

Hémorragie du péri-partum

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Development of a risk score to predict pregnancy-related acute kidney injury after postpartum hemorrhage : a French multicenter study

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Position du problème et objectif(s) de l'étude:

Postpartum hemorrhage (PPH) is a leading cause of maternal morbidity and mortality. Acute kidney injury (AKI) is a common complication following PPH but its prediction is difficult to assess. AKI secondary to PPH is associated with maternal severe outcomes in particular subsequent development of chronic kidney disease. The aim of this study was to develop a clinical risk score to assess the risk of AKI after severe PPH.

Matériel et méthodes:

This study was an ancillary study of the French national prospective multicenter study HELPMOM, in whom 332 patients were included for severe PPH. Multivariable logistic regression analysis enabled the identification of five independent factors that are predictive of AKI after PPH. The predictive variables were measured at the initial phase of bleeding. To test for collinearity, variance inflation factors (VIFs) were used. Internal validation was performed using 10-fold cross-validation. The Hosmer-Lemeshow goodness-of-fit test was carried out to evaluate the calibration of the model. The discriminative power of the predictive risk model was assessed by calculating the area under the receiver operating characteristic curve (AUC) and the Harrell's C-index.

Résultats & Discussion:

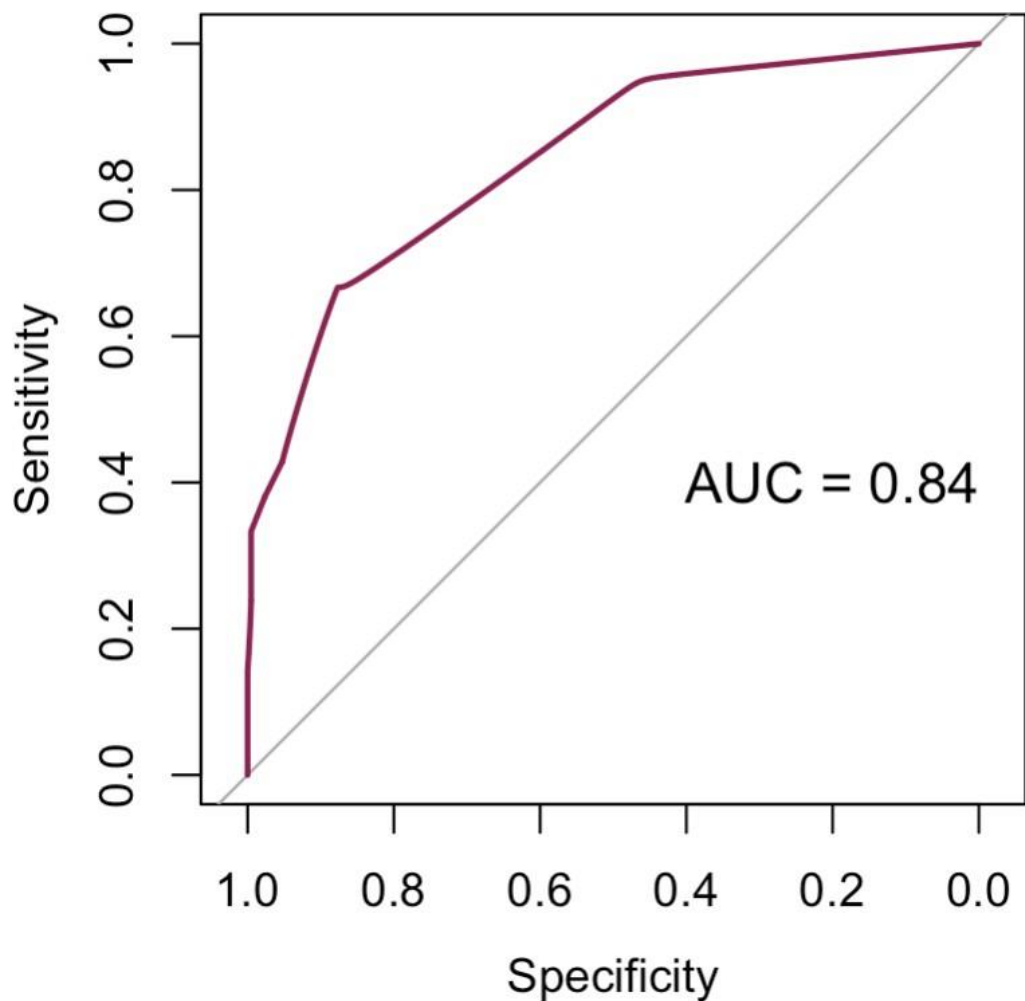
A total of 232 women were included, and the proportion of AKI (Acute Kidney Injury) was 9%. A predictive risk score between 0 and 12 was developed using logistic regression, incorporating factors such as PT < 50%, fibrinogen < 1.8 g/L, high-sensitivity troponins > 25 ng/L, NTproBNP > 130 ng/L, and a history of pre-eclampsia., which were independently predictive of the risk of AKI following PPH. The AUC of the ROC curve and the C-index of the model are both 0.84. (Figure 1)

Patients were classified into four risk categories based on their probability of AKI. The likelihood of developing AKI was <3%, 3-12%, 18-50%, and >60% for patients with low (0-2.5), moderate (3-4), high(4.5-6), and very high (>6) MomAKI score (Maternal Acute Kidney Injury score), respectively. (Figure 2)

Conclusion:

We found a strong association between the MomAKI score based on medical history, clinical and biological parameters and the occurrence of AKI after PPH. However, this reliable and easy to do tool requires validation in a larger cohort. It may assist clinicians in predicting the likelihood and severity of AKI after PPH, and guide the need for subsequent nephrological evaluation after discharge.

Références bibliographiques:



AKI after PPH risk assessment			
PT < 50%		3.5 points	
Pre-eclampsia		2.5 points	
High sensitive Troponin I > 25 ng/L		2 points	
NTproBNP > 130 ng/L		2 points	
Fibrinogen < 1.8 g/L		2 points	
Low risk	Moderate risk	High risk	Very high risk
< 3%	3 – 12%	18 – 50%	> 60%
0 – 2.5 points	3 – 4 points	4.5 – 6 points	> 6 points
6.5 points : 63% ; 7.5 points : 81% ; 9.5 points : 97%			

Les auteurs déclarent ne pas avoir toute relation financière impliquant l'auteur ou ses proches (salaires, honoraires, soutien financier éducationnel) et susceptible d'affecter l'impartialité de la présentation.