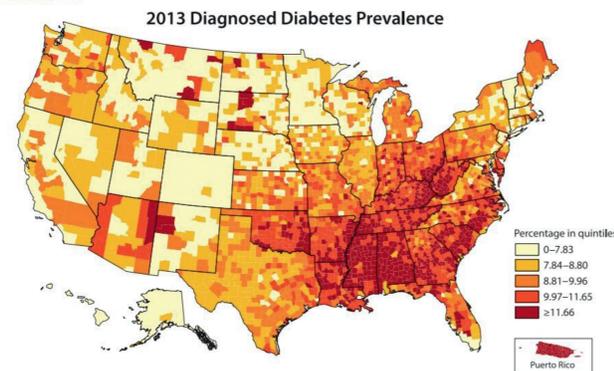


## ABSTRACT

There appears to be a very close association between Diabetes and VTE. The purpose of this research was to investigate if indeed there is a connection between the two conditions. Over 100 million people are affected by diabetes or prediabetes in the U.S., of which 1,267,000 (1.4%) had VTE. The areas of the U.S. which are most affected by diabetes are the South, Southeast, and East. The American Indians and Alaskan Natives have the highest prevalence of diabetes. The risk of VTE is dramatically increased with age. The diabetic prothrombotic state is caused by endothelial dysfunction, coagulative activation, and platelet hyper-reactivity. Diabetes affects every organ in the body: skin, teeth, brain, eyes, heart, arteries, kidneys and nerves. Diabetes may also affect pregnancy in an adverse manner. In conclusion, we find a close and direct relationship between diabetes and VTE and recommend stringent measures to control diabetes to reduce the occurrence of VTE.

## PREVELANCE OF DIABETES

Figure 2. Age-adjusted, county-level prevalence of diagnosed diabetes among adults aged ≥20 years, United States, 2013



Data source: United States Diabetes Surveillance System.

Age adjusted, county-level prevalence of diagnosed diabetes among adults over 20 years in the US, 2013

## PERCENTAGE OF VTE AMONG MEN AND WOMEN OF DIFFERENT ETHNICITIES

- The incidence of VTE very high in American Indians, Alaskan Natives, Blacks and Hispanics.
- Lower in Asians and Whites.
- VTE is well represented in both genders

## RELATIONSHIP BETWEEN DIABETES AND VTE

- Goldhaber and Piazza (2012): Diabetics who developed VTE were more likely to suffer a complicated clinical course and had a low rate of thromboprophylaxis.
- Diabetics with VTE in the elderly have a higher risk.
- Age-adjusted risk of VTE among diabetics is two-fold higher than in non-diabetics.
- The risk of VTE is dramatically increased with age.

## PREGNANCY COMPLICATIONS IN DIABETIC PATIENTS

- Children exposed for a long time to high blood glucose in the uterus are at higher risk of developing diabetes in the future.
- High blood glucose during pregnancy can lead to the fetus putting on excess weight.

## MECHANISM OF VTE IN DIABETES

- Diabetic prothrombotic state is caused by endothelial dysfunction, coagulative activation and platelet hyper-reactivity.
- Diabetics have dysregulation of signaling pathways leading to enhanced adhesion, activation and aggregation.
- These alterations result from interaction among hyperglycemia, insulin resistance, inflammation and oxidative stress.



## NERVES

- Diabetes causes diabetic neuropathy and nerve damage.
- High blood sugar injures nerves throughout the body, mostly in the legs and feet.
- Symptoms of diabetic neuropathy: pain, numbness in legs and feet, problems with digestive system, urinary tract, blood vessels and heart.

## HEART

- Heart attacks are more serious and more likely to be fatal in diabetics.
- For adults over 60, type 2 diabetes and CV disease shortens life expectancy by an average of 12 years.
- High blood glucose from diabetes can damage blood vessels and the nerves that control the heart and blood vessels.
- The longer the patient has diabetes, higher chances of developing heart disease.

## BRAIN

- Increased risk of damage to blood vessels over time, including damage to the small blood vessels in the brain.
- With the nerves in the brain damaged, changes in thinking (vascular cognitive impairment or vascular dementia) appear.
- The longer one has diabetes, the more of a chance there is of developing dementia.

## ORAL COMPLICATIONS

- Diabetics have an increased risk of inflammation of the gums (periodontitis) if blood glucose is not properly managed.
- Periodontitis is a major cause of tooth loss, associated with an increased risk of cardiovascular disease.

## SUMMARY AND CONCLUSIONS

- The incidence of diabetes is very high in the United States with a large and scary incidence (1.4%) of VTE in diabetics.
- Diabetes affects almost every organ in the body, and often with inadequate thromboprophylaxis.
- We find a close and direct relationship between diabetes and VTE and recommend stringent measures to control diabetes to reduce the occurrence of VTE.

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## INTRODUCTION

- One clot forms every minute, and one death due to thrombosis appears every six minutes.
- There appears to be a very close association between Diabetes and VTE
- The purpose of this research was to investigate if indeed there is a connection between the two conditions.

## INCIDENCE OF DIABETES

- Over 100 million people affected by diabetes or prediabetes in the U.S.
- Several reports connecting diabetes and thrombotic events have been published
- Among 92,240,000 patients with diabetes between 1979 and 2005, 1,267,000 (1.4%) had VTE.

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