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Not all preeclampsia (PE) is the same. New data on isolated PE vs PE-HELLP syndrome - and why close monitoring matters for patients' cardiovascular and kidney health

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Divergent Risk Factors and Outcomes in Hemolysis, Elevated Liver Enzymes, and Low Platelets Syndrome and Isolated Preeclampsia

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1/ HELLP syndrome is usually lumped with preeclampsia as “the same disease”. This nationwide French study (CONCEPTION) shows isolated PE (iPE) & PE-HELLP actually diverge in risk factors AND outcomes

Why does it matter?

Pregnancy-associated AKI + thrombocytopenia



FAST DIFFERENTIATION

1

Abnormal PT/INR + low
fibrinogen + hypoglycemia
Think AFLP or DIC

2

ADAMTS13 activity <10%
TTP

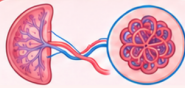
3

Hypertension + placental or
liver phenotype
Preeclampsia / HELLP

4

Severe kidney-predominant
TMA that persists postpartum
Complement-mediated TMA

PREECLAMPSIA



Hypertension + proteinuria or
organ injury

Kidney: usually mild-moderate
AKI; glomerular endotheliosis

Coagulation usually normal

Delivery BP control renal-
adjusted magnesium

Expected course: begins
improving postpartum

HELLP



MAHA + low platelets + AST/ALT
rise

Kidney: TMA/ATN overlap; AKI
may be substantial

Coagulation often normal unless
DIC

May worsen for 24-48 h after
delivery, then recover

No recovery: reconsider TTP or
complement-mediated TMA

AFLP



Acute liver failure phenotype

Hypoglycemia PT/INR ↑
fibrinogen ↓ bilirubin ↑

Kidney: AKI commonly reflects
ATN or hypoperfusion

Delivery IV dextrose correct
coagulopathy

TTP



Severe thrombocytopenia +
MAHA; neurologic features

Kidney injury usually less
dominant than in aHUS

ADAMTS13 <10% coagulation
normal

**Urgent plasma exchange +
corticosteroids**

Do not await ADAMTS13 if
suspicion is high

COMPLEMENT-MEDIATED TMA aHUS



**Kidney-predominant MAHA +
thrombocytopenia**

Rapid oliguric AKI; KRT often
required

Coagulation usually normal

Persists or worsens postpartum

Exclude TTP and secondary
causes; start anti-C5 early when
supported



72 hours is a warning checkpoint, not an absolute rule. Persistent hemolysis, thrombocytopenia, or
AKI requires reassessment.

sFlt-1/PlGF may support placental disease, but is not a stand-
alone discriminator for TMA or AFLP.

2/ PE affects millions of pregnancies; HELLP is rare (0.5-1%), but it's far more severe, with liver thrombotic microangiopathy and multiorgan injury.

Do they carry the same long-term CV/renal risk?

#VisualAbstract by @KajareeG

Divergent Risk Factors and Outcomes in HELLP and Isolated Preeclampsia



AIM

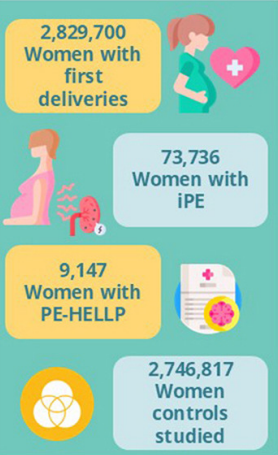
Risk factors, short-term and long-term outcomes of women with **PE with HELLP (PE-HELLP)** or **isolated PE (iPE)** studied

COHORT

CONCEPTION
(French nationwide, population-based, prospective cohort)

Women who gave birth **≥ 22 weeks** of gestation

2010-2018



Association with	iPE	PE-HELLP
Diabetes, chronic hypertension, obesity	• • •	•
Social deprivation	+	-
Chronic inflammatory disease and lupus	•	• • •
Risk of major cardiovascular events/stroke/thromboembolism and renal failure (1 st year)	Less	More
> 1 st year, risk factor of	All outcomes	Hypertension and renal failure only

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Conclusion: Isolated PE and PE with HELLP differ regarding their risk factors and types and dynamics of their major complications.

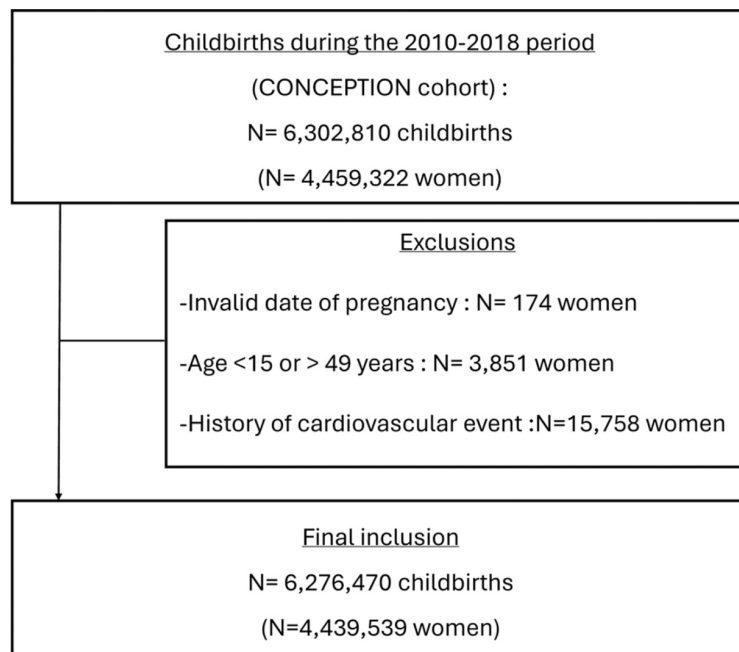
Halimi JM et al., 2026. VA by Kajaree Giri, MD, DM.

3/ Methods:

🇫🇷 CONCEPTION cohort= nationwide French health data system, 2010-2018, all first births ≥22 weeks gestation

👤 Final population: 2,829,7000 women- 72, 736 with iPE, 9,147 PE-HELLP, 2,746,817 controls

🛑 Exclusions: age <15/>49y, invalid pregnancy dates, prior CV events



NB: 137 women had 2 HELLP, 1 women had 3 HELLP

4/  PE and PE-HELLP were identified using standard diagnosis codes
 Outcomes (stroke, heart disease, kidney failure, etc) were tracked separately for the first year after birth and beyond, adjusting for smoking, obesity, social deprivation, and diabetes

5/ Risk factors differ: diabetes, chronic HTN & obesity more linked to iPE
Social deprivation  risk of iPE but  risk of PE-HELLP

 Chronic inflammatory diseases and lupus are more linked with PE-HELLP

Table 3. Crude and adjusted odds ratios of developing preeclampsia with or without HELLP syndrome during the first pregnancy according to women's characteristics and medical history

Parameters	Crude odds ratios		Adjusted odds ratios	
	PE without HELLP	PE-HELLP	PE without HELLP	PE-HELLP
Age category				
< 20 yr	0.95 (0.91–0.99)	0.62 (0.54–0.72)	0.87 (0.84–0.91)	0.68 (0.59–0.78)
20–30 yr	Ref	Ref	Ref	Ref
30–40 yr	1.26 (1.24–1.28)	1.45 (1.39–1.51)	1.21 (1.19–1.23)	1.38 (1.32–1.44)
> 40 yr	2.64 (2.56–2.73)	2.39 (2.18–2.62)	2.13 (2.06–2.20)	2.03 (1.85–2.23)
Chronic hypertension	7.51 (7.31–7.72)	6.24 (5.77–6.74)	5.62 (5.46–5.78)	5.00 (4.61–5.42)
Diabetes	4.51 (4.27–4.75)	2.21 (1.80–2.70)	2.34 (2.21–2.48)	1.34 (1.09–1.65)
Tobacco use	0.98 (0.96–1.01)	0.78 (0.72–0.84)	0.90 (0.87–0.92)	0.74 (0.69–0.81)
Obesity	3.32 (3.25–3.40)	2.36 (2.19–2.54)	2.75 (2.69–2.82)	2.11 (1.96–2.27)
Social deprivation	1.28 (1.26–1.31)	0.84 (0.79–0.90)	1.29 (1.27–1.32)	0.92 (0.86–0.99)
Chronic kidney disease	10.00 (8.72–11.48)	5.70 (3.58–9.07)	2.73 (2.33–3.18)	1.81 (1.13–2.93)
Congenital heart defect	1.41 (1.16–1.71)	1.87 (1.16–3.02)	0.98 (0.80–1.20)	1.43 (0.89–2.31)
Chronic inflammatory disease	1.33 (1.24–1.43)	1.80 (1.53–2.13)	1.14 (1.06–1.23)	1.52 (1.26–1.82)
Systemic lupus erythematosus	2.28 (1.96–2.66)	4.53 (3.34–6.14)	1.23 (1.03–1.47)	2.01 (1.41–2.86)
HIV infection	2.23 (1.91–2.59)	2.22 (1.46–3.38)	1.31 (1.10–1.56)	1.10 (0.70–1.74)

HELLP, hemolysis, elevated liver enzymes, and low platelets syndrome; PE, preeclampsia.

5/ Within first year postpartum both iPE and PE-HELLP  risk of hypertension, stroke, MACE, VTE& CKD vs controls, but PE-HELLP hit harder:

 MACE aHR 6.9 vs 3.91

 Stroke aHR 9.71 vs 4.17

6/ Renal risk was the most striking: within 1 year, CKD risk  10.9-fold with iPE and 29.4-fold with PE-HELLP

Chronic dialysis risk  4.7-fold with PE vs  8.7-fold (PE-HELLP) vs controls

7/ After 1 year:

 iPE stays a risk factor for all outcomes

🔥 PE-HELLP stays a risk factor for hypertension and renal failure

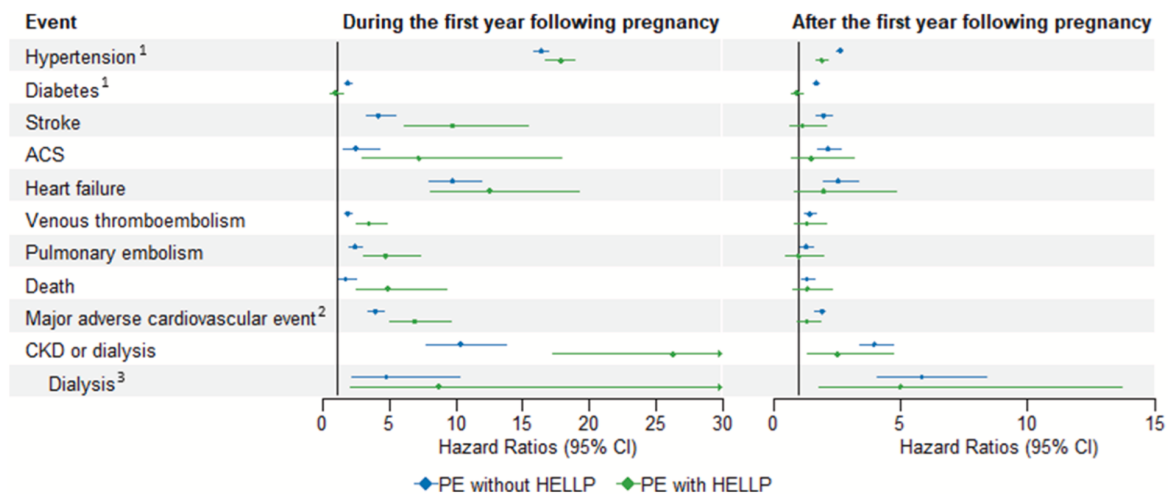


Figure 2. Adjusted hazard ratios of developing hypertension, diabetes, or cardiovascular diseases within and after the first year following a preeclampsia with or without HELLP syndrome (forest plot). ¹The models estimating the hazard ratios of developing hypertension and diabetes were performed in the subpopulations of women without history of hypertension ($n = 2,786,612$) or diabetes ($n = 2,815,058$), respectively. ²These models were adjusted on tobacco smoking, obesity, social deprivation, and history of diabetes. ³At least 40 dialysis sessions (to ensure that it corresponds to chronic, not acute dialysis). ACS, acute coronary syndrome; CI, confidence interval; CKD, chronic kidney disease; HELLP, hemolysis, elevated liver enzymes, and low platelets syndrome; PE, preeclampsia. Control group: pregnancies without HELLP or preeclampsia. Major adverse cardiovascular events include stroke, ACS, heart failure, and death.

8/ After 1 year:

- ☐ Hypertension: aHR 2.64 (iPE) vs 1.91 (PE-HELLP)
- ☐ CKD risk similar in both: aHR 3.97 (iPE) vs 2.53 (PE-HELLP)
- ☐ Dialysis risk: 5.85 vs 5
- 🔑 Renal follow-up is key for both groups

9/ Context: prior UK/ German/Danish/Swedish cohorts found PE-doubles CKD risk, but none isolated HELLP's specific contributions. This study is the first to

quantify the gap

Study	Country	Year	Follow-up	CKD Risk (aHR/aOR)	Note
Ayansina et al.	UK	2016	2.5M person-years	1.96 (1.45–2.56)	No difference between gestational HTN and PE
Goetz et al.	Germany	2021	5.4 years	~1 (similar)	Risk rises sharply with preterm delivery
Kristensen et al.	Denmark	2019	Nationwide	~1 (similar)	Confirms German findings
Barrett et al.	Sweden	2020	20.7 years	~1 (similar)	HELLP was included in PE — not separated
Halimi et al— iPE	France	2026	<1 year	10.87 (8.26–14.29)	HELLP excluded — isolated PE only
Halimi et al— PE-HELLP	France	2026	<1 year	29.41 (19.61–45.45)	Nearly 3x higher than isolated PE
Halimi et al— iPE	France	2026	≥1 year	3.97 (3.37–4.69)	Risk persists, but lower
Halimi et al— PE-HELLP	France	2026	≥1 year	2.53 (1.35–4.72)	Converges with isolated PE

10/ 💪 STRENGTHS: nationwide, 10 years, no loss to follow-up

⚠️ Limitations: dx via hospital/drug codes 📉 underdiagnosis of mild HTN/CKD; HELLP dx not biology-confirmed; censoring at 2nd pregnancy may ⬇️ long-term risk estimates

11/ TAKEAWAY

🔥 iPE & PE-HELLP are NOT interchangeable- different risk profiles, different complications dynamic.

🔥 Both need long-term follow-up, but PE-HELLP demands especially close monitoring

12/ If you want to know more on pre-eclampsia and the rest of TMA's in pregnancy, read the [#KlReportsCommunity](#) blogs:

<https://www.kireportscommunity.org/pregnancy-kidneycare>

📖 #Klreports thread by Cristina Popa @CristinaDeReins (Romanian nephrologist)
Thank you, @MChanMD and @sophia for the feedback

