

2018 Campaign



Kidneys & Women's Health

Include, Value, Empower

8 March 2018



World Kidney Day
is a joint initiative of



International Society
of Nephrology

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Date: March 8, 2018

**Theme: Kidneys &
Women's Health –
Include, Value,
Empower**

World Kidney Day is a joint initiative of



International Federation
of Kidney Foundations
Improving kidney health worldwide

- **Title:**

- *“What we do and do not know about women and kidney diseases; Questions unanswered and answers unquestioned: Reflection on World Kidney Day and International Women’s Day.”*

- **Authors:**

- *Giorgina B Piccoli, Mona Alrukhaimi, Zhi-Hong Liu, Elena Zakharova, Adeera Levin*

La pré-éclampsie: renouveau d'une ancienne maladie

WIKIPEDIA

La pré-éclampsie (appelée aussi toxémie gravidique) est une hypertension artérielle gravidique (HTA) qui apparaît dans la deuxième moitié de la grossesse (après 20 semaines d'aménorrhée), associée à une protéinurie.

Le terme pré-éclampsie fait référence au fait qu'il s'agit d'une condition clinique qui, lorsqu'elle n'est pas prise en charge, peut évoluer vers l'éclampsie, laquelle se manifeste par l'apparition de convulsions et constitue une situation d'urgence vitale.

La pré-éclampsie: renouveau d'une ancienne maladie

INSERM Pré-éclampsie: Une maladie de la grossesse fréquente et parfois gravissime. La pré-éclampsie est une maladie fréquente de la grossesse, associée à une hypertension artérielle et à l'apparition de protéines dans les urines. (...)

La pré-éclampsie est une pathologie de la grossesse caractérisée par une élévation de la pression artérielle se produisant au plus tôt au milieu du second trimestre (après vingt semaines d'aménorrhée). Elle s'accompagne d'une élévation de la quantité de protéines présente dans les urines. La maladie peut également survenir plus tardivement, peu de temps avant l'accouchement ou parfois même après (postpartum).

Responsable d'un tiers des naissances de grands prématurés en France, ce syndrome est une cause majeure de retard de croissance intrautérin. Il reste en outre la deuxième cause de décès maternels en France (environ 20 décès par an). Environ 5% des grossesses s'accompagnent de pré-éclampsie.

(...) dans 1 cas sur 10, une forme sévère survient. La seule façon de sauver la mère est alors d'extraire le fœtus et son placenta, que le fœtus soit déjà viable ou non.

La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Tout semble simple et bien connu:

La pré-éclampsie est un syndrome lié à la grossesse, qui se manifeste par une augmentation de la tension artérielle, et une protéinurie chez une femme normotendue et sans protéinurie avant la grossesse.

Le syndrome apparaît typiquement après 20 semaines de gestation

Le traitement est l'accouchement

La tension artérielle et la protéinurie redeviennent normales 1-3 mois après l'accouchement.

La pré-éclampsie: une vieille connaissance, mais encore une inconnue

La pré-éclampsie fait partie d'un chapitre plus vaste, qui est d'habitude nommé « les désordres hypertensives de la grossesse »:

Pré-éclampsie: 2-5% des grossesses

Hypertension induite par la grossesse: 2-5% des grossesses

Protéinurie induite par la grossesse: 2-5% des grossesses

HELLP syndrome: 0.5-1%

Restriction de croissance intra-utérine: 2-5% des grossesses

En synthèse: 10-15% des grossesses sont concernées

La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Tout semble simple et bien connu:

**La cause de la pré-éclampsie est une mauvaise
« placentation ».**

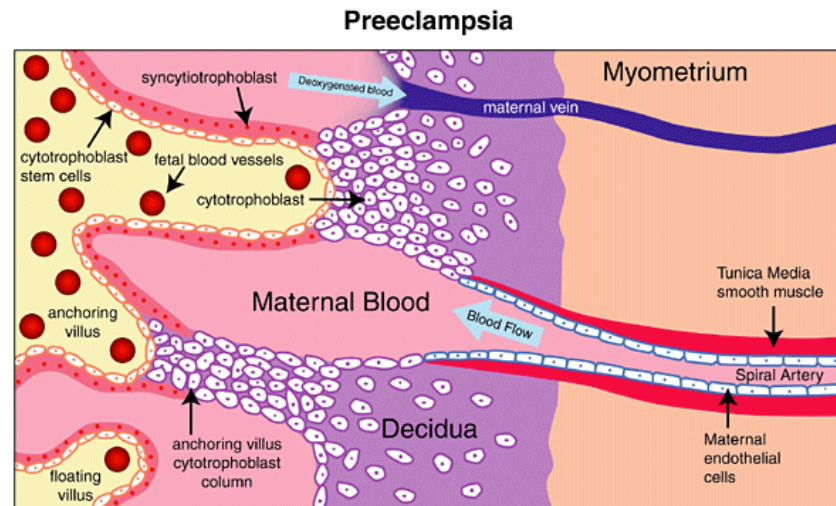
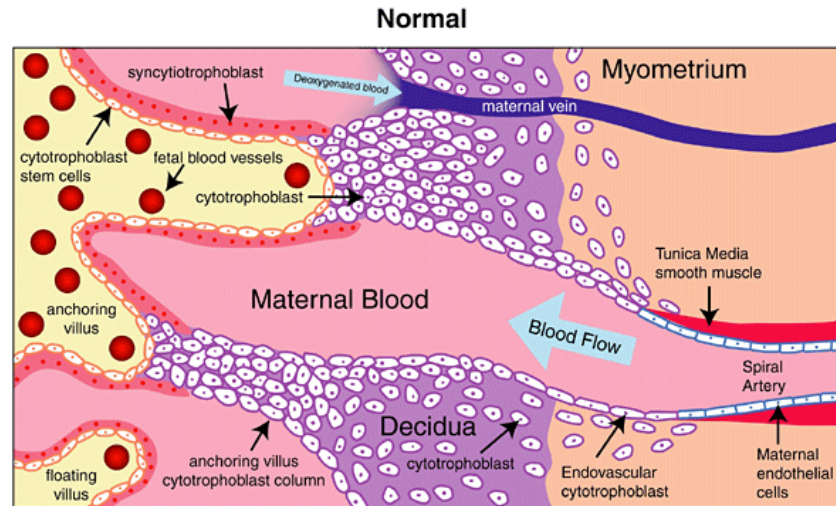
**Le placenta ne se développe pas suffisamment et cette
manque de développement génère une vraie tempête
hormonale, avec un déséquilibre de facteurs pro-
angiogéniques et anti-angiogéniques, qui finalement
affectent les structures endothéliales, en particulier au
niveau rénal.**

**L'hypertension et la protéinurie sont la réponse
physiologique à cette tempête.**

La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

La cause de la pré-éclampsie est une mauvaise « placentation ».



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Tout semble simple et bien connu:

**Après l'accouchement la tempête se calme,
Et la santé, comme le soleil, revient.**



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Mais est-ce réellement si simple?

Et pourquoi devons-nous, comme néphrologues, nous intéresser à cet syndrome sévère mais réversible?



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Mais est-ce réellement si simple?

Est-ce que toutes les pré-éclampsies sont pareilles?

Quel est le rapport entre pré-éclampsie et maladie rénale chronique?

Est-il possible d'éviter la pré-éclampsie?

Est-il possible de traiter la pré-éclampsie?

Quels sont les effet à court terme sur la maman et sur le bébé?

Quels sont les effet à long terme sur la maman et sur le bébé?



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

La pré-éclampsie ou les pré-éclampsies ?

Femme, 28 ans, pas d'antécédents de maladie, hospitalisation, chirurgie; IMC 24, TA normale; maitresse d'école.

Première grossesse: à 29 semaines, céphalée, malaise, prise de 2 Kg dans une semaine; TA 150/90; protéinurie >300 mg/dl; hospitalisation, début du traitement antihypertenseur, mais, à 30 semaines, accouchement d'urgence, pour doppler pathologique et signe de souffrance fœtale, d'un bébé de sexe féminin, poids 700 g (5^{eme} centile)

Le bébé est hospitalisé en réanimation

(...)



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

La pré-éclampsie ou les pré-éclampsies ?

**Femme, 39 ans, thyroïdite chronique sous Levothyroxine;
IMC 26, TA normale; infirmière.**

**Troisième grossesse: à 37 semaines, à l'occasion d'un
contrôle de routine, TA 140/100; protéinurie 30 mg/dl;
Hospitalisation immédiate; naissance d'un bébé de sexe
féminin, poids 3010 g (50^{ème} centile), Apgar 9.**

Le bébé et la maman sont en bonne santé

(...)



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

La pré-éclampsie ou les pré-éclampsies ?

La classification de la pré-éclampsie est complexe:

Précoce – Tardive

(>34 semaines?)

Sévère – Légère

(Hypertension, Protéinurie, Retard de croissance?)

Placentaire – Maternelle

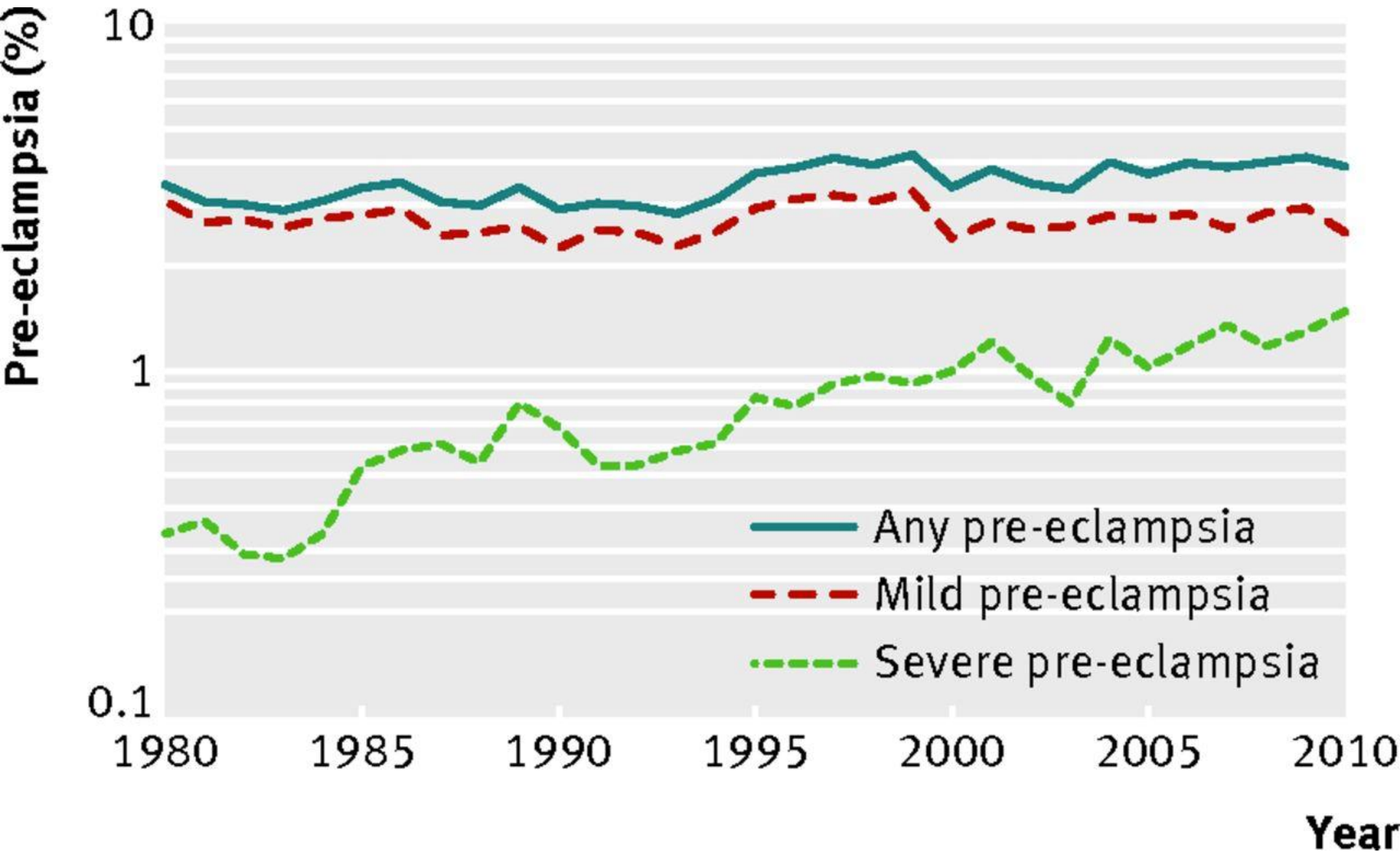
(facteurs prédisposants?)

Angiogénique – Non-angiogénique

(biomarqueurs?)



La pré-éclampsie: une vieille connaissance, mais encore une inconnue



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Mais est-ce réellement si simple?

Les facteurs de risque « placentaires »

- Une grossesse multiple
- Une grossesse obtenue par fécondation assistée (risque en fonction de la complexité des manœuvres in vitro, max pour l'ovodonation)
- Un âge de plus de 40 ans ou de moins de 18 ans,
- Des antécédents familiaux de pré-éclampsie (mère, grand-mère...)

Mais:

- *Tabagisme....*

Et que dire de:

- *Un antécédent de pré-éclampsie*
- *Une première grossesse (nulliparité)*
- *Un nouveau partenaire*



La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Mais est-ce réellement si simple?

Les facteurs de risque « placentaires »

Editorial Commentary

How Does Smoking Reduce the Risk of Preeclampsia?

S. Ananth Karumanchi, Richard J. Levine

Although smoking during pregnancy may lead to many adverse effects, such as fetal growth restriction, placental abruption, stillbirth, and preterm labor, smoking is the only environmental exposure known to consistently reduce the risk of preeclampsia and gestational hypertension.¹ The article by Wikström et al² is a major step forward in understanding this protective effect. Using data from the Swedish Medical Birth Register in a large epidemiological study of >600 000 Nordic women, the authors conclude that use of Swedish snuff, a smokeless tobacco, did not reduce the risk of preeclampsia and gestational hypertension but that tobacco, when smoked, did. They infer that combustion products of tobacco, such as carbon monoxide (CO), protect against preeclampsia but that constituents of tobacco, such as nicotine, do not. The data strengthen and extend results of a previous smaller study using the Swedish Medical Birth Register, which had reported a similar association.³

Although snuff use did not reduce the risk of mild or severe preeclampsia, preeclampsia that began before or after 27

weeks of pregnancy may be believed that the clinical phenotype of preeclampsia may be mediated by a circulating antiangiogenic state largely attributed to placental overproduction of soluble fms-like tyrosine kinase 1 (sFlt1), an endogenous vascular endothelial growth factor signaling inhibitor, and soluble endoglin (sEng), a transforming growth factor- β signaling inhibitor.⁴ The etiology of these alterations has been the subject of intense debate, with a number of hypotheses advanced, including oxidative stress, altered immunologic factors, insulin resistance, and enhanced angiotensin II signaling. Can we explain the effects of smoking reported by Wikström et al² in terms of our new understanding of the pathogenesis of preeclampsia?

First of all, smoking during pregnancy has been associated with lower circulating concentrations of the antiangiogenic proteins, sFlt1 and sEng, and higher concentrations of the proangiogenic protein, placental growth factor.^{5,6} Because preeclampsia usually begins after the middle of the second trimester of pregnancy coincident with substantial rises in

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Les facteurs de risque

Est ce que la forme Maternelle est réellement
une pré-éclampsie?

- Hypertension artérielle
- Diabète,
- Surpoids
- Obésité
- Maladie auto-immune

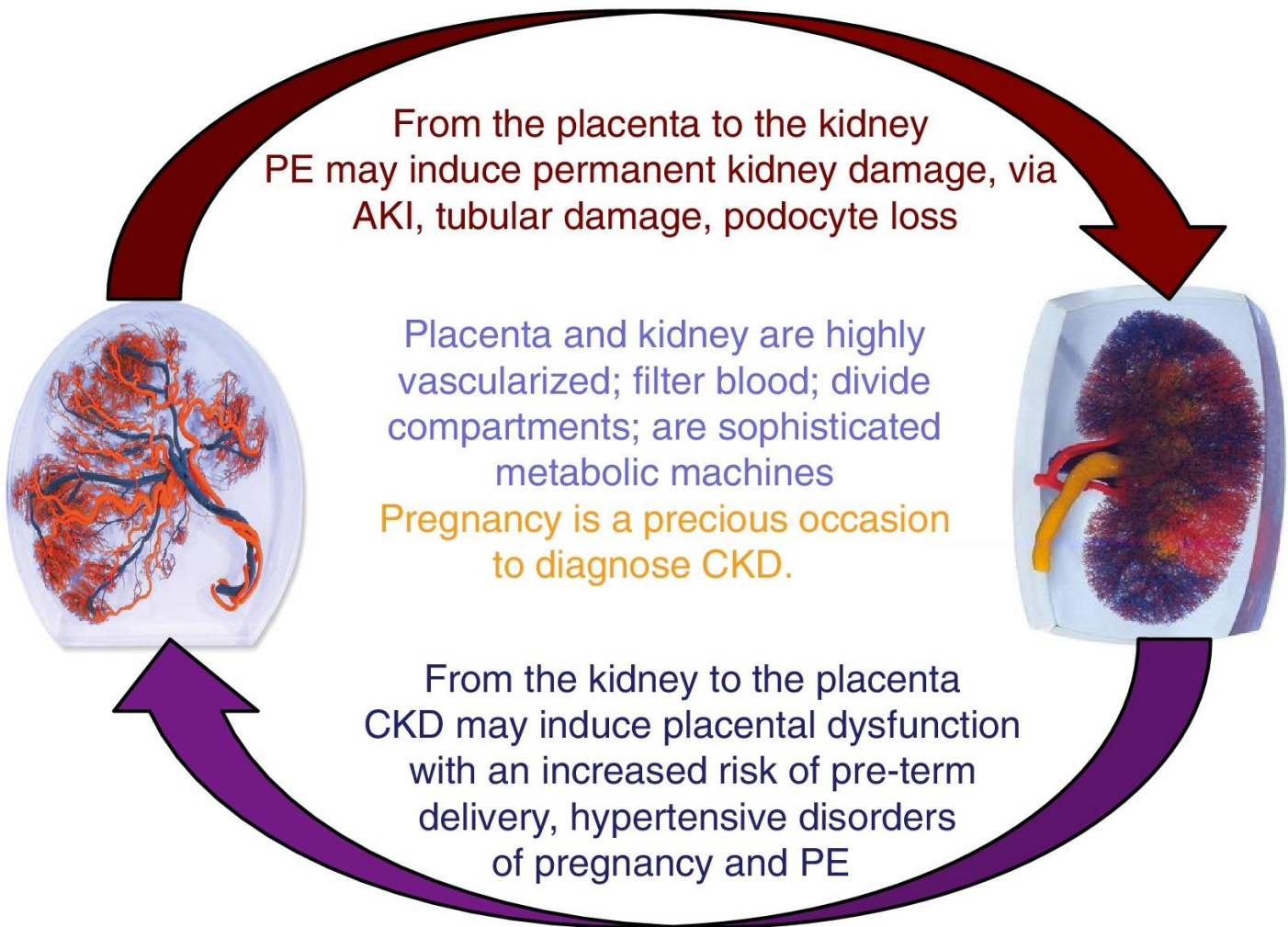
- Maladie rénale chronique



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Rein et placenta, un' hypothèse « circulaire »



What we do and do not know about women and kidney diseases?

Reflection on World Kidney Day and International Woman's Day

PE = preeclampsia; AKI = acute kidney injury; CKD = chronic kidney disease

La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Mais est-ce réellement si simple?

Les facteurs de risque pour la pré-éclampsie sont presque tous en commun avec la maladie rénale chronique.

En conséquence de l'énorme réserve fonctionnelle rénale, la maladie rénale chronique se manifeste quand une partie importante du tissu rénal est endommagée, et nous sommes aveugles aux blessures initiales.

Le partage des facteurs de risque entre la pré-éclampsie et la maladie rénale chronique suggère que des lésions rénales précoces peuvent être la voie finale commune de la pré-éclampsie « maternelle »

La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Mais est-ce réellement si simple?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Gestational Hypertension and Preeclampsia in Living Kidney Donors

Amit X. Garg, M.D., Ph.D., Immaculate F. Nevis, Ph.D., Eric McArthur, M.Sc.,
Jessica M. Sontrop, Ph.D., John J. Koval, Ph.D., Ngan N. Lam, M.D.,
Ainslie M. Hildebrand, M.D., Peter P. Reese, M.D., Leroy Storsley, M.D.,
John S. Gill, M.D., Dorry L. Segev, M.D., Ph.D., Steven Habbous, M.Sc.,
Ann Bugeja, M.D., Greg A. Knoll, M.D., Christine Dipchand, M.D.,
Mauricio Monroy-Cuadros, M.D., and Krista L. Lentine, M.D., Ph.D.,
for the DONOR Network*

ABSTRACT

La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Mais est-ce réellement si simple?

RESULTS

Gestational hypertension or preeclampsia was more common among living kidney donors than among nondonors (occurring in 15 of 131 pregnancies [11%] vs. 38 of 788 pregnancies [5%]; odds ratio for donors, 2.4; 95% confidence interval, 1.2 to 5.0; $P=0.01$). Each component of the primary outcome was also more common among donors (odds ratio, 2.5 for gestational hypertension and 2.4 for preeclampsia). There were no significant differences between donors and nondonors with respect to rates of preterm birth (8% and 7%, respectively) or low birth weight (6% and 4%, respectively). There were no reports of maternal death, stillbirth, or neonatal death among the donors. Most women had uncomplicated pregnancies after donation.

CONCLUSIONS

Gestational hypertension or preeclampsia was more likely to be diagnosed in kidney donors than in matched nondonors with similar indicators of baseline health. (Funded by the Canadian Institutes of Health Research and others.)

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Est-il possible d'éviter - traiter la pré-éclampsie?



PREVENTING

PREECLAMPSIA IN PREGNANCY



How to reduce your chances of developing

preeclampsia in pregnancy

Le interventions possibles sont multiples:

- **Prévenir les facteurs de risque**
(le meilleur choix en théorie, mais est-il faisable?)

- **Identifier les grossesses à risque**
(probablement plus faisable, mais demande une organisation particulière)

- **Diagnostiquer précocement la maladie:**

(pas de preuves claires de l'efficacité d'un diagnostic précoce sur l'amélioration des résultats)

La pré-éclampsie:

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PREVENTING

PREECLAMPSIA IN PREGNANCY



How to reduce your chances of developing

preeclampsia in pregnancy

Les « traitements »:

- De prévention (*Aspirine, Vitamine D?*)
- De support
(*traiter précocement l'hypertension, contrôler le régime, l'activité physique, ... temporiser*)
- Spécifiques
(*eculizumab???*)

Traiter la pré-éclampsie?
Et chez quelles patientes?

La pré-éclampsie:

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PREVENTING

PREECLAMPSIA IN PREGNANCY



How to reduce your chances of developing

preeclampsia in pregnancy

Maladie rénale et grossesse, un appel à l'action:

- **La maladie rénale chronique est un facteur de risque pour la grossesse, même en l'absence de réduction du débit glomérulaire;**
- **Les maladies rénales chroniques sont souvent asymptomatiques;**
- **Il faut les chercher!**



HAUTE AUTORITÉ DE SANTÉ

SYNTHÈSE DES RECOMMANDATIONS PROFESSIONNELLES

SUIVI ET ORIENTATION DES FEMMES ENCEINTES EN FONCTION DES SITUATIONS À RISQUE IDENTIFIÉES

Mise à jour Mai 2016

OBJECTIF : aider au suivi de la grossesse normale et améliorer l'identification des situations à risque de complications maternelles, obstétricales et fœtales (hors accouchement) pouvant potentiellement compliquer la grossesse afin d'en adapter si besoin le suivi.

QUEL SUIVI POUR QUELLE GROSSESSE ?

DIFFÉRENTS SUIVIS ET DEMANDES D'AVIS POSSIBLES POUR LES GROSSESSES EN FONCTION DES SITUATIONS À RISQUE IDENTIFIÉES (ACCORD PROFESSIONNEL)

Suivi A : lorsque la grossesse se déroule sans situations à risque ou que ces situations relèvent d'un faible niveau de risque, le suivi régulier peut être assuré par une sage-femme ou un médecin (généraliste, gynécologue médical ou gynécologue-obstétricien) selon le choix de la femme.

Avis A1 : l'avis d'un gynécologue-obstétricien et /ou d'un autre spécialiste est conseillé.

Avis A2 : l'avis d'un gynécologue-obstétricien est nécessaire. L'avis complémentaire d'un autre spécialiste peut également être nécessaire.

Suivi B : lorsque les situations à risque détectées permettent de statuer sur un niveau de risque élevé, le suivi régulier doit être assuré par un gynécologue-obstétricien.

Conditions nécessaires :

- formation théorique et pratique adaptées au suivi des grossesses
- exercice dans le cadre d'une collaboration ville-hôpital et dans un réseau de périnatalité selon les possibilités locales

QUAND APPRÉCIER LE NIVEAU DE RISQUE ?

- **Idéalement avant la grossesse**, dans le cadre du suivi gynécologique de la femme quand elle exprime son désir de grossesse (principe d'une consultation préconceptionnelle)
- **Avant 10 semaines d'aménorrhée (SA)**, lors de la première consultation du suivi de grossesse
- **Tout au long de la grossesse**, jusqu'à la consultation du 9^e mois ou l'accouchement

CONTENU DU SUIVI	Consultation préconceptionnelle	1 ^{re} consultation avant 10 SA	2 ^e consultation avant 15 SA
	-	Établir le diagnostic de grossesse et dater la grossesse	Établir la déclaration de grossesse et fixer la date présumée de l'accouchement
	Examen gynécologique frottis cervical (si plus de 2 à 3 ans)	Réaliser un examen clinique général et gynécologique PA ; taille ; poids ; examen des seins ; frottis cervical (si plus de 2 à 3 ans)	Réaliser un examen clinique PA ; poids ; hauteur utérine à partir du 4 ^e mois ; si possible bruits du cœur fœtal
	Sérologies prescrites <ul style="list-style-type: none"> • groupes sanguins (A, B, O, phénotypes rhésus complet et Kell) • toxoplasmose et rubéole • recherche d'agglutinines irrégulières 	Sérologies prescrites obligatoirement (1) <ul style="list-style-type: none"> • groupe sanguin (A, B, O, phénotypes rhésus complet et Kell) • toxoplasmose et rubéole • syphilis • glycosurie et protéinurie • recherche d'agglutinines irrégulières, à l'exclusion des Ac dirigés contre les Ag A et B • recherche de l'antigène HBs 	Sérologies prescrites <ul style="list-style-type: none"> • toxoplasmose en cas de négativité du résultat précédent • rubéole en cas de négativité du résultat précédent (jusqu'à 18 SA) • glycosurie et protéinurie
Examens cliniques et biologiques	Sérologie proposée VIH (population à risque)	Examens proposés systématiquement (2) <ul style="list-style-type: none"> • sérologie VIH 1 et 2 ; information sur les risques de contamination materno-fœtale par le VIH • dépistage combiné du 1^{er} trimestre des anomalies chromosomiques fœtales associant mesure de la clarté nucale (1^{re} échographie réalisée entre 11 et 13 SA et 6 jours) et dosage des marqueurs sériques (PAPP-A et β-hCG libre) 	Examens proposés systématiquement dépistage des anomalies chromosomiques fœtales : marqueurs du 2 ^e trimestre en l'absence d'un dépistage combiné au 1 ^{er} trimestre
		Examens proposés éventuellement <ul style="list-style-type: none"> • examen cytot bactériologique des urines (ÉCBU) • dépistage d'une anémie (hémogramme) en cas de facteurs de risque 	
Information et prévention		Recherche des facteurs de risque ciblée en particulier sur les pathologies chroniques (hypertension artérielle, diabète)	Proposer systématiquement un entretien individuel ou en couple et rechercher d'éventuels facteurs de stress et toute forme d'insécurité (précarité, insécurité affective au sein du couple ou de la famille)
		Sensibiliser aux effets du tabagisme, de la consommation d'alcool, de l'usage de drogues et de médicaments tératogènes	
		Prévenir des anomalies de fermeture du tube neural (jusqu'à 8 SA) par supplémentation en folates à raison de 400 µg/jour	
		Informé sur le suivi de la grossesse	
		-	Débuter l'élaboration d'un projet de naissance
			Conseiller la participation aux séances de préparation à la naissance et à la parentalité

La pré-éclampsie:

une vieille connaissance, mais encore une inconnue
Est-il possible d'éviter - traiter la pré-éclampsie?



La fonction rénale n'est pas contrôlée, ni la maladie rénale chronique citée parmi les facteurs de risque pour la grossesse....

Nel corso dello stesso incontro o a breve distanza di tempo, ma comunque entro lo stesso periodo, per le donne che scelgono di eseguire i test di screening devono essere programmati:

- esami ematologici, idealmente prima di 10 settimane (emogruppo, status Rh(D), screening emoglobinopatie, anemia, anticorpi anti eritrociti, HIV, rosolia, sifilide, toxoplasmosi) e gli altri esami limitatamente ai gruppi a rischio
- analisi delle urine (proteinuria e urinocoltura per ricerca della batteriuria asintomatica)
- indagine ecografica per determinare l'epoca gestazionale
- percorso diagnostico per la sindrome di Down, attraverso:

La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Est-il possible d'éviter - traiter la pré-éclampsie?

Pregnancy and Chronic Kidney Disease: A Challenge in All CKD Stages

Giorgina Barbara Piccoli,* Rossella Attini,[†] Elena Vasario,[†] Anne Conijn,[†] Marilisa Biolcati,[†] Federica D'Amico,* Valentina Consiglio,* Salvatore Bontempo,[†] and Tullia Todros[†]

**Struttura Semplice Nefrologia Department of Clinical and Biological Sciences, Azienda Sanitaria Ospedaliera Universitaria San Luigi Gonzaga, University of Torino, Italy; and* [†]*Materno-Fetal Unit, Department of Obstetrics, Azienda Sanitaria Ospedaliera Universitaria Ospedale Infantile Regina Margherita sant'Anna, University of Torino, Italy*

Background and objectives: Chronic kidney disease (CKD) is a challenge for pregnancy. Its recent classification underlines the importance of its early phases. This study's aim was to evaluate outcomes of pregnancy according to CKD stage *versus* low-risk pregnancies followed in the same center.

Design, setting, participants, & measurements: The prospective analysis was conducted from January 2000 to May 2009 with the start of observation at referral and end of observation 1 month after delivery. Ninety-one singleton deliveries were studied; 267 "low-risk" singleton pregnancies served as controls. Because of the lack of hard end points (death, start of dialysis), surrogate end points were analyzed (cesarean section, prematurity, neonatal intensive care).

Results: CKD outcome was worse than physiologic pregnancies: preterm delivery (44% *versus* 5%); cesarean section (44% *versus* 25%); and need for neonatal intensive care (26% *versus* 1%). The differences were highly significant in stage 1 CKD (61 cases) *versus* controls (CKD stage 1: cesarean sections = 57%, preterm delivery = 33%, intensive care = 18%). In CKD, proteinuria and hypertension were correlated with outcomes [proteinuria dichotomized at 1 g/24 h at referral: need for intensive care, relative risk (RR) = 4.16 (1.05 to 16.46); hypertension: preterm delivery, RR = 7.24 (2.30 to 22.79); cesarean section, RR = 5.70 (1.69 to 19.24)]. Statistical significance across stages was reached for preterm delivery [RR = 3.32 (1.09 to 10.13)].

Conclusions: CKD is a challenge for pregnancy from early stages. Strict follow-up is needed for CKD patients, even when there is normal renal function.

Clin J Am Soc Nephrol 5: 844–855, 2010. doi: 10.2215/CJN.07911109

Chronic kidney disease (CKD) is a growing health care problem only recently acknowledged in its full dimension (1). The recent redefinition of CKD led to the Kidney Disease Outcomes Quality Initiative (K/DOQI) guidelines on diagnosis and staging of CKD; these focus attention on the earlier stages of the disease, when persistent signs of renal damage are present but renal function may still be in the normal ranges (2). Because of this broader definition, it has

The central role of pregnancy in the development of acute renal damage and hypertension (better known as preeclampsia) has been known for over a century, whereas the relationship between preeclampsia (PE) and the subsequent risk of CKD/ESRD was only recently elucidated (6). From the opposite point of view, it has been known for decades what a great risk renal function impairment is for the outcome of pregnancy. Small

3-5% des femmes
de 18-45 ans
souffrent d'une
maladie rénale
chronique, souvent
sans le savoir;
La maladie rénale
chronique est un
facteur de risque
pour la pré-
éclampsie;
Ajouter un dosage
de créatinine au
bilan de santé
coute 0.20 Euros...

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une vieille connaissance, mais encore une inconnue Quels sont les effets à court terme sur la maman?

AOGS
Acta Obstetrica et Gynecologica Scandinavica

AOGS ORIGINAL RESEARCH ARTICLE

Maternal deaths in the Nordic countries

SIRI VANGEN^{1,2}, BIRGIT BØDKER³, LIV ELLINGSEN⁴, SISSEL SALTVEDT⁵, MIKA GISSLER^{6,7}, REYNIR T. GEIRSSON⁸ & LILL T. NYFLØT^{1,4}

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Key words

Maternal death, pregnancy, cause of death, heart diseases, preeclampsia, suicide, thromboembolism

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Conflict of interest

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

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Abstract

Introduction. Despite the seriousness of the event, maternal deaths are substantially underreported. There is often a missed opportunity to learn from such tragedies. The aim of the study was to identify maternal deaths in the five Nordic countries, to classify causes of death based on internationally acknowledged criteria, and to identify areas that would benefit from further teaching, training or research to possibly reduce the number of maternal deaths. **Material and methods.** We present data for the years 2005–2013. National audit groups collected data by linkage of registers and direct reporting from hospitals. Each case was then assessed to determine the cause of death, and level of care provided. Potential improvements to care were evaluated. **Results.** We registered 168 maternal deaths, 90 direct and 78 indirect cases. The maternal mortality ratio was 7.2/100 000 live births ranging from 6.8 to 8.1 between the countries. Cardiac disease ($n = 29$) was the most frequent cause of death, followed by preeclampsia ($n = 24$), thromboembolism ($n = 20$) and suicide ($n = 20$). Improvements to care which could potentially have made a difference to the outcome were identified in one-third of the deaths, i.e. in as many as 60% of preeclamptic, 45% of thromboembolic, and 32% of the deaths from cardiac disease. **Conclusion.** Direct deaths exceeded indirect maternal deaths in the Nordic countries. To reduce maternal deaths, increased efforts to better implement existing clinical guidelines seem warranted, particularly for preeclampsia, thromboembolism and cardiac disease. More knowledge is also needed about what contributes to suicidal maternal deaths.

Abbreviations: BMI, body mass index; ICD, International Statistical Classification of Diseases and Related Health Problems; MBBRACE, Maternal, Newborn and Infant Clinical Outcome Review Program; MMR, maternal mortality ratio.

Key message

During 2005–2013 the Nordic countries had an overall average of 20 maternal deaths each year. Improvements in care might have made a difference to the outcome in about half the preeclamptic women and one-third of those with cardiac conditions, the two causes of death most frequently identified.

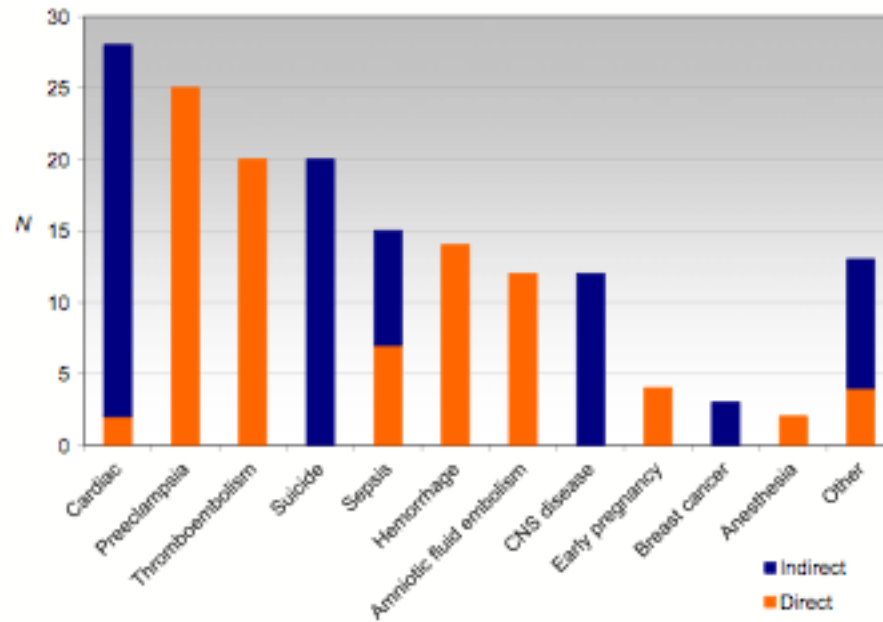


Figure 1. Causes of maternal deaths ($n = 168$) in the Nordic countries, 2005–13.

Introduction

Maternal mortality ratios (MMR) in the Nordic countries are among the lowest in the world (1). This is likely to be associated with generally accessible antenatal care free of charge and effective identification of high-risk pregnancies,



La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Quels sont les effets à court terme sur la maman?

Comment

Comment

**2017: UK:
2 morts par pré-éclampsie**

Are most maternal deaths from pre-eclampsia avoidable?

Published online
December 15, 2011
DOI:10.1016/S0140-6736(11)60785-0

In the latest UK Report of the Confidential Enquiries into Maternal Deaths (the CMACE report),¹ 20 out of 22 deaths related to pre-eclampsia involved substandard care—a disturbing statistic that is higher than for any other cause of maternal death. The substandard care in 63% of these deaths was categorised as major and they were described as ‘undoubtedly avoidable’. Hypertensive diseases accounted for 17.8% of all direct maternal deaths, an increase in frequency since the last triennial report, while overall death rates have reduced.

Pre-eclampsia complicates 2–8% of pregnancies,² although the proportion is probably less than 5% in western nations,³ representing up to 30 000 women a year in the UK. Although maternal deaths are relatively rare, pre-eclampsia causes a third of severe obstetric morbidity.⁴ Fetal morbidity and mortality increase substantially in women with pre-eclampsia;⁵ hypertension is a major cause of stillbirths, as recently highlighted in *The Lancet*.⁶ However, fetal compromise can be identified and adverse events can be prevented by delivery.

The CMACE report describes basic failings, such as poor diagnosis and failure to act on obvious serious disease. In the UK, rates of maternal death from pre-eclampsia associated with substandard care have fallen below 80% only twice since 1985. In Holland, 96% of 26 maternal deaths from pre-eclampsia between 2000 and 2004 were associated with substandard care, and of all maternal deaths in Holland during 1993–2005, the highest rate was observed for pre-eclampsia deaths (91%).⁸ Similar

data are not easily available for other countries because few have access to such a powerful audit system as the British Confidential Enquiries.

Pre-eclampsia care includes the pregnant woman herself, community carers and hospital staff, and organisation of health services. The most common cause of death in this latest report (involving cases from 2006 to 2008) was intracerebral haemorrhage (9 of 22 cases), which is likely to be preventable by antihypertensive medication. Severe hypertension was neither identified nor treated in several of these cases despite previous evidence showing the need to treat systolic blood pressure over 160 mm Hg in pregnant women.⁷ These reports also highlight that in pre-eclampsia oscillometric devices can under-record blood pressure. However, recent evidence from the UK showed that 33% of women with pre-eclampsia and a blood pressure over 160 mm Hg received no antihypertensives.⁸ The pre-eclamptic cerebral circulation has a specific vulnerability, so pre-eclampsia represents an acutely dangerous situation and needs urgent effective treatment.⁹

The identification of pre-eclampsia relies fundamentally on the frequency of antenatal care. Globally, absence of antenatal care is strongly associated with eclampsia and death.⁹ Fewer antenatal appointments might not be cost effective; a UK study showed that a reduction shifts costs to neonatal care, which increases overall costs.¹⁰ Health-care professionals, including general practitioners, who are unskilled in maternity care overlook the relevance and seriousness of new-onset hypertension or proteinuria. Severe pre-eclampsia is often asymptomatic, whereas individual symptoms (eg, epigastric pain and headache) are common in normal pregnancy. In the CMACE report, proteinuria was shown to have been misinterpreted as a urinary tract infection, and epigastric pain as gastritis or indigestion. Basic recognition of signs and symptoms of pre-eclampsia is essential for all health-care professionals involved in antenatal care. Other changes in maternity care, such as reduced continuity caused by new shift systems and difficulties with staff retention, have only compounded the problem.

In the UK, protocols now exist for screening, detection,¹¹ and management of pre-eclampsia.¹² Recommendations from previous CMACE inquiries

Maternal deaths in the UK: pre-eclampsia deaths are avoidable

Being pregnant in the UK has never been safer. The latest Confidential Enquiries into Maternal Deaths and Morbidity¹ reported that fewer than one in 10 000 women died in or around pregnancy in the UK during 2012–14 (241 women within the triennium), the lowest rate recorded since such surveillance began in 1952 in England and Wales. This maternal mortality rate is lower than age-matched male death rates (5–17 per 10 000 population for men aged 20–44 years in England and Wales, 2014) such that a man is more likely to die while his partner is pregnant than she is.²

Several important messages emerge from the latest Confidential Enquiries into Maternal Deaths and Morbidity: cardiac disease is the leading cause of indirect maternal death, while thrombosis and thromboembolism continues to feature as a major issue and is the leading cause of direct deaths. Suicide is, however, the leading cause of direct maternal deaths within a year after the end of pregnancy.¹ Two-thirds of maternal mortality is due to a medical or mental health condition. Therefore, the need for specialist care for women with pre-existing medical

and mental health problems is clearly still a vital concern.

In addition to ongoing surveillance of triennial maternal deaths, the report examined deaths related to cardiovascular and hypertensive diseases, early pregnancy problems, and critical care between 2009 and 2014. Indirect maternal deaths, related to underlying conditions exacerbated by pregnancy, are increasingly important and now represent 59% of total maternal deaths; 153 women died from heart disease between 2009 and 2014, representing about a third of all maternal deaths.³ Specialist multidisciplinary care for women with known heart disease, particularly with prosthetic valves, together with prompt action when women present with chest symptoms or breathlessness remain key to avoiding further deaths. Health-service provision must also focus on pre-pregnancy counselling, and uptake of contraception and provision of termination services to limit future mortality among women with known heart disease. Other causes of death both indirect and direct (resulting from obstetric complications of pregnancy) have been stable, with the exception of pre-eclampsia, which has substantially reduced since the last report and is now the least represented category (figure).

Only two women died from pre-eclampsia and edema during pregnancy in the UK during 2012–14.¹ In the previous two reports, there were 19 and ten maternal deaths from pre-eclampsia in 2006–08 and 2009–11, respectively.¹ This reduction is remarkable since hypertensive diseases have consistently been a leading direct cause of death in pregnancy. Maternal deaths from pre-eclampsia have been associated with substandard care,⁴ suggesting they are avoidable. In the latest Confidential Enquiries into Maternal Deaths and Morbidity, fewer than one woman per million women died from hypertensive-related disorders during pregnancy in the UK and there was less than one such death per year.¹

The low rate of maternal deaths from pre-eclampsia in the UK is in stark contrast with the global setting where an estimated 40 000 women die each year from this condition,⁵ which equates to about one death every hour. The proportion of maternal deaths from hypertensive disorders of pregnancy is 2.5% in the

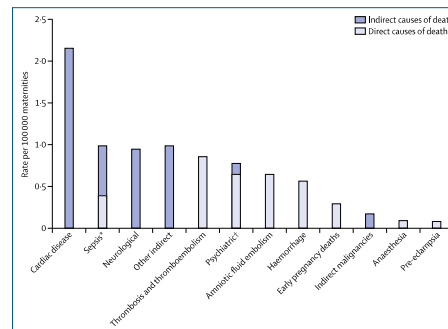
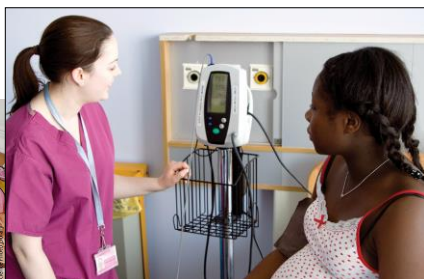
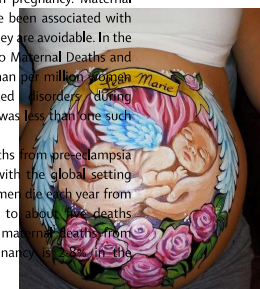


Figure: Maternal mortality by cause from 2012 to 2014 in the UK
*Rate for direct sepsis (genital tract sepsis and other pregnancy related infections) is shown in pale and rate for indirect sepsis (influenza, pneumonia, others) in dark bar. †Rate for suicides is shown in pale and rate for indirect psychiatric causes (drugs/alcohol) in dark bar. Source: MBRACE-UK. Reproduced from *Saving lives, improving women's care—surveillance of maternal deaths in the UK 2012–14*, and lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009–14. © National Perinatal Epidemiology Unit, University of Oxford.



2011: UK: 22 morts pour pré-éclampsie
Suboptimal care en 20



La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Quels sont les effets à court terme sur la maman?



SEMINARS IN PERINATOLOGY

The Global Impact of Pre-eclampsia and Eclampsia

Leila Duley, MD

Over half a million women die each year from pregnancy related causes, 90% in low and middle income countries. In many low income countries, complications of pregnancy and childbirth are the leading cause of death amongst women of reproductive years. The Millennium Development Goals have placed maternal health at the core of the struggle against poverty and inequality, as a matter of human rights. Ten percent of women have high blood pressure during pregnancy, and pre-eclampsia complicates 2% to 8% of pregnancies. Pre-eclampsia can lead to problems in the liver, kidneys, brain and the clotting system. Risks for the baby include poor growth and prematurity. Although outcome is often good, pre-eclampsia can be devastating and life threatening. Overall, 10% to 15% of direct maternal deaths are associated with pre-eclampsia and eclampsia. Where maternal mortality is high, most of deaths are attributable to eclampsia, rather than pre-eclampsia. Perinatal mortality is high following pre-eclampsia, and even higher following eclampsia. In low and middle income countries many public hospitals have limited access to secondary intensive care, and so the mortality and morbidity is likely to be considerably higher than in settings where such facilities are available. The only interventions shown to prevent pre-eclampsia are antihypertensive agents, primarily low dose aspirin, and calcium supplementation. Treatment is largely symptomatic. Antihypertensive drugs are mandatory for very high blood pressure. Plasma volume expansion, corticosteroids and anticonvulsant agents have been suggested for severe pre-eclampsia, but trials to date have not shown benefit. Optimal timing for delivery of women with severe pre-eclampsia before 32 to 34 weeks' gestation remains a dilemma. Magnesium sulfate can prevent and control eclamptic seizures. For pre-eclampsia, it more than halves the risk of eclampsia (number needed to treat 100, 95% confidence interval 50 to 100) and probably reduces the risk of maternal death. A quarter of women have side effects, primarily flushing. With clinical monitoring serious adverse effects are rare. Magnesium sulfate is the safest method of choice for treating eclampsia; more effective than diazepam, phenytoin, or lytic cocktail. Although it is a low cost effective treatment, magnesium sulfate is not available in all low and middle income countries; scaling up its use for eclampsia and severe pre-eclampsia will contribute to achieving the Millennium Development Goals.

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KEYWORDS pre-eclampsia, prevention, treatment, maternal morbidity, maternal health

Every maternal death is a tragedy for the woman and for her family, and a loss to the community and society in which she lives. Over half a million women die each year from pregnancy related causes, and 90% of these deaths occur in low- and middle income countries (Fig. 1).¹ In many low income countries, complications of pregnancy and childbirth are the leading cause of death among women of reproductive years. Although a growing number of countries has succeeded in improving the health and well-being of mothers, those with the highest mor-

tality and ill-health have made little progress. In some, the situation has actually worsened over recent years! Globally, little progress has been made in saving mothers' lives.²

Pre-eclampsia and eclampsia remain important causes of maternal and perinatal mortality and morbidity. This chapter summarizes the global problems associated with these potentially devastating and life-threatening conditions.

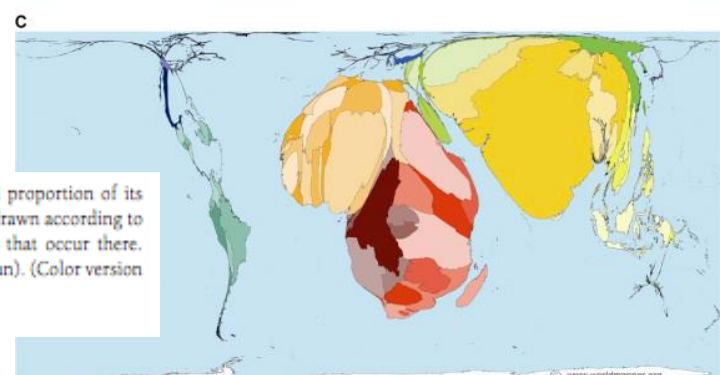
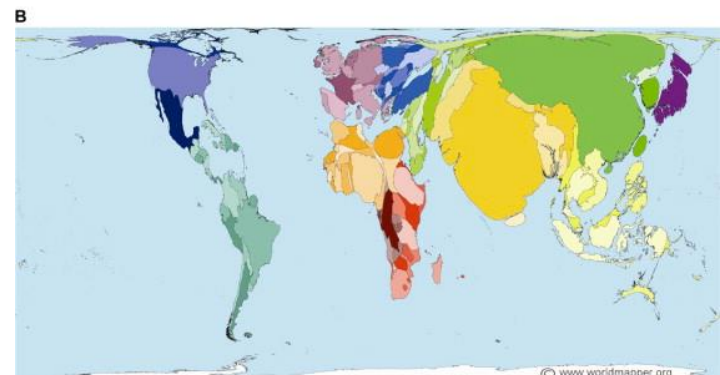
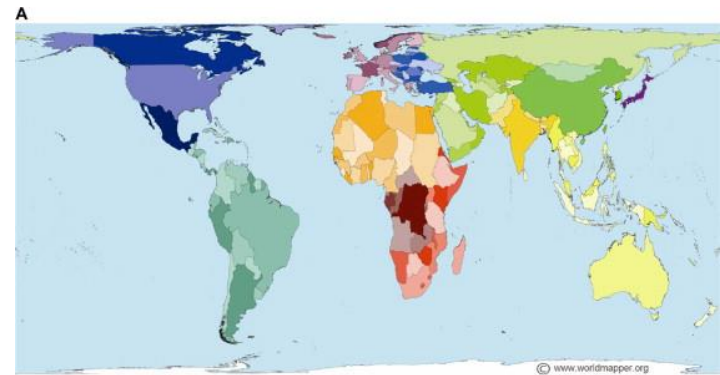
Maternal Health Is a Human Right

More than 30 years ago, the high maternal mortality in low- and middle income countries was highlighted as a "major global tragedy."³ Although the risk of maternal death has reduced in

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Figure 1 World map with the size of each territory drawn by its land area, population, and proportion of its maternal mortality. (A) Size of territory drawn according to its land area. (B) Size of territory drawn according to its population. (C) Size of territory drawn according to the proportion of maternal deaths that occur there. Copyright 2006 SASI Group (University of Sheffield) and Mark Newman (University of Michigan). (Color version of figure is available online.)



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Quels sont les autres effets à court terme sur la maman?

La pré-éclampsie est une des causes plus communes d'insuffisance rénale aigüe pendant et après la grossesse.

Et

l'insuffisance rénale aigüe augmente le risque d'insuffisance rénale chronique à court et long terme

surtout dans les pays pauvres



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Quels sont les effets à long terme sur la maman?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Preeclampsia and the Risk of End-Stage Renal Disease

Bjørn Egil Vikse, M.D., Ph.D., Lorentz M. Irgens, M.D., Ph.D.,
Torbjørn Leivestad, M.D., Ph.D., Rolv Skjærven, Ph.D.,
and Bjarne M. Iversen, M.D., Ph.D.

ABSTRACT

BACKGROUND

It is unknown whether preeclampsia is a risk marker for subsequent end-stage renal disease (ESRD).

METHODS

We linked data from the Medical Birth Registry of Norway, which contains data on all births in Norway since 1967, with data from the Norwegian Renal Registry, which contains data on all patients receiving a diagnosis of end-stage renal disease (ESRD) since 1980, to assess the association between preeclampsia in one or more pregnancies and the subsequent development of ESRD. The study population consisted of women who had had a first singleton birth between 1967 and 1991; we included data from up to three pregnancies.

RESULTS

ESRD developed in 477 of 570,433 women a mean (\pm SD) of 17 \pm 9 years after the first pregnancy (overall rate, 3.7 per 100,000 women per year). Among women who had been pregnant one or more times, preeclampsia during the first pregnancy was associated with a relative risk of ESRD of 4.7 (95% confidence interval [CI], 3.6 to 6.1). Among women who had been pregnant two or more times, preeclampsia during the first pregnancy was associated with a relative risk of ESRD of 3.2 (95% CI, 2.2 to 4.9), preeclampsia during the second pregnancy with a relative risk of 6.7 (95% CI, 4.3 to 10.6), and preeclampsia during both pregnancies with a relative risk of 6.4 (95% CI,

From the Renal Research Group, Institute of Medicine (B.E.V., B.M.I.), the Section for Epidemiology and Medical Statistics (L.M.I., R.S.), and the Locus for Registry-Based Epidemiology (B.E.V., L.M.I., R.S., B.M.I.), University of Bergen; the Department of Medicine, Haukeland University Hospital (B.E.V., B.M.I.); and the Medical Birth Registry of Norway, Norwegian Institute of Public Health (L.M.I., R.S.) — all in Bergen, Norway; and the Norwegian Renal Registry, Institute of Immunology, Rikshospitalet, Oslo (T.L.). Address reprint requests to Dr. Vikse at the Renal Research Group, Institute of Medicine, Haukeland University Hospital, Bergen 5021, Norway, or at bjorn.vikse@med.uib.no.

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La pré-éclampsie:

une vieille connaissance, mais encore une inconnue Quels sont les effets à long terme sur la maman?

Reducing Racial/Ethnic Disparities in Cardiovascular Genetic Testing

Editorial | February 28, 2018

Association of Racial/Ethnic Gr
Cardiomyopathy

Brief Report | February 28, 2018



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Brief Report

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January 31, 2018

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Premature Cardiac Disease and Death in Women Whose Infant Was Preterm and Small for Gestational Age A Retrospective Cohort Study

Orli Silverberg, BSc¹; Alison L. Park, MSc²; Eyal Cohen, MD, MSc³; et al

» Author Affiliations

JAMA Cardiol. Published online January 31, 2018. doi:10.1001/jamacardio.2017.5206



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Quels sont les effets à long terme sur la maman?

Risque de maladie rénale chronique

D'hypertension artérielle

De mort cardiovasculaire

...

Est-ce que la pré-éclampsie est la cause ou la conséquence des problèmes cardiovasculaires?

Quel est le rôle des facteurs génétiques communs?



La pré-éclampsie:

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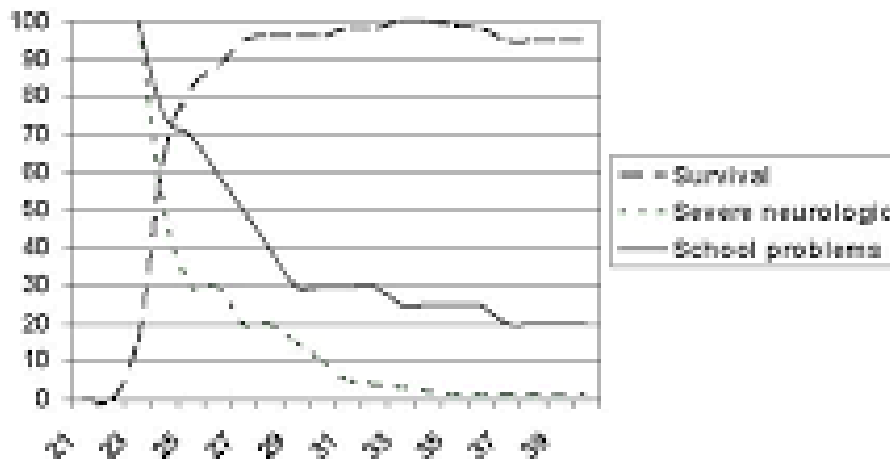
Quels sont les effets à court terme sur le bébé?



1/3

DES NAISSANCES
 DE GRANDS PRÉMATURÉS
 EN FRANCE

Major Risks of prematurity



La pré-éclampsie:

une vieille connaissance, mais encore une inconnue Quels sont les effets à long terme sur le bébé?

Short-Term Gestation, Long-Term Risk: Prematurity and Chronic Kidney Disease

abstract

Thanks to remarkable advances in neonatal intensive care, infants who once had little chance for survival can now enter adulthood. Yet the consequences of premature birth or low birth weight (LBW) on nephrogenesis, final nephron number, and long-term kidney function are unclear. This review focuses on the theory, experimental evidence, and observational data that suggest an increased risk of chronic kidney disease (CKD) for infants born prematurely. Many premature and LBW infants begin life with an incomplete complement of immature nephrons. They are then exposed to a variety of external stressors that can hinder ongoing kidney development or cause additional nephron loss such as hemodynamic alterations, nephrotoxic medications, infections, and suboptimal nutrition. Acute kidney injury, in particular, may be a significant risk factor for the development of CKD. According to Brenner's hypothesis, patients with decreased nephron number develop hyperfiltration that results in sodium retention, hypertension, nephron loss, and CKD due to secondary focal segmental glomerulosclerosis. Because the risk of CKD in premature and LBW infants has not been accurately determined, there are no evidence-based recommendations for screening or management. Yet with the first generation of infants from the surfactant era only now reaching adulthood, it is possible that there is already an unrecognized epidemic of CKD. We suggest individualized, risk-based assessments of premature and LBW infants due to the increased risk of CKD and call for additional research into the long-term risk for CKD these infants face. *Pediatrics* 2013;131:1168–1179

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KEY WORDS

Chronic kidney disease, premature infants, low birth weight, acute kidney injury, nephron, secondary FSGS, proteinuria

ABBREVIATIONS

AKI—acute kidney injury
CKD—chronic kidney disease
ESRD—end-stage renal disease
FSGS—focal segmental glomerulosclerosis
GFR—glomerular filtration rate
LBW—low birth weight

Dr Carmody participated in the research drafting and editing of the manuscript; Dr Charlton formulated the study concept and participated in the research, drafting and editing of the manuscript; and both authors approved the manuscript as submitted.

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La pré-éclampsie:

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Low birth weight, nephron number, and kidney disease

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Low birth weight, nephron number, and kidney disease. More and more evidence is emerging that highlights the far-reaching consequences of prenatal (intrauterine) programming on organ function and adult disease. In humans, low birth weight (LBW) occurs more frequently in disadvantaged communities among whom there is often a disproportionately high incidence of adult cardiovascular disease, hypertension, diabetes mellitus, and kidney disease. Indeed, many epidemiologic studies have found an inverse association between LBW and higher blood pressures in infancy and childhood, and overt hypertension in adulthood. Multiple animal models have demonstrated the association of LBW with later hypertension, mediated, at least in part, by an associated congenital nephron deficit. Although no direct correlation has been shown between nephron number and birth weight in humans with hypertension, nephron numbers were found to be lower in adults with essential hypertension, and glomeruli tend to be larger in humans of lower birth weight. An increase in glomerular size is consistent with hyperfiltration necessitated by a reduction in total filtration surface area, which suggests a congenital nephron deficit. Hyperfiltration manifests clinically as microalbuminuria and accelerated loss of renal function, the prevalence of which are higher among adults who had been of LBW. A kidney with a reduced nephron number has less renal reserve to adapt to dietary excesses or to compensate for renal injury, as is highlighted in the setting of renal transplantation, where smaller kidney to recipient body-weight ratios are associated with poorer outcomes, independent of immunologic factors. Both hypertension and diabetes are

cuales se observa también una incidencia desproporcionadamente mayor de enfermedad cardiovascular, hipertensión, diabetes mellitus y enfermedad renal. Efectivamente, muchos estudios epidemiológicos han reportado una asociación inversa entre el BPN y una presión arterial elevada en la infancia, así como con hipertensión arterial en el adulto. Múltiples modelos en animales de experimentación han demostrado la asociación entre el BPN y el desarrollo posterior de hipertensión, mediado en parte por un déficit de nefronas al nacer. Aunque no se ha demostrado en humanos hipertensos que exista una correlación directa entre el número de nefronas y el peso al nacer, sí se ha encontrado que en individuos con hipertensión esencial, el número de nefronas se encuentra disminuido y los glomérulos tienden a ser más grandes en personas con BPN. El aumento en el tamaño del glomérulo es consistente con la hiperfiltración requerida para compensar la disminución en el área total de la superficie de filtración, sugiriendo un déficit congénito de nefronas. La hiperfiltración se manifiesta clínicamente mediante la microalbuminuria y el deterioro acelerado de la función renal; la prevalencia de ambos es mayor en individuos con BPN. Un riñón con un número disminuido de nefronas, tiene una reserva renal menor para adaptarse a excesos en la dieta o el compensar el daño renal, como se demuestra en el trasplante renal, donde injertos pequeños en relación al peso corporal del receptor, se asocian a malos resultados, independientemente de factores de tipo inmunológico. Tanto la hipertensión como la diabetes son las principales causas de insuficiencia renal a nivel mundial y su incidencia ha aumentado, especialmente en



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Quels sont les effets à long terme sur le bébé?

Risque de maladie rénale chronique

D'hypertension artérielle

De diabète

D'obésité

...

Est-ce que la pré-éclampsie ou la prématurité est la cause ?

Quel est le rôle des facteurs génétiques communs?

Est-ce que tous les « petits »

bébés sont pareils?



La pré-éclampsie:

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Une mauvaise nouvelle:

Rien n'est simple

La pré-éclampsie est un syndrome complexe, probablement avec deux faces principales:

Un « erreur » dans le développement du placenta, peu prévisible, potentiellement très sévère,

Un effet à distance d'un problème de santé maternelle, avec un retentissement placentaire secondaire, souvent plus tardif, et souvent moins sévère.

Il y a beaucoup de chemin à faire pour mieux comprendre, diagnostiquer, soigner...

La pré-éclampsie: une vieille connaissance, mais encore une inconnue

Une bonne nouvelle:
On peut « profiter » de la pré-éclampsie

La pré-éclampsie peut signaler un problème de santé maternelle, et permettre de l'identifier, ou de prévenir et soigner une maladie.

Trois propositions qu'on peut mettre en place

...

La pré-éclampsie:

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Trois propositions qu'on peut mettre en place

J Nephrol (2017) 30:307–317
DOI 10.1007/s40620-017-0390-1



POSITION PAPERS AND GUIDELINES

A best practice position statement on the role of the nephrologist in the prevention and follow-up of preeclampsia: the Italian study group on kidney and pregnancy

Giorgina Barbara Piccoli^{11,12} · Gianfranca Cabiddu¹ · Santina Castellino² · Giuseppe Gernone³ · Domenico Santoro⁴ · Gabriella Moroni⁵ · Donatella Spotti⁶ · Franca Giacchino⁷ · Rossella Attini⁸ · Monica Limardo⁹ · Stefania Maxia¹ · Antioco Fois¹ · Linda Gammara¹⁰ · Tullia Todros⁸ · on behalf of Kidney and Pregnancy Study Group of Italian Society of Nephrology

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Abstract Preeclampsia (PE) is a protean syndrome causing a transitory kidney disease, characterised by hypertension and proteinuria, ultimately reversible after delivery. Its prevalence is variously estimated, from 3 to 5% to 10% if all the related disorders, including also pregnancy-induced hypertension (PIH) and HELLP syndrome (haemolysis, increase in liver enzyme, low platelets) are included. Both nephrologists and obstetricians are involved in the management of the disease, according to different protocols, and the clinical management, as well as the role for each specialty, differs worldwide. The increased awareness of the role of chronic kidney disease in pregnancy, complicating up to 3% of pregnancies, and the knowledge that PE is associated with an increased risk for development of CKD later in life have recently increased the interest and redesigned the role of the nephrologists in this context. However, while the heterogeneous definitions of PE, its recent reclassifi-

follow-up, the lack of resources for chronic patients and the increasing costs of care limit the potential for preventive actions, and suggest tailoring specific interventional strategies. The aim of the present position statement of the *Kidney and Pregnancy Study Group of the Italian Society of Nephrology* is to review the literature and to try to identify theoretical and pragmatic bases for an agreed management of PE in the nephrological setting, with particular attention to the prevention of the syndrome (recurrent PE, presence of baseline CKD) and to the organization of the postpartum follow-up.

Keywords Chronic kidney disease · Evidence based medicine · Pregnancy · Hypertension · Proteinuria · Preeclampsia · Pre-term delivery

La pré-éclampsie:

une vieille connaissance, mais encore une inconnue

Trois propositions qu'on peut mettre en place

1. Inclure la créatinine et l'ECBU dans les bilans de grossesse

2. Suivre toutes les patientes avec une maladie rénale comme ayant une grossesse « à risque »

3. Etablir des programmes de suivi des femmes post pré-éclampsie, en portant une particulière attention aux nouvelles grossesses



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