

# THE USAGE OF NEBULIZED GLYCERYL TRINITRATE IN TREATMENT OF PULMONARY EMBOLISM

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## INTRODUCTION

The management of pulmonary embolism (PE) complicated with acute right ventricular (RV) failure, haemodynamic instability and respiratory failure is a challenging situation to deal in Emergency Department (ED). Pulmonary vasodilators such as nitric oxide or epoprostenol are useful options that can be offered as it can help in reducing pulmonary pressure however, these drugs might not be available in ED. We describe a case of a patient with PE and RV failure which showed improvement following administration of nebulized Glyceryl trinitrate (GTN) as an alternative.

## CASE DESCRIPTION

69 years old female presented with shortness of breath 3 hours ago. Upon arrival, she was in respiratory distress. Lungs were clear on auscultation. Upon arrival, BP: 152/90mmHG, PR: 78/min, Spo2 : 90% under high flow mask, RR 40/min. Patient was started on non-invasive ventilation. Bedside echo revealed RV enlargement with interventricular septal wall flattening and good left ventricle function. After a while, she became hypotensive and more tachypneic. Nebulized GTN was administered. Her condition showed marked improvement following intervention. Once stable, she was sent for CTPA which showed bilateral PE involving segmental and subsegmental branches of pulmonary arteries with features of right heart strain.

## DISCUSSION

PE leads to increased pulmonary pressure due to presence of blood clots that block pulmonary arteries. This could lead to obstructive shock and hypoxia which will worsen pulmonary vasoconstriction. GTN - is a potent vasodilator that is commonly used in the ED for management of hypertensive emergencies. In this case, nebulized GTN was administered. It acts as pulmonary vasodilator, which can help to reduce pulmonary pressure together with right ventricular afterload. This effect subsequently could improve RV function, cardiac output and oxygenation. A few case reports have been published showing similar positive findings however, clinical studies to support the usage of nebulized GTN as pulmonary vasodilator in PE is limited.

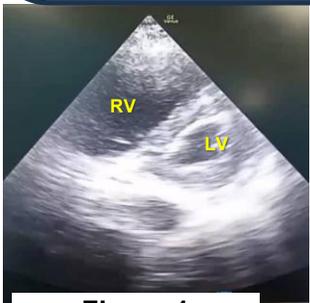


Figure 1

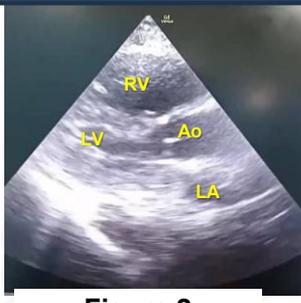


Figure 2

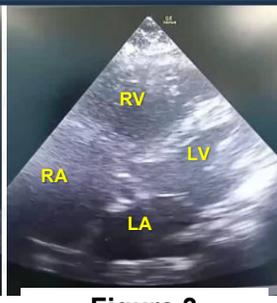


Figure 3

Bedside echo clips :

**Fig. 1** : Dilated RV with flattening of interventricular septum (PSAX)

**Fig. 2** : Dilated RV (PLAX)

**Fig. 3** : Dilated RV and RA (Subxiphoid)

## CONCLUSION

In addition to standard treatment for PE such as thrombolysis, surgical thrombectomy and anticoagulant, nebulized GTN can be considered as one of the options to manage PE complicated with RV failure as it is readily available and feasible in the ED. Nevertheless, further studies need to be conducted to support its usage.

- Reference :
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