NEUROPATHY: IDIOPATHIC OR IDIOTIC?

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INTRODUCTION

Neuropathy is a condition with a broad number of causes. Some Neurologists according to Johns Hopkins Medicine have been able to discern over 100 different types of neuropathy each with their causes. Peripheral neuropathy is one of the most common neurologic conditions of late adulthood over 30% of those older than 80 have probable or definite neuropathy (Smith, 2020). In my time in the clinic setting, it was undeniably true that most of our patients had some form of neuropathy.

While so many suffer from this ailment and despite substantial associated morbidity, the epidemiology and risk factors associated with Peripheral Neuropathy in older adults are relatively uncharacterized (Hicks, Wang, et. al, 2021). Taking into account that the only way to help treat neuropathy was to fight the underlying cause, the purpose of this study is to be able to identify causes of neuropathy to better equip the public with prevention strategies because there is no set cure.

RESULTS/DATA

	Aged 40–69 years	Aged 70 years or older	
	US adults (NHANES) (N = 3578)	US adults (NHANES) (N = 1615)	ARIC (Visit 6) (N = 3362)
Sex			
Female	6.7 (0.6)	20.5 (1.4)	25.3 (1.0)
Male	14.2 (0.7)	36.0 (1.6)	47.6 (1.3)
Race			
White	10.0 (0.5)	26.2 (1.2)	33.3 (0.9)
Black	14.0 (1.0)	36.2 (4.0)	39.1 (1.8)
Diabetes status			
Normal	8.6 (0.6)	25.4 (1.8)	31.2 (1.2)
Pre-diabetes	12.4 (1.9)	23.3 (1.9)	34.8 (1.6)
Diabetes (< 10 years duration)	14.4 (2.8)	33.4 (3.9)	37.0 (1.7)
Diabetes (≥ 10 years duration)	31.5 (4.4)	41.5 (4.7)	42.3 (2.7)
Body mass index, kg/m²			
0–24.9	8.2 (1.0)	22.4 (1.8)	31.0 (1.4)
25–29.9	9.3 (1.0)	26.0 (1.8)	32.0 (1.2)
≥ 30	13.3 (1.1)	34.4 (2.4)	40.6 (1.4)
Smoking status			
Never	10.3 (0.8)	27.8 (1.8)	34.9 (1.2)
Former	9.8 (1.0)	27.7 (1.7)	33.8 (1.1)
Current	11.7 (1.1)	15.2 (3.4)	35.9 (3.1)

Figure 1

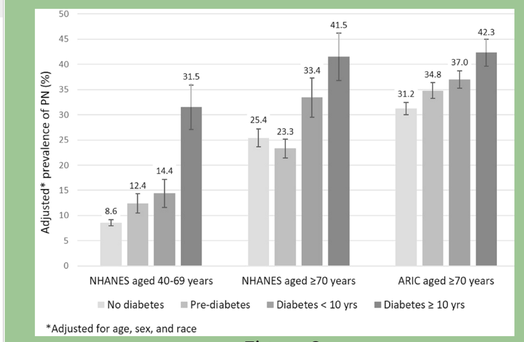

Figure 3

The three factors aside from age, gender, and race perceived as the most influent on the prevalence of neuropathy turn out to be diabetes, chemotherapy, and one's BMI

	Aged 40–69 years	Aged 70 years or older	
	US adults (NHANES) (N = 3578)	US adults (NHANES) (N = 1615)	ARIC (Visit 6) (N = 3362)
Drinking status			
Never	14.0 (1.9)	32.4 (3.3)	37.6 (1.9)
Current light/moderate drinker	8.7 (0.8)	23.8 (1.7)	33.1 (1.2)
Current heavier drinker	10.8 (1.0)	21.8 (2.7)	28.8 (3.5)
Prevalent cardiovascular disease			
No	10.1 (0.5)	25.2 (1.6)	33.6 (0.9)
Yes	13.2 (2.2)	31.6 (2.7)	37.5 (1.8)
Hypertension			
No	9.4 (0.6)	26.0 (1.6)	30.3 (2.0)
Yes	11.8 (0.9)	27.2 (1.3)	35.2 (0.9)
Prevalent chronic kidney disease			
No	9.7 (0.5)	25.3 (1.9)	31.7 (1.0)
Yes	15.2 (1.7)	28.3 (1.9)	38.0 (1.3)
Peripheral artery disease			
No	9.5 (0.5)	22.7 (1.4)	33.6 (0.9)
Yes	17.1 (2.8)	22.6 (2.7)	44.3 (3.8)
Cancer			
No	10.2 (0.5)	26.0 (1.5)	34.0 (0.9)
Yes	12.0 (2.0)	29.3 (2.2)	38.0 (2.1)

Figure 2

FINDINGS/CONCLUSION

Overall the quantitative analysis of the prevalence percentages of peripheral neuropathy shows that there are some conditions that can be highlighted as causes of neuropathy or at least have an association with its presence. Figure 3 shows significantly higher percentages for diabetic patients in all age groups (31.5%, 41.5%, and 42.3%) having peripheral neuropathy. Figure 1 displays a decent difference between the percentages of different Body Mass Index (BMI) categories (22.4%, 26%, 34.4%)suggesting that a higher BMI may have something to do with causing peripheral neuropathy. In Figure 2 the presence of cancer has an effect on the prevalence of peripheral neuropathy as well.

Factors completely outside of the control of humans in terms of preventing neuropathy could be their gender and race as displayed in Figure 1. Moreover, regardless of medical conditions, a higher age seems to play a critical role in the prevalence of neuropathy.

METHODOLOGY

The research focuses on the United States as neuropathy is prevalent everywhere not just in the clinic in Sugar Land. Qualitative research although helpful is subject to biases and misleading information due to patient self-diagnoses, lack of adequate medical understanding, or simply forgetting what the initial cause is because many patients seen at the clinic have been dealing with neuropathy conjoined with other illnesses for years. Quantitative data is something that would be outside of my capabilities due to the scope of the research and the difficulty of data collection for this specific health concern. A secondary data analysis is therefore the method used to draw complete conclusions from the fragmented data collected which comes from the US National Health and Nutrition Examination Survey and Atherosclerosis Risk in Communities. The data looks at percentages of populations with certain conditions such as a person's smoking status, or alcoholism that could cause neuropathy

DISCUSSION

While finding the fragmented data to analyze was difficult, assembled data analysis was a much smoother process by far. A nationwide or even small group survey/test likely hasn't been done due to the sheer multitude of possibilities that could cause neuropathy. The conditions mentioned above are but a few out of over a hundred potential causes so even analyzing all of them would require a huge team and resources. My study leads to a preliminary and generalized conclusion but there is a need for it at least as a first step for others to build upon. One thing to note is that upon further research it was learned that cancer itself is not what increases the chances of getting neuropathy but it is the use of chemotherapy drugs. Based on the findings some steps that people especially those at an older age need to take to perhaps decrease their chances of getting neuropathy would be to take regular screenings for early detection of cancer so that there is less chance of having to use chemotherapy, eating healthier to maintain a good BMI, and watching their blood glucose levels to monitor and control diabetes.