

# Potential Prophylactic Measures for PE



By

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## Introduction

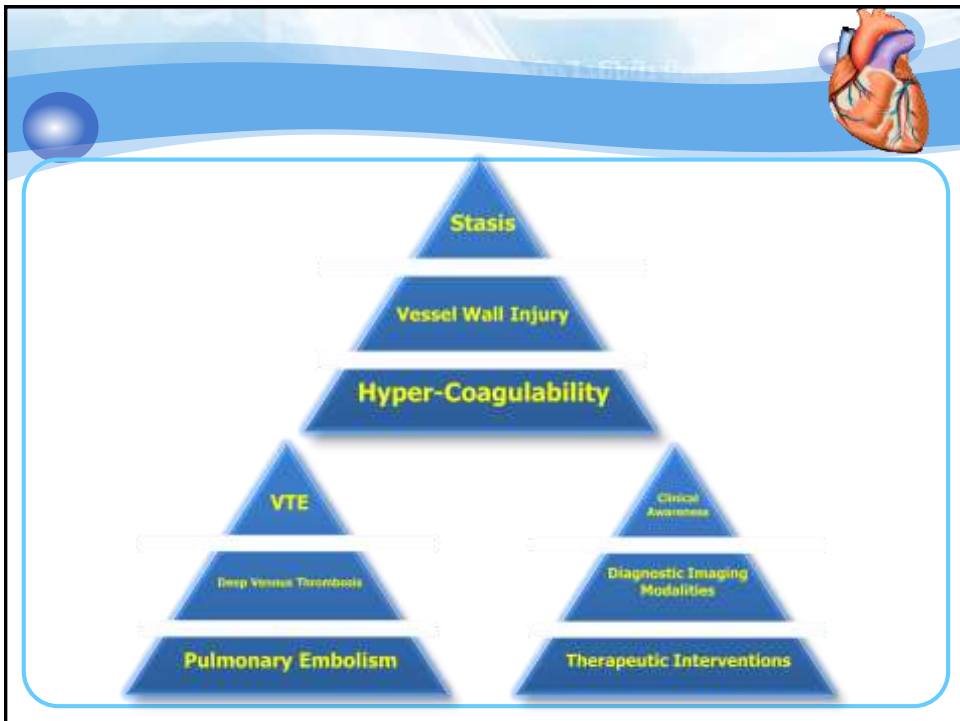
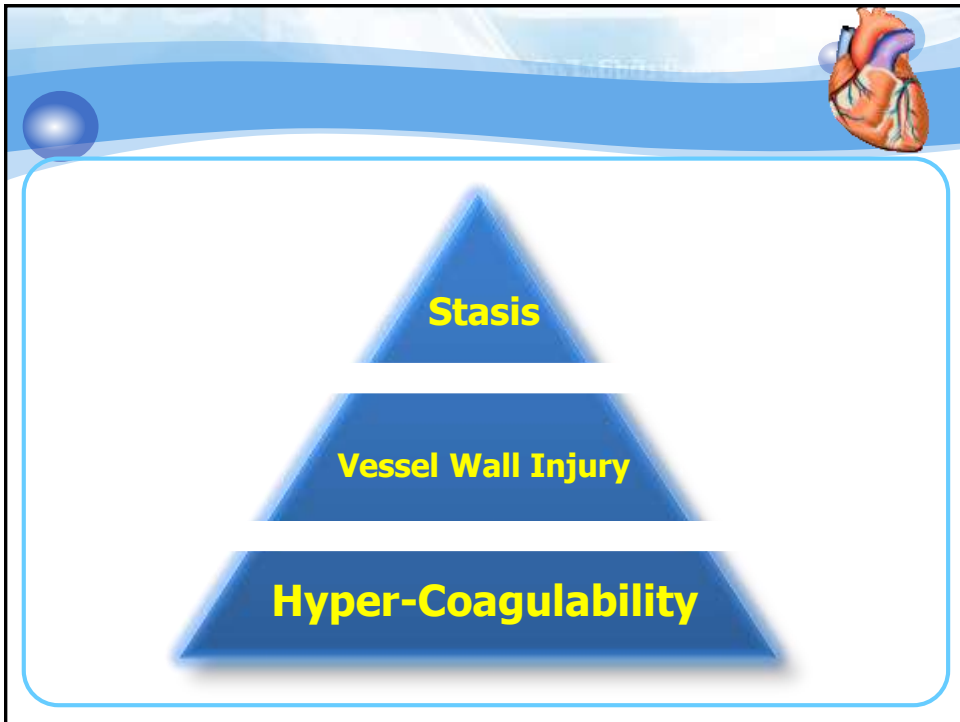


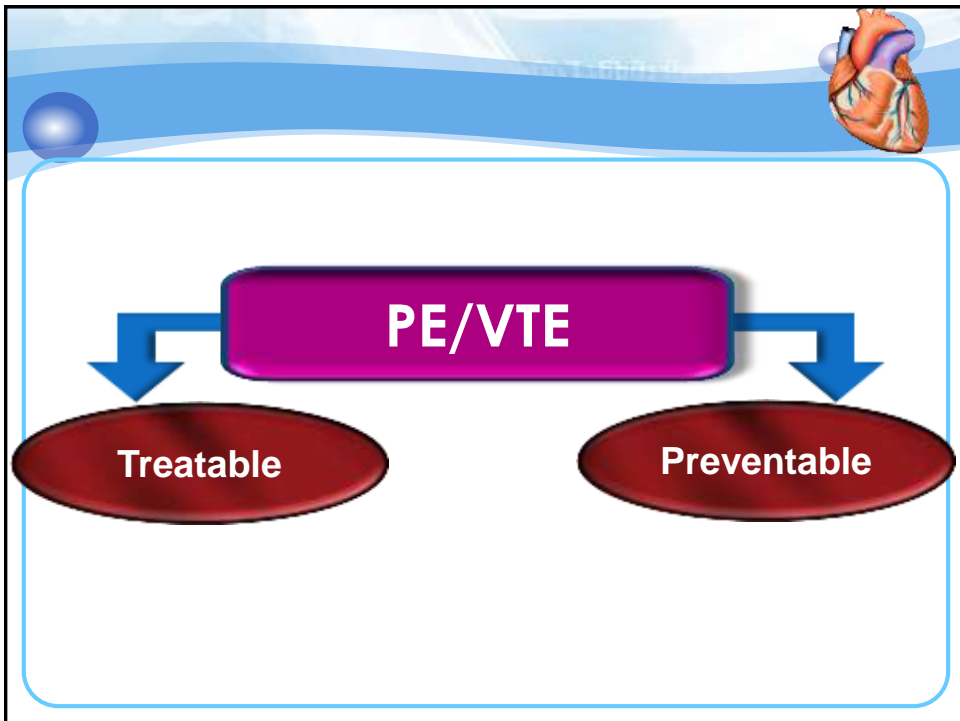
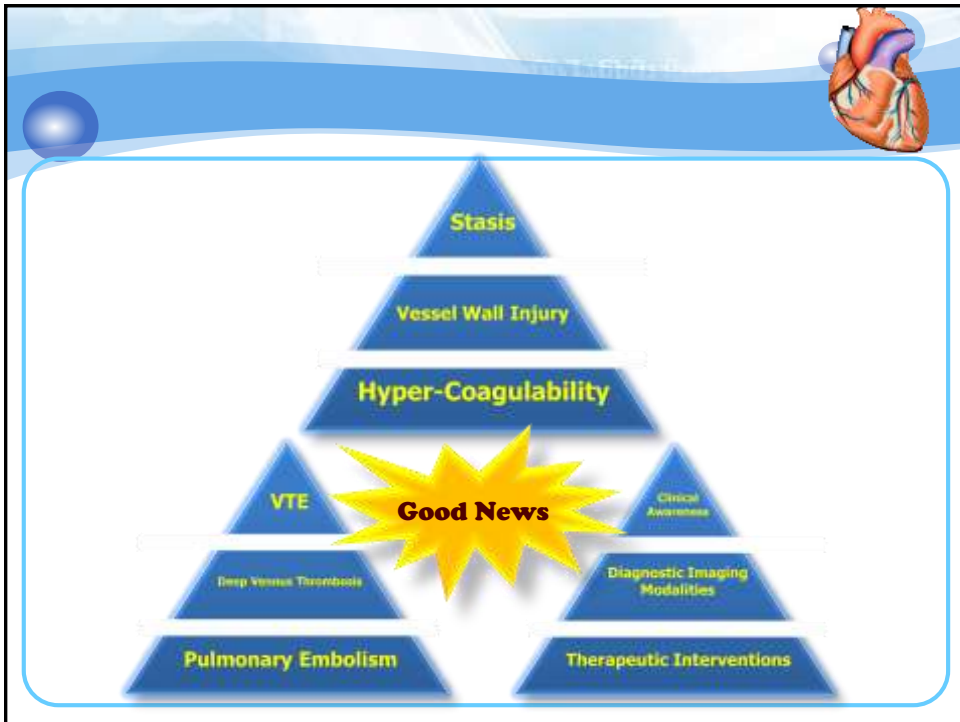
- ❑ A good number of patients die each year directly as a consequence of acute PE.
- ❑ A substantial number of patients die from PE within one hour of presentation.
- ❑ 3 Month mortality in acute PE is 15%.

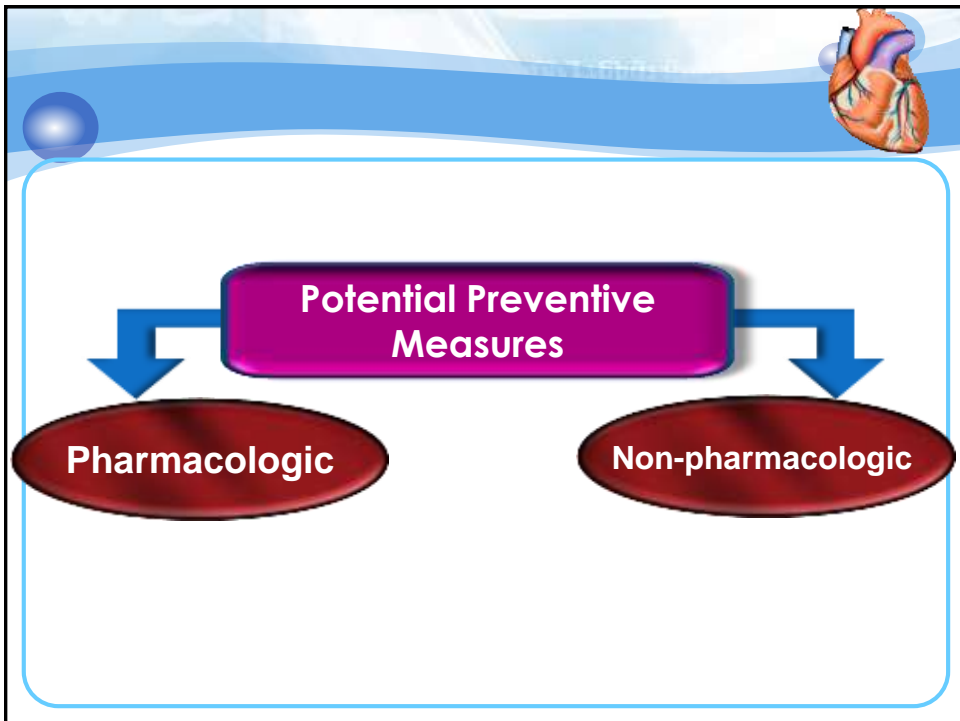
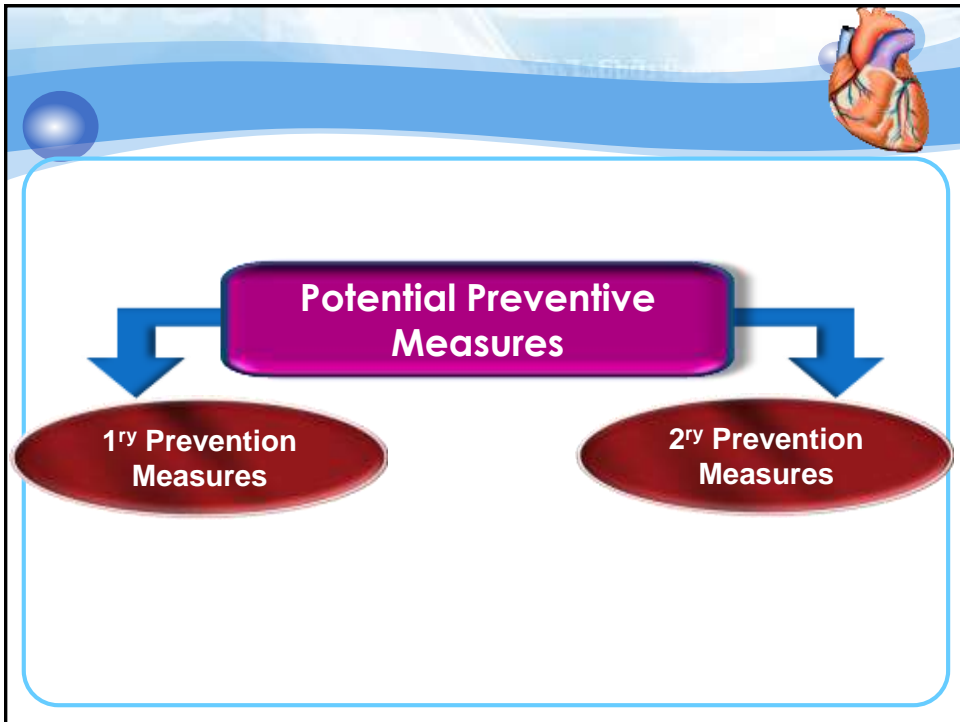
# Terror of PE



**In 1856, Virchow proposed his triad of factors leading to intra-vascular coagulation.**







## I- Primary Prevention Measures



### For patients at high risk to develop VTE

#### Acquired risk factors

##### A- Medical risk factors :

- ✚ Age older than 40 y.
- ✚ History of venous thromboembolism.
- ✚ Prior major surgical procedure.
- ✚ Varicose veins.
- ✚ Congestive heart failure.
- ✚ Myocardial infarction.
- ✚ Obesity.
- ✚ Pregnancy or postpartum period.
- ✚ Oral contraceptive therapy.
- ✚ Hormone replacement therapy.
- ✚ Cerebrovascular accident.
- ✚ Malignancy.
- ✚ Severe thrombocytopenia.
- ✚ Antiphospholipid antibody syndrome (including lupus anticoagulant).

##### B- Surgical risk factors :

- ✚ Trauma (LL.fractures).
- ✚ Orthopedic surgery (hip&knee replacement).
- ✚ Pelvi-abdominal surgery.
- ✚ Spinal surgery.
- ✚ Breast surgery.

## I- Primary Prevention Measures



### For patients at high risk to develop VTE

#### Inherited risk factors

- ✚ Antithrombin III deficiency.
- ✚ Factor V leiden (activated protein C resistance).
- ✚ Prothrombin gene (C20210A) defect.
- ✚ Protein C deficiency.
- ✚ Protein S deficiency.
- ✚ Dysfibrinogenemia.
- ✚ Disorders of plasminogen.
- ✚ Hyperhomocysteinemia.



### Pharmacologic Preventive Measures

- ↻ **UFH.**
- ↻ **LMWH (Enoxaprine).**
- ↻ **Fondaparinux (Arixtra).**
- ↻ **Warfarin.**
- ↻ **NOACS.**



### Non-pharmacologic Preventive Measures

#### Mechanical Measures

- ↻ **IPC.**
- ↻ **GCS.**
- ↻ **IVC filter.**

#### Life Style Measures

- ↻ **Early ambulation after surgery.**
- ↻ **Avoid sitting for long periods.**
- ↻ **Wear compressive stockings on long travels.**
- ↻ **Drink plenty of water.**
- ↻ **Avoid dehydration.**
- ↻ **Avoid mis-match between leg span and vehicle cabin space.**
- ↻ **Take foods which prevent b. clotting:**
  - ⇒ **Sip grape juice.**
  - ⇒ **Go for Garlic.**
  - ⇒ **Enjoy virgin olive oil.**
  - ⇒ **Eat kiwi.**
  - ⇒ **Make leafy Greens a routine.**
  - ⇒ **Limit animal fats in diet.**

## Primary Prevention of PE or VTE



**Prevention of pulmonary embolism is tailored to pre-existing co-morbidities.**

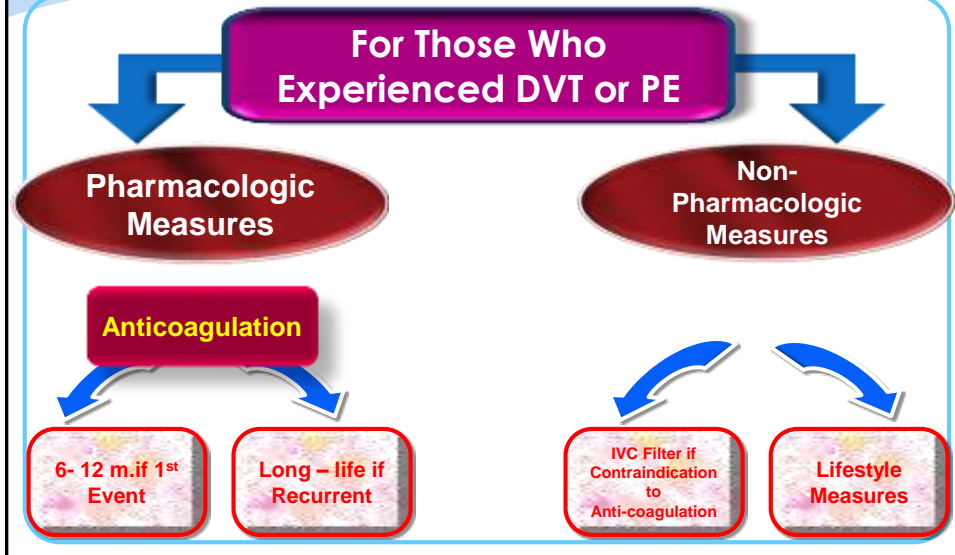
## Primary Prevention of PE or VTE



Patient Characteristics	Risk Factors	Type of Surgery	Prophylactic Measures
↓ 40 years	-Ve	Minor	Only early rehabilitation
↑ 40 years	- Ve	Major	UFH /12HR Or LMWH Or Fondaparinux Or IPC
↑ 40 years	+ Ve	Major	- Standard Heparin /8hr Or LMWH Or Fondaparinux + IPC
↑ 40 year + ↑ Bleeding risk	+ Ve	Major	Mechanical Measures



## II- Secondary prevention Measures for DVT or PE



## Take Home Messages

- ☞ A good number of patients die yearly with acute pulmonary embolism and a substantial number die within one hour of presentation.
- ☞ Blood stasis, vessel wall injury and hyper coagulable states play the major scenario of venous thrombo-embolism.
- ☞ Frequently more than one risk factor for VTE is present.
- ☞ Patients hospitalized for medical problems face a thrombo embolic risk similar to that of their surgical counterparts.

## **Take Home Messages**

- ✎ With the advances in clinical awareness, diagnostic imaging modalities and therapeutic interventions dramatic improvement in preventive and therapeutic measures are now available.
- ✎ Knowledge of risk factors for VTE provides the rationale for both clinical suspicion and prophylaxis.
- ✎ Ideal prophylactic measures should be effective, safe, cost-effective as well as well tailored to pre-existing co-morbidities.

