

CELLULAR INDICES OF DVT

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ABSTRACT

- DVT, one of the most common and serious forms of VTE, can cause serious complications if the clots travel to the lungs resulting in PE. DVT is a major challenge to the members of the medical profession. The CDC reported that DVT/PE affect as many as 900,000 Americans each year, resulting in several hundred thousand hospitalizations and about 300,000 deaths (Figure 1: Deaths due to VTE vs. causes).

BACKGROUND

- CDC and the American Society of Hematology convened a national workshop of experts in VTE, public health experts in VTE, and patient representatives and concluded that improved utilization in clinical practice of existing, proven-effective preventive measures is critical to reducing the disease burden from VTE. Systematic surveillance of DVT and PE is needed to provide nationally representative data on the prevalence and annual incidence of DVT and PE in the U.S.

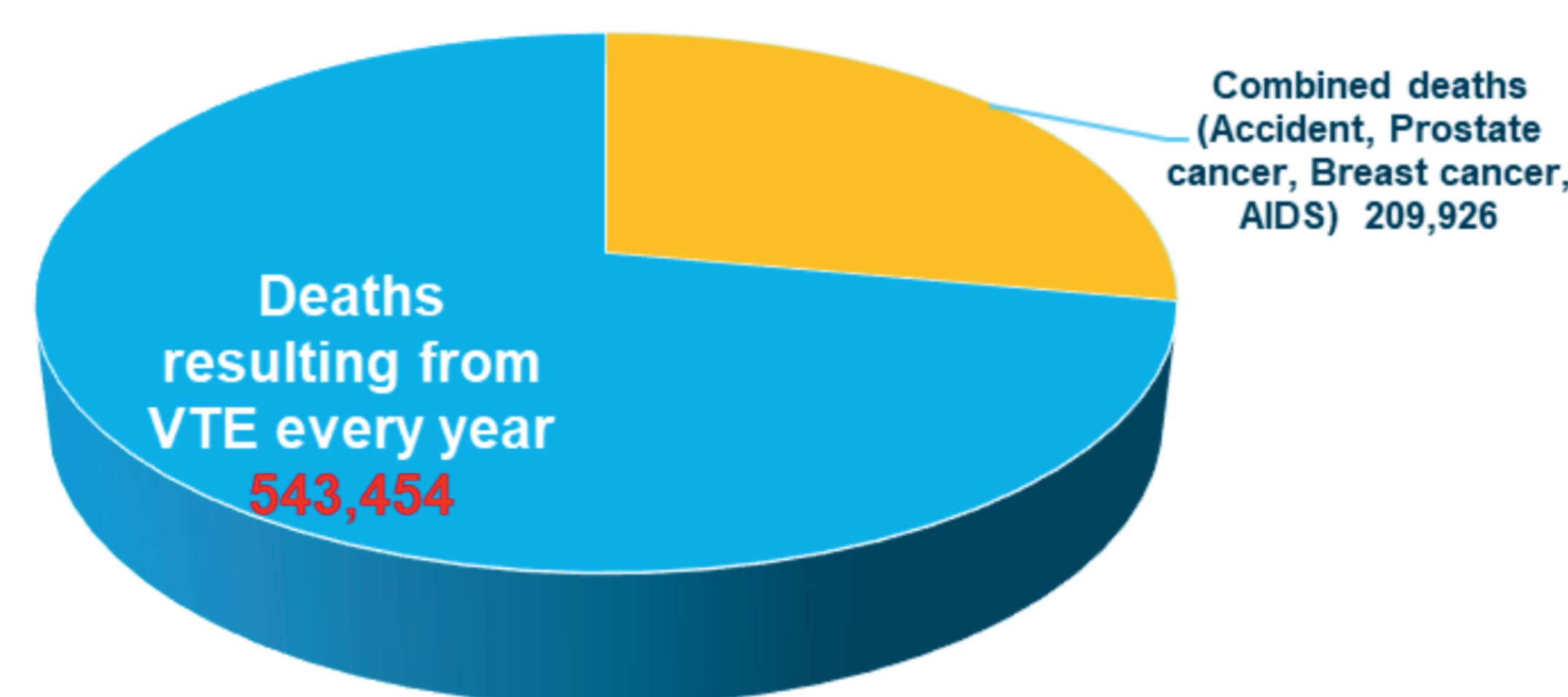


Figure 1 Deaths due to VTE vs. causes

OBJECTIVES

- Our goal was to research the role of some important cellular indices in the diagnosis of DVT and found the following: Routine Complete Blood Count is an inexpensive laboratory test, where blood samples are collected with EDTA to evaluate RBCs, WBCs, and platelets.

METHODS

- We researched the published literature. DVT and PE incidence rates worldwide are indicated in Figure 2

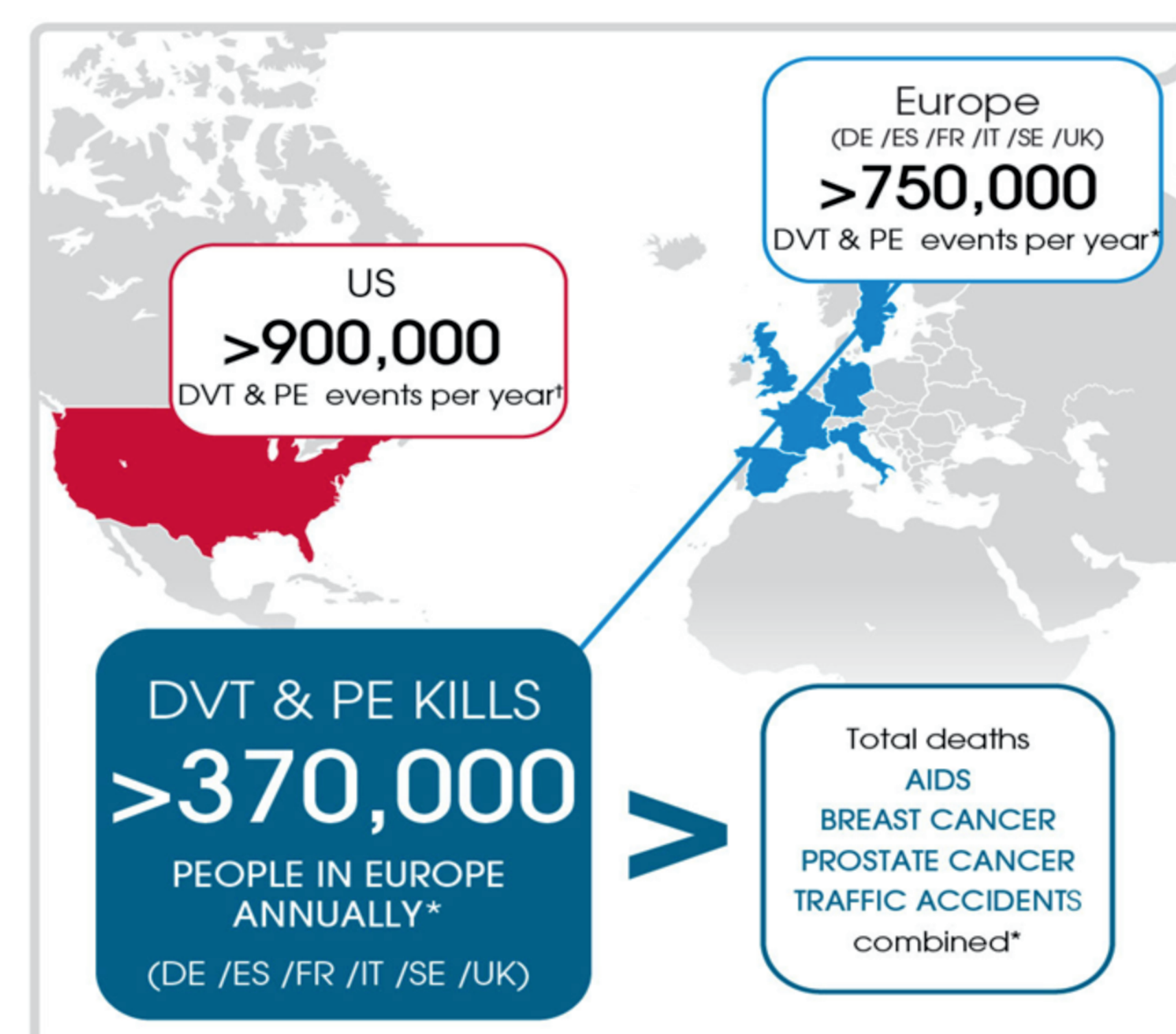


Figure 2 DVT and PE incidence rates worldwide

RESULTS

- Hemoglobin (HGB) is a protein that is used to transport oxygen in human blood. Low levels of HGB are shown to relate to higher mortality rates for patients with PE, with roughly 74% accurate reading.

RESULTS CONTINUED

- Other indices included Mean Platelet Volume (MPV), Platelet Count, and Red Cell Indices. Increased Red Cell Distribution Width (RDW) is a sign of thrombosis, as having high RDW in one area of the body while low in another may signal that a clot is blocking blood flow from one part of the body to another.
- Lower values for Hematocrit (HCT) correlated directly to higher mortality rates in thrombosis patients, thrombocytopenia can cause different complications including Stroke, Myocardial Infarction.
- A higher value for MPV causes a higher risk for DVT and Myocardial Infarction, as well as for VTE. An elevated Neutrophil Lymphocyte Ratio (NLR) is a sign of inflammation and has been shown to be associated with the recurrence of DVT.
- An elevated Platelet Neutrophil Ratio (PNR) is associated with inflammation and can be used as a predictor of poor outcomes.



Figure 3: Rudolph Virchow

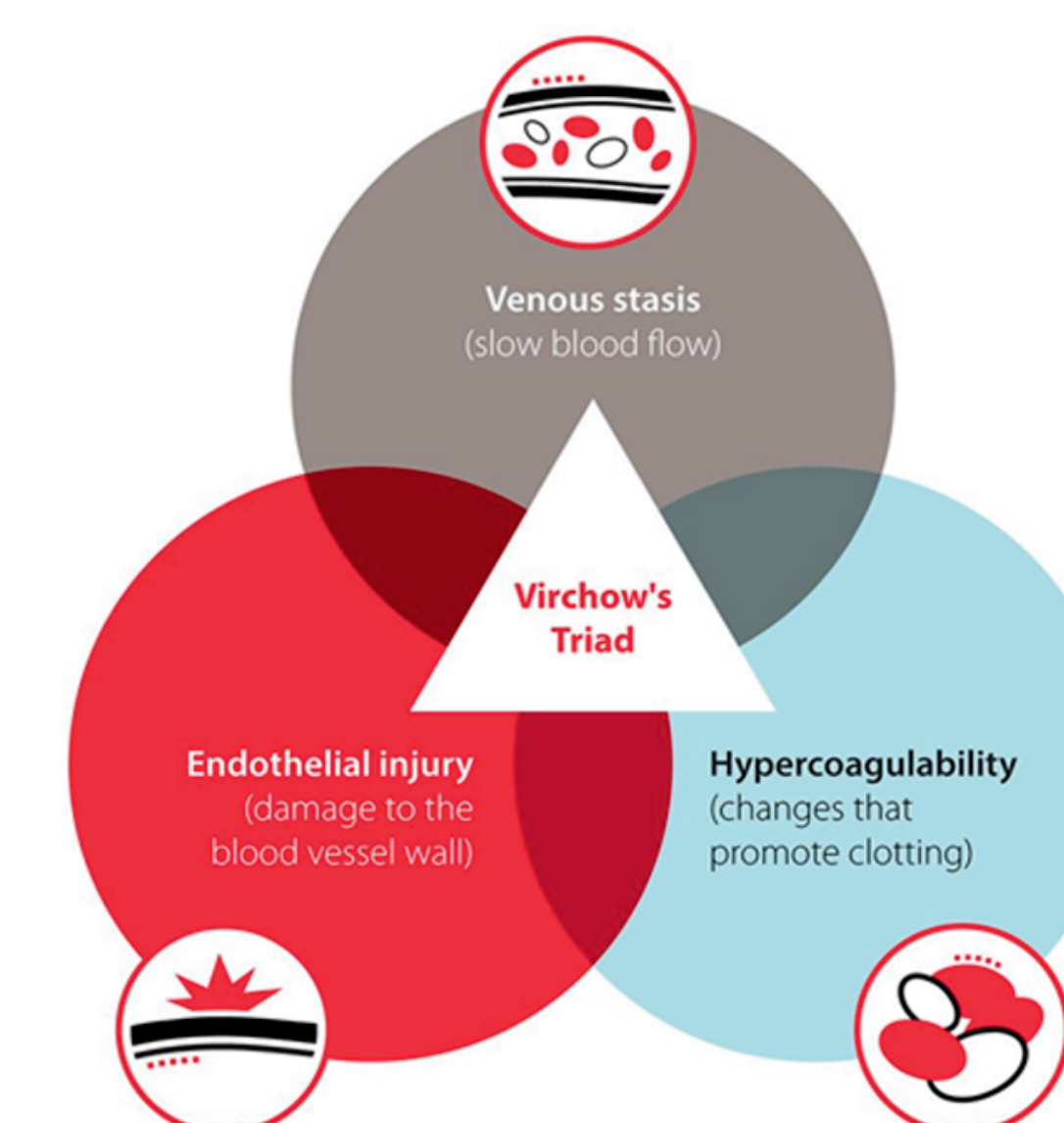


FIGURE 4: Virchow's Triad

CONCLUSION

- The Virchow's triad (Figures 3 and 4) are still applicable to all the cases of VTE. The cellular indices could serve as better indicators or diagnostic tools and prognostic markers for DVT and can help in accurate diagnosis in a timely manner.
- Increased RDW and HCT are associated with patients suffering from DVT.
- Increased NLR is associated with a higher risk of DVT recurrence.
- These cellular indices could serve as better indicators or diagnostic tools and prognostic markers for DVT.
- Complete blood count data is routinely obtained in emergency and in-patient settings. It is a widely used, low-cost, convenient laboratory test that offers an abundance of metrics
- These readily available blood cellular indices along with other testing strategies can help accurate diagnosis in a timely manner.

REFERENCES

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