



Letter to the Editor

Re: Cox et al.'s article "Liver lacerations as a complication of CPR during pregnancy." Chest compressions performed on peripartum patients with a mechanical chest device: Experience of prehospital teams in the Paris area



Sir,

With great interest, we read Cox et al.'s article, which focused on three cases of liver lacerations in women suffering from cardiac arrest (CA) during peripartum [1]. The authors hypothesized that, due to disseminated intravascular coagulation, pregnant women are predisposed to liver injuries induced by chest compressions. The need to diagnose liver injuries must be taken into account in cases involving hemodynamically unstable patients after cardiopulmonary resuscitation (CPR).

We report a short retrospective case series drawn from our experience in Paris and its suburban areas. For the delivery of highest-quality CPR, our BLS teams currently use ACD-CPR (active compression-decompression), while our ALS teams use an automated chest-compression device. From 2009–2014, we found 17 cases of pregnant women suffering from out-of-hospital CA (IRB 00010254-2016-149). Four of these 17 women were in a peripartum period. These 4 patients' epidemiological and clinical features are described in Table 1.

Certainly, we cannot claim on the basis of only 4 cases that ACD-CPR is less likely than standard manual CPR to cause liver lacerations in peripartum patients. However, our practice with ACD-CPR does lead us to ask the authors whether an ACD could be used, by taking precautionary measures to apply it slightly higher on the sternum than in manual CPR, to ensure that the ACD-CPR's

suction cup stays above the fundus uteri and, therefore, is less likely to harm pregnant women's livers. Furthermore, we talk about the safety of an automated chest compression device for use with pregnant women because of its regular intervals of chest compressions and its constant applied pressure.

Finally, to assess the real effect that chest compressions may have on the liver, it may be necessary to report both the hands' position during closed chest compressions and the method that was used—active compression decompression (CardioPump®), automated chest-compression device, or manual chest compression—as Utstein elements in a patient's record after CPR is performed [2–4].

Conflicts of interest

None of the author of this manuscript have any conflicts of interest.

Funding source

None.

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Table 1

Four women who experienced mechanical chest compression after prehospital peripartum cardiac arrest.

Patient	Gestational age (weeks)	Parity	Etiology related to cardiac arrest	Length of now-flow (minutes)	Length of low-flow (minutes)	ROSC	Liver injury	Complications post-resuscitation	Transfusion	Status
1	37	2	Hypertrophic cardiomyopathy	20	>60	No	No	DIC	8 RBC, 6 FFP, and 5 g Fibrinogen	Died 9 h after CPR
2	39	1	Remains unknown	10	>60	No	No	DIC	No	Died 16 h after CPR
3	34	1	Massive pulmonary embolism	0	>60	No	No	No available	No	Died 40 min after CPR
4	31	2	Acute myocardial infarction	20	>60	Yes	No	No	No	Died 2 h after CPR

ROSC, return of spontaneous circulation; CPR, cardiopulmonary resuscitation; DIC, disseminated intravascular coagulation; RBC, red blood cells; FFP, fresh frozen plasma; g, gram.

DOI of original article: <http://dx.doi.org/10.1016/j.resuscitation.2017.10.027>.

<https://doi.org/10.1016/j.resuscitation.2017.12.032>

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12 November 2017