolism*** were likely to receive prophylaxis; 60.8% and 72.8%, respectively, of patients with these diagnoses received prophylaxis.

TABLE 3

Medical and obstetric risk factors: venous thromboembolism prophylaxis for women hospitalized for a vaginal delivery *(continued)*

Risk factor	No prophylaxis		Any prophylaxis		*P* value
	n	%	n	%	
Hypercoagulability					< .001
No	2,606,331	97.7	61,423	2.3	
Yes	2445	39.2	3787	60.8	
Surgical					< .001
No	2,608,428	97.6	64,808	2.4	
Yes	348	46.4	402	53.6	
Cancer					< .001
No	2,608,509	97.6	65,188	2.4	
Yes	267	92.4	22	7.6	

Friedman. Vaginal delivery and thromboprophylaxis. Am J Obstet Gynecol 2015.

Venous Thromboembolism in Women Undergoing Assisted Reproductive Technologies: Data from the RIETE Registry

Elvira Grandone[1] Pier Paolo Di Micco[2] Michela Villani[1] Donatella Colaizzo[1] Carmen Fernández-Capitán[3] Jorge Del Toro[4] Vladimir Rosa[5] Alessandra Bura-Riviere[6] Isabelle Quere[7] Ángeles Blanco-Molina[8] Maurizio Margaglione[9] Manuel Monreal[10] for the RIETE Investigators

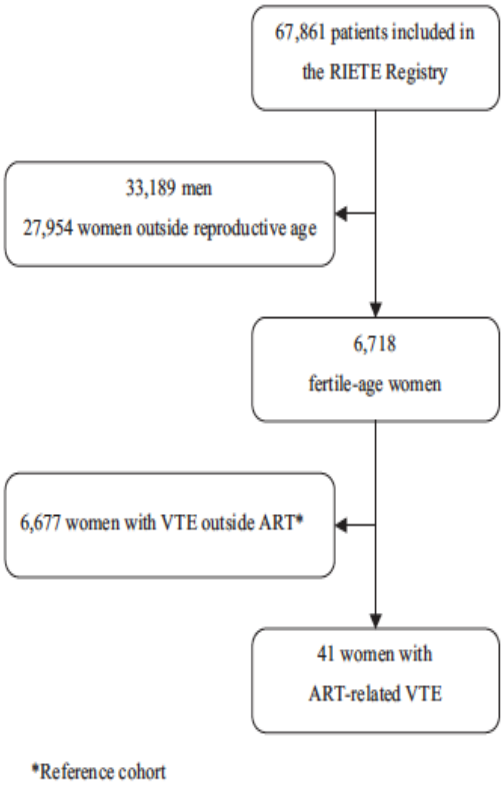

Fig. 1 Flowchart. ART, assisted reproductive technology; VTE, venous thromboembolism.

Isolated PE compared to DVT with/without PE was significantly more frequent in unsuccessful IVF (OR: 4.13, 95%CI: 1.4-12.4), in contraceptive use (OR: 2.96, 95%CI: 1.95- 4.5) and in puerperium (OR: 1.96, 95%CI: 1.16- 3.3) than in pregnancy.

When we analysed data grouping isolated PE and DVT+PE, we found that the risk of PE with/without DVT was significantly higher than isolated DVT in unsuccessful IVF (OR: 5.0, 95%CI: 1.2-20.7) as well as with the increase of BMI (OR: 1.0, 95%CI: 1.0-1.1).

Thrombosis Haemostasis, 2018

6. VTE following cesarean section

For women undergoing cesarean section without additional thrombosis risk factors, we recommend against the use of thrombosis prophylaxis other than early mobilization

(Grade 1B)**.**

6. VTE following cesarean section

For women at increased risk of VTE after cesarean section because of the presence of one major or at least two minor risk factors, we suggest pharmacologic thromboprophylaxis (prophylactic LMWH) or mechanical prophylaxis (elastic stockings or intermittent pneumatic compression) in those with contraindications to anticoagulants while in hospital following delivery rather than no prophylaxis (Grade 2B).

6. VTE following cesarean section

For women undergoing cesarean section who are considered to be at very high risk for VTE and who have multiple additional risk factors for thromboembolism that persist in the puerperium, we suggest that prophylactic LMWH be combined with elastic stockings and/or intermittent pneumatic compression over LMWH alone (Grade 2C).

For selected high-risk patients in whom significant risk factors persist following delivery, we suggest extended prophylaxis (up to 6 weeks after delivery) following discharge from the hospital (Grade 2C).

Review article

Low-molecular-weight heparins for thromboprophylaxis and treatment of venous thromboembolism in pregnancy: a systematic review of safety and efficacy

Ian A. Greer and Catherine Nelson-Piercy

Table 2. Specific LMWH used in studies of treatment and thromboprophylaxis

LMWH	Total no. of pregnancies	Treatment, no.	Thromboprophylaxis, no.
Enoxaparin	1247	105	1142
Dalteparin	789	49	740
Nadroparin	530	20	510
Certoparin	108	0	108
Riviparin	42	0	42
Thrzaparin	3	0	3
Unspecified	58	0	58
Total	2777	174	2603

Rate of bleeding: 2%

Antenatal bleeding: 0.4%

(Blood 2005;106:401-407)

Sirico A Saccone G, Maruotti GM, Grandone E, Sarno L, Berghella V, Zullo F, Martinelli P. Low molecular weight heparin use during pregnancy and risk of postpartum hemorrhage: a systematic review and meta-analysis. J Matern Fetal Neonatal Med. 2018

Results: Eight studies including 22,162 women were analyzed. Of the 22,162 women, 1,320 (6%) were administered LMWH, 20,842 (94%) women formed the non-exposed group (control group). **Women treated with LMWH had an higher risk of PPH (RR 1.45, 95% CI 1.02 to 2.05)** compared to controls; there was no difference in mean of blood loss at delivery (MD -32.90, 95% CI -68.72 to 2.93) and in risk of blood transfusion at delivery (RR 1.24,95% CI 0.62 to 2.51), respectively.

Conclusion: Women who receive LMWH during pregnancy have a significantly higher risk of developing PPH. Women who receive LMWH during pregnancy have no significantly higher mean blood loss at delivery neither higher risk of blood transfusion.

- www.fcsa.it raccomandazioni 2005

- www.siset.org linee guida 2007

  statement SISET - SIGO

PRIMARY PROPHYLAXIS WITH LMW HEPARIN IN PREGNANT WOMEN

(FCSA recommendations, June 2005)

- **Prophylaxis during pregnancy in women with PC or PS deficiency, homozygosity, combined defects) (Rec. 4.1.1)**
- **No pharmacological prophylaxis during pregnancy in women heterozygous for FV Leiden or PT 20210A, whatever the family history (Rec. 4.1.2)**
- **Prophylaxis during puerperium (4-6 weeks) in all women with thrombophilia (Rec. 4.1.3)**
- **Prophylaxis with ad hoc protocols during pregnancy and puerperium in women with AT deficiency (Recommendation 4.3)**

Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium

Green-top Guideline No. 37a

April 2015

Table 2. Estimated absolute risk of pregnancy-associated VTE with different thrombophilic defects in women with one or more symptomatic first-degree relative

Thrombophilic defect	Pregnancy (%/pregnancy, 95% CI)	Antenatal (%/pregnancy, 95% CI)	Postpartum (%/pregnancy, 95% CI)
Antithrombin, protein C or protein S deficiency[82]	4.1 (1.7–8.3)	1.2 (0.3–4.2)	3.0 (1.3–6.7)
Antithrombin deficiency type 1 (range)[83–87]*	15–50	0–40	11–28
V Leiden heterozygous[82]	2.1 (0.7–4.9)	0.4 (0.1–2.4)	1.7 (0.7–4.3)
Prothrombin gene mutation heterozygous[82]	2.3 (0.8–5.3)	0.5 (0.1–2.6)	1.9 (0.7–4.7)
V Leiden homozygous or compound heterozygosity V Leiden and prothrombin gene mutation (range)[88,89]	1.8–15.8	0–5	1–10

*These data are from a population-based study, not a family-based study

RCOG April 2015

Summary of guideline for thromboprophylaxis in women with previous venous thromboembolism (VTE) and/or thrombophilia (prophylactic doses are given in Table 3; see also Figure 1)

Risk	History	Prophylaxis
Very high	Previous VTE on long-term warfarin Antithrombin deficiency Antiphospholipid syndrome with previous VTE	Recommend antenatal high-dose LMWH and at least 6 weeks postnatal LMWH/warfarin Requires specialist management by experts in haemostasis and pregnancy
High	Previous recurrent or unprovoked VTE Previous estrogen-provoked (pill or pregnancy) VTE Previous VTE + thrombophilia Previous VTE + family history of VTE Asymptomatic thrombophilia (combined defects, homozygous FVL)	Recommend antenatal and 6 weeks postnatal prophylactic LMWH
Intermediate	Single previous VTE associated with transient risk factor no longer present without thrombophilia, family history or other risk factors Asymptomatic thrombophilia (except antithrombin deficiency, combined defects, homozygous FVL)	Consider antenatal LMWH (but not routinely recommended) Recommend 6 weeks postnatal prophylactic LMWH Recommend 7 days (or 6 weeks if family history or other risk factors) postnatal prophylactic LMWH

FVL = factor V Leiden; LMWH = low-molecular-weight heparin

RCOG 2009

DOI: 10.1111/1471-0528.13706
www.bjog.org

A comparison
pharmacologic
caesarean deli

KL Palmerola, ME D'Alton,

Department of Obstetrics & Gynecology
Correspondence: A Friedman, Departmer
168th Street, PH 16-66, New York, NY

Accepted 13 August 2015. Published Onli

Table 1. Summary of major society guideline recommendations for obstetric thromboprophylaxis for patients who have undergone caesarean delivery

ACOG
Perioperative mechanical thromboprophylaxis recommended for all patients undergoing caesarean delivery
Pharmacologic prophylaxis (LMWH or UFH) recommended for
High-risk thrombophilias
Any prior VTE event
A family history of VTE and a thrombophilia
Chest
Pharmacologic prophylaxis (LMWH) recommended for one major or two or more minor risk factors
Mechanical prophylaxis recommended for those with contraindications to pharmacologic prophylaxis
Major risk factors (one needed for prophylaxis)
Immobility (strict bed rest ≥1 week in the antepartum period)
Postpartum haemorrhage ≥1000 mL with surgery
Previous VTE
Pre-eclampsia with fetal growth restriction
Thrombophilia
Antithrombin deficiency
Factor V Leiden (homozygous or heterozygous)
Prothrombin G20210A (homozygous or heterozygous)
Medical conditions
Systemic Lupus erythematosus
Heart disease
Sickle cell disease
Blood transfusion
Postpartum infection
Minor risk factors (two needed for prophylaxis)
BMI >30 kg/m^2
Multiple pregnancy
Emergency caesarean
Smoking >10 cigarettes/day
Fetal growth restriction
Thrombophilia
Protein C deficiency
Protein S deficiency
Pre-eclampsia
RCOG
Risk factors (LMWH recommended for any of the following risk factors)
Previous VTE
Antenatal anticoagulation
Caesarean in labour
Asymptomatic thrombophilia
Prolonged admission
Major medical co-morbidities (e.g. heart or lung disease, systemic Lupus erythematosus, cancer, inflammatory conditions, nephrotic syndrome, sickle cell disease, intravenous drug user
Age >35
BMI >30 kg/m^2
Parity ≥3
Smoker
Any surgical procedure
Gross varicose veins

Under RCOG guidelines, 85.0% of patients would receive post-caesarean pharmacologic prophylaxis (95% CI 80.5–88.6%). In comparison, 1.0% of patients would receive pharmacologic prophylaxis under ACOG guidelines (95% CI 0.3–3.0%) and 34.8% of patients would receive prophylaxis under Chest guidelines (95% CI 29.6–40.4%).

Heparin use according to different GL

Risk factors according to different GL

The most common risk factors for prophylaxis using RCOG criteria were caesarean during labour, maternal age ≥35, and obesity. Other risk factors included pre-eclampsia, infection, and high parity. Leading indications for prophylaxis based on Chest guidelines included emergency caesarean, pre-eclampsia, obesity, multiple gestation, and postpartum haemorrhage. Prophylaxis based on ACOG recommendations resulted in three women receiving prophylaxis, all on the basis of having a prior event.

Palmerola KL et al, BJOG 2015

Table 3. Other international guidelines for post-caesarean pharmacologic prophylaxis

Queensland, Australia	Swedish guidelines

and prolonged repair

Conclusion

Our findings highlight a major concern regarding strategies to reduce obstetric thromboembolism: what is the optimal management for postpartum patients at increased risk for an event? Current recommendations diverge significantly, with the ACOG recommending pharmacologic prophylaxis for a small minority of patients, and the RCOG recommending treatment for a large majority of patients. Research on obstetric VTE is challenging because of relatively low incidence, but VTE is one of the leading causes of maternal morbidity and severe morbidity, and there is an urgent clinical need to clarify optimal prophylaxis regimens.

Palmerola KL et al, BJOG 2015

Le Eparine per:

1. Prevenzione del TEV in Ostetricia

2. Prevenzione delle Complicanze Ostetriche

Thrombophilia and Placenta Mediated Pregnancy Complications

Starting in the 1990s reports of an increase in placenta mediated pregnancy complications (recurrent miscarriage, late fetal loss, preeclampsia, placental abruption, and birth of a small for gestational age (SGA) child) in women with thrombophilia began to appear in the medical literature [Dekker GA et al AJOG, 1995, Grandone E. et al T&H, 1997, Grandone E. et al T&H 1999….].

Association: Thrombophilia and adverse pregnancy outcomes: Danish National Birth Cohort

Likke et al J Thromb Haemost 2012

- FVL, PTm and MTHFR C677T assessed for risk of severe preeclampsia, FGR, very preterm delivery, abruption and a composite of these.

- Nested case-cohort study of 2032 cases and 1851 random controls

- FVL increased the risk of composite outcome (OR: 1.4, 95%CI: 1.1-1.8), severe preeclampsa (OR 1.6, 95%CI: 1.1-2.4) and abruption (OR 1.7, 95%CI 1.2-2.4).

- PTm was not significantly associated with any outcomes

- MTHFR C677T associated with severe preeclampsia (OR 1.3, 95%CI 1.1-1.6).

Impact of common thrombophilias and JAK2 V617F on pregnancy outcomes in unselected Italian women

Grandone E et al, on behalf of PRENACEL study Group, J Thromb Haemost 2011

- Of the original sample formed by 5345 pregnant women admitted to the 14 hospitals of the 5 provinces of the Campania region (Italy), **3097 samples were investigated for FVL, PTm and JAK2 somatic mutation ; obstetric history was also collected.**

- Nested case- control study and prospective evaluation of the outcomes

- No positive association with any adverse outcomes

- Carriership of one of thrombophilias considered showed a positive trend with a delivery of a SGA neonate (OR: 1.5, 95% C.I.: 0.9-2.5).

Thrombophilia and Placenta Mediated Pregnancy Complications

While strong associations and consistent associations are important factors to consider in determining causation other factors must be considered prior to concluding a causal association between a risk factor and disease.

These other factors to consider include

- *specificity of association*
- *temporal relationship between the risk factor and disease*
- *biologic plausibility*
- *biologic gradient (more risk factor causes worse disease),*
- *experimentation, where manipulating the risk factor exposure affects disease risk .*

LMWH has been used to prevent pregnancy complications in women with heritable thrombophilia predicated on…..

The association of thrombophilia with adverse outcomes

The effectiveness in APS

Safety of LMWH in pregnancy

Lack of an alternative treatment

Underlying biological plausibility

- Anticoagulant effect eg anti-Xa increase in TFPI
- Modulation of inflammatory /immune response
- Direct effect on throphoblast: apoptosis, angiogenesis
- LMWH rescues pregnancies in a murine model of APS-induced fetal loss by suppressing complement activity (*Girardi et al, 2004*)
- Does antithrombotic therapy prevent PMPC?

NOH-AP & NOH-PE studies

Gris J.C. et al. 2010, 2011

- NOH-AP: 160 women

NOH-PE: 224 women

- Abruption in 1st pregnancy
16.3% with trombophilia

Severe PE in 1° pregnancy
14.2% with thrombophilia

- LMWH vs no LMWH
- LDA at discretion of the treating physician (n=48)

LMWH/LDA vs LDA

- Composite outcome:
- PE, IUGR/SGA<the 5° percentile, abruption, IUFD after 20 weeks

Preeclampsia:
LMWH 5.8%
Control 16.7%

- Enoxaparin 12.6%
- No enoxaparin 31.3%

Severe PE:
LMWH 0.9%
Control 7.1%

LMWH/LDA and Thrombophilia

- FRUIT-139 women with thrombophilia+previous delivery at <34/52 for preeclampsia/SGA

- LDA/LMWH vs LDA

- Recurrent HD at <34 weeks lower with LMWH, risk difference 8.7% (CI 1.9-15.5%; p 0.012).

- Reduced steroids, but no difference to clinical outcome (*De Vries et al., Journ Thromb Haemost 2012*).

Should be more selective ?

- Despite biological plausibility from
- Association between thrombosis, thrombophilia and placental damage
- Benefit in only some groups in some studies treated with antithrombotics eg LDA and Preeclampsia
- Pragmatic intervention with LMWH +/-LDA for RPL and other PMPC shows inconsistent benefit
- PMPC have heterogeneous causes, so should we focus on more homogeneous groups such as women with thrombophilia or start earlier to influence placentation?

LMWH and adverse pregnancy outcome: Are we missing something?

- Benefits may be limited to particular phenotypes or genotypes
- Specific thrombophilias and their interaction with disease
- Thrombotic damage such as placental infarction
- Are there biomarkers or phenotypes to guide treatment?

RCOG 2015

Which agents should be used for thromboprophylaxis?

Low-molecular-weight heparin (LMWH)

LMWHs are the agents of choice for antenatal and postnatal thromboprophylaxis.	A
Doses of LMWH are based on weight. For thromboprophylaxis the booking or most recent weight can be used to guide dosing. [*New 2015*]	B
It is only necessary to monitor the platelet count if the woman has had prior exposure to unfractionated heparin (UFH).	B
Monitoring of anti-Xa levels is not required when LMWH is used for thromboprophylaxis.	D
Doses of LMWH should be reduced in women with renal impairment.	C
LMWH is safe in breastfeeding.	A

Table 3. Summary of indications to the use of Aspirin or LMWHs in pregnancy to prevent recurrent GVCs or first VTE

Complication	Aspirin	LMWH
Early Pregnancy loss	Not Indicated	Not Indicated°
Early Pregnancy loss in APS	**Indicated**	**Indicated**
Intrauterine Foetal Death*	Not Indicated	***Probably indicated***
Intrauterine Foetal Death in APS	**Indicated**	**Indicated**
Pre-eclampsia	**Indicated**	***Probably indicated***
Small for Gestational Age Newborn	Not Indicated	***Probably indicated***
Pregnancy loss after an ART attempt	Not Indicated	***Probably indicated***
Prevention of first VTE	Not Indicated	**Indicated**

° More research needed for women carrying inherited thrombophilia

* Included that associated with inherited thrombophilia

Grandone E et al, Expert Opinion in Pharmacotherapy, 2015

Federazione Centri per la diagnosi della trombosi e per la Sorveglianza delle terapie Anti-trombotiche (FCSA)

Segreteria: Via Pace 9, Milano

Tel. 025450989

Proposta relativa alla prescrivibilità e rimborsabilità delle eparine a basso pm (EBPM)

Luigi Ria

Elvira Grandone

Francesco Marongiu

- ***Motivo della richiesta:***

  Garantire, attraverso una profilassi anti-trombotica con EBPM per tutta la gravidanza e il puerperio, la sicurezza massima possibile alle donne ad alto rischio tromboembolico in presenza o meno di trombofilia o con aborti ripetuti e trombofilia.

OTTILIA REGISTER

DATI PRELIMINARI SISET 2018

Prevention of pregnancy loss in carriers of thrombophilia: The OTTILIA register (Observational sTudy on antiThrombotic prevention in thrombophILIA and pregnancy loss).

ORTHO-START

CHIRURGIA ELETTIVA ED IN EMERGENZA (PROTESI ANCA- GINOCCHIO; FRATTURA FEMORE) IN PAZIENTI ANTICOAGULATI

Scopo generale: osservazione e registrazione dei dati relativi alla gestione peri-operatoria e alle complicanze in pazienti trattati con farmaci anticoagulanti e/o antiaggreganti per contribuire al miglioramento della gestione del paziente fragile come il paziente anziano con pluripatologie e plurimedicato, al fine di ridurre le complicanze e la mortalità a breve e medio termine.

Elvira Grandone
Angelo Ostuni
Francesco Marongiu

BARI, REGIONE PUGLIA, 16 NOVEMBRE