



Pulmonary Edema in Preeclampsia at ICU department of NMCHC 2023

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Case review 1

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- ▶ Mde Y R N , age 29, 110kg
- ▶ Dyspnea in 29 week pregnancy.

Vital sign

- ▶ BP (210mmHg/110mmHg)
- ▶ Tachycardia, HR 120 bpm
- ▶ SpO2 :88%
- ▶ Temp: 37c
- ▶ Urine: 150ml/24H

Physical Examination

- ▶ General edema
- ▶ Cyanosis

Lungs : Crackling sound

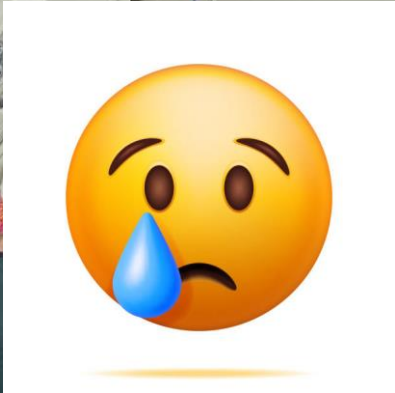
Hearth: no signs of heart failure

Abdomen: Extended with gravid uterus

- ▶ **Diagnosis : Pulmonary edema in severe pre-eclampsia**

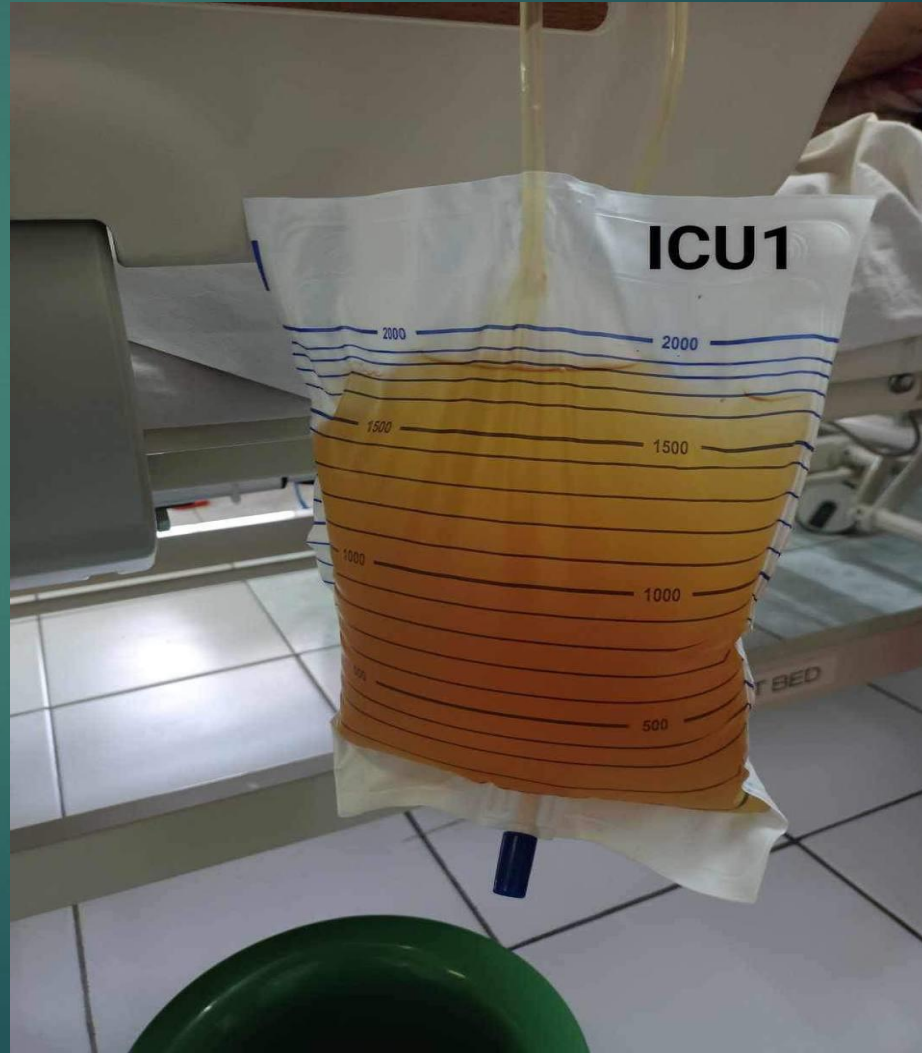
Intervention in ICU

- ▶ Begins with the standard emergency approach.
- ▶ Peripheral intravenous lines impossible > Central venous catheter
- ▶ Control BP : Nicardipine (IVSE) .
- ▶ Furosemide (IVSE).
- ▶ After stabilization of the patient, C-section was performed



Intervention in ICU

- ▶ Antihypertensive treatment
- ▶ Diuretic agent (furosemide)
- ▶ Albumin human
- ▶ Fluid restriction
- ▶ Prednisolone (reduce proteinuria)



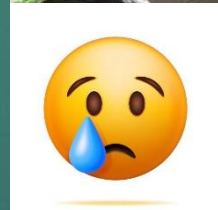
Intervention in ICU

- ▶ The evolution was marked by the disappearance of the dyspnea within 48 hours, and stabilization of the blood pressure.
- ▶ BP 140/75mmHg
- ▶ Urine output :2500ml/24H



Case review 2

- ▶ Mde S M R, age 33
- ▶ 48 hour after admission she develop pulmonary edema
- ▶ Dyspnea
- ▶ Severe edema
- ▶ Anuria
- ▶ **Diagnosis** : pulmonary edema + ARF+ severe pre-eclampsia +HELLP syndrome



Intervention in ICU

- ▶ Hemodialysis 4 session .
- ▶ Lung become clear.
- ▶ No dyspnea.
- ▶ Renal function return to normal .
- ▶ Urine output 3500ml/24H.
- ▶ Patient discharge without complication after 25 days in ICU.



Introduction

- ▶ Preeclampsia is a most common complication during pregnancy and responsible of 15% of maternal mortality (WHO systematic analysis, 2014)
- ▶ Preeclampsia incidence in Cambodia is 2.34 per 1,000 deliveries (WHO Multicounty Survey 2011)
- ▶ Pulmonary edema is a common complication of preeclampsia, It can occur antepartum or postpartum
- ▶ Acute pulmonary edema accounts for 1.5% of admissions to the obstetric intensive care unit (Instituto de Medicina Integral, Brazil, 2015)

- ▶ Preeclampsia is a complex disease process originating at the maternal–fetal interface that affects multiple organ systems.
- ▶ Pregnancy is accompanied by physiological adaptations, making pregnant women more prone to developing pulmonary edema

- ▶ if there is either an increase in cardiac preload (fluids) or increased pulmonary capillary permeability (pre-eclampsia) or both making pregnant women particularly susceptible to pulmonary edema.

Materials and Methods

- ▶ A retrospective study at obstetric ICU department in National Maternity and Child Health Center (NMCHC) in Phnom Penh, Cambodia from 1 January , to 31 December 2023.
- ▶ To determine the incidence of pulmonary edema among pre-eclampsia women

There was a total of 9737 deliveries in 2023

- ▶ 236 women preeclampsia with severe features were admission to ICU department.
- ▶ 28 had acute pulmonary edema.
- ▶ 24 case of the pulmonary edema were women under 35 years old.

Incidence of Severe preeclampsia admission in ICU

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	NMCHC (Phnom Penh Cambodia, 2023)	Srinagarind Hospital (Khon Kaen, Thailand 2016)
Number of deliveries	9737	11,199
Preeclampsia with severe features	236	213

The incidence of pulmonary edema in Severe preeclampsia

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	NMCHC (Phnom Penh Cambodia, 2023)	Srinagarind Hospital (Khon Kaen, Thailand 2016)
Number of preeclampsia with severe features	236	213
Number of pulmonary edema	28	16

Age group

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Age group	NMCHC (Phnom Penh Cambodia, 2023)	Srinagarind Hospital (Khon Kaen, Thailand 2016)
Under 35 years old	24	10
35 years or older	4	6

Etiology of acute pulmonary edema in Severe pre eclampsia

Hypertensive crisis was the main cause of acute pulmonary edema in Severe preeclampsia (78%).

Fluid overload remains an important cause

- ▶ Hypertensive crisis N:22
- ▶ Fluid overload N:5
- ▶ Acute Renal failure N:1

Etiology	NMCHC (Phnom Penh Cambodia, 2023)	Srinagarind Hospital (Khon Kaen, Thailand 2016)
hypertensive crisis	22	12
Fluid overload	5	4
Acute Renal failure	1	0

Onset of pulmonary edema in Severe pre eclampsia

Acute PE occurred most commonly before delivery.

- ▶ Antepartum N=24 (86%)
- ▶ Postpartum N=4 (14%)

Type of Delivery

The majority of the women underwent Caesarean sections section.

It is often impossible to wait for labor thus explaining the frequency of Caesarean sections.

- ▶ Cesarean section N=27(98%)
- ▶ Vaginal delivery N=1 (2%),

Type of Delivery	NMCHC (Phnom Penh Cambodia, 2023)	Srinagarind Hospital (Khon Kaen, Thailand 2016)
Caesarean sections	N=27(98%)	N=14(88%)
Vaginal Delivery	N=1 (2%)	N=2(12%)

Maternal Mortality

- ▶ There is no maternal death case in ICU cause by with acute pulmonary edema in Severe preeclampsia.

Discussion

- ▶ Overall incidence of Acute pulmonary edema in preeclampsia is 2.8 per 1,000 deliveries.
- ▶ The mean age of the women was 29 years old.
- ▶ The principal etiology is Hypertensive crisis (85%).
- ▶ Acute pulmonary edema occurred most commonly antepartum (86%).
- ▶ Most of deliveries were done by Caesarean section (98%)
- ▶ There is no Maternal death cause by pulmonary edema.

Conclusion

- ▶ Pulmonary edema is a common complication of preeclampsia.
- ▶ Hypertensive crisis is the most commonly cause of pulmonary edema in pre-eclampsia.
- ▶ Delivery is usually immediately induced to prevent maternal and fetal mortality.

- ▶ Antihypertensive treatment post partum is important.
- ▶ Fluid balance should carefully take place in every woman with preeclampsia.
- ▶ Multidisciplinary team increase the quality-of-care–related outcomes.
- ▶ Furthermore, prospective studies are needed to understand the underlying mechanisms of Pulmonary edema in pregnancies and their proper management strategies.

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