



Comparison of the clinical course and prognosis of dengue cases with and without diabetes mellitus

Lorreine Rivera-Ortiz, Natasha S. Torres-Borrero, Robert Rodríguez-González, Luisa I. Alvarado-Domenech, and Vanessa Rivera-Amill
Ponce Health Sciences University/ Centro Médico Episcopal San Lucas Consortium, Ponce, Puerto Rico

Introduction

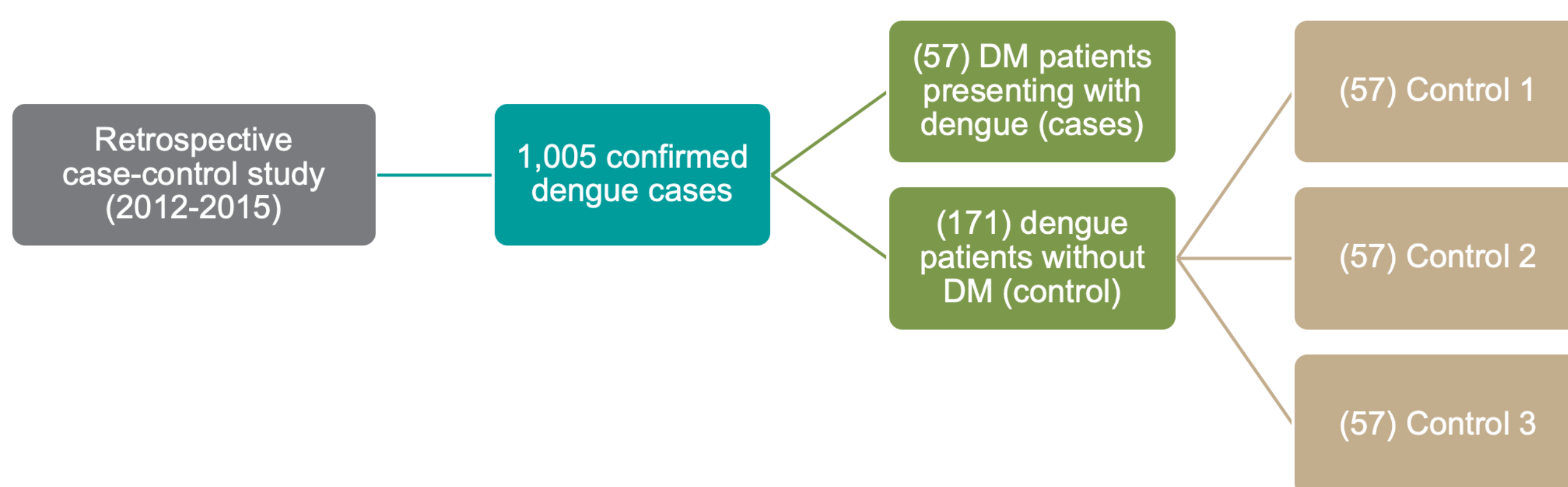
Dengue is the most prevalent arboviral infection worldwide, affecting more than 2.5 billion people. As a subtropical region, Puerto Rico has endemic transmission of dengue virus (DENV) with recent outbreaks in 2007, 2010, and 2012, affecting more than 30,000 people in 2012.

Chronic diseases like diabetes mellitus (DM) tend to increase susceptibility to infectious diseases because of its detrimental effects on the immune system, among other risk factors. Diabetes mellitus (DM) is one of the chronic diseases with higher prevalence in United States (9.1%) and Puerto Rico (12.8%) and the effect of DM on the outcome of arboviral infections is understudied.

Purpose

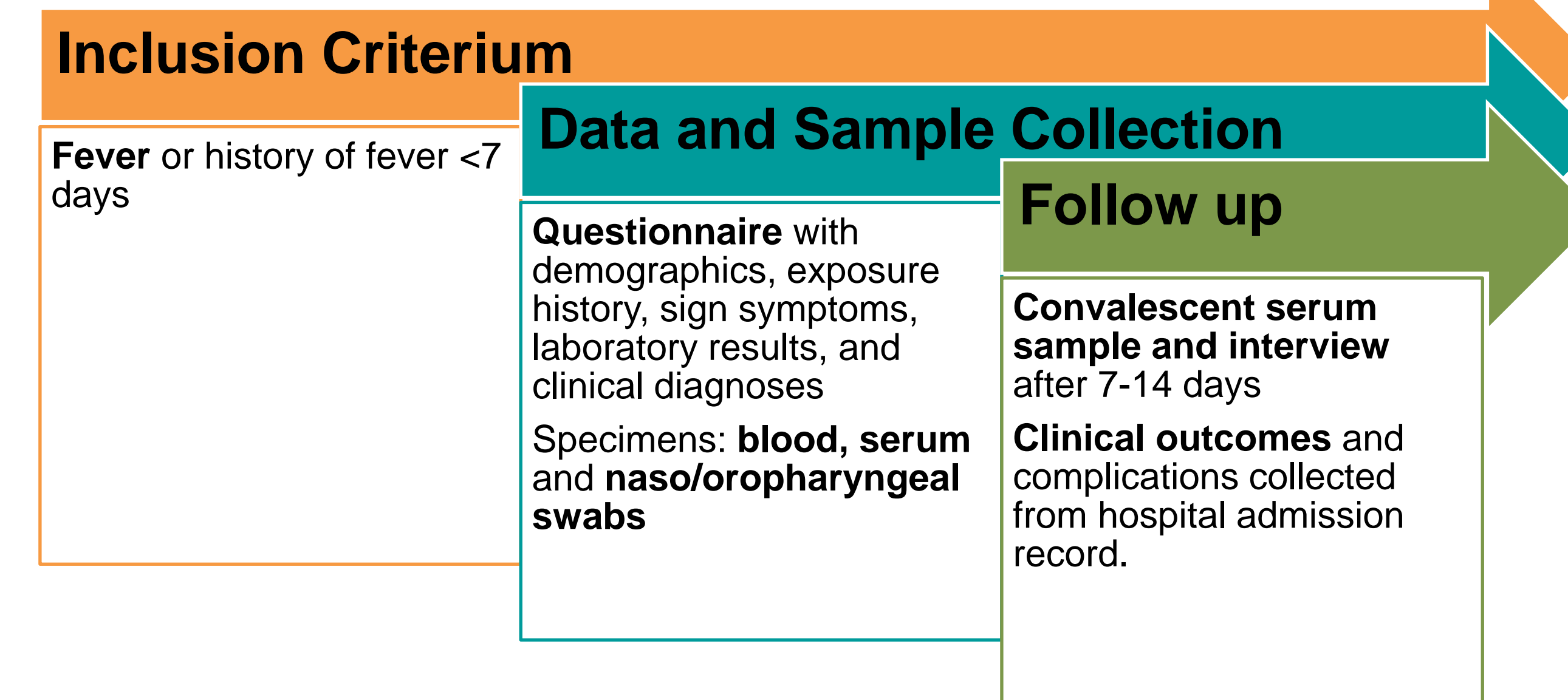
Increase clinician's awareness regarding the clinical manifestations of dengue and diabetes mellitus co-morbidity in order to implement preventive measures and in turn, improve the clinical outcome.

Aim: Describe and compare the clinical course and prognosis of dengue in patients with and without the DM co-morbidity.



Methods

A Sentinel Enhanced Dengue Surveillance System (SEDSS) for acute febrile illnesses (AFI), including dengue, was established in a tertiary hospital in the southern region of Puerto Rico.



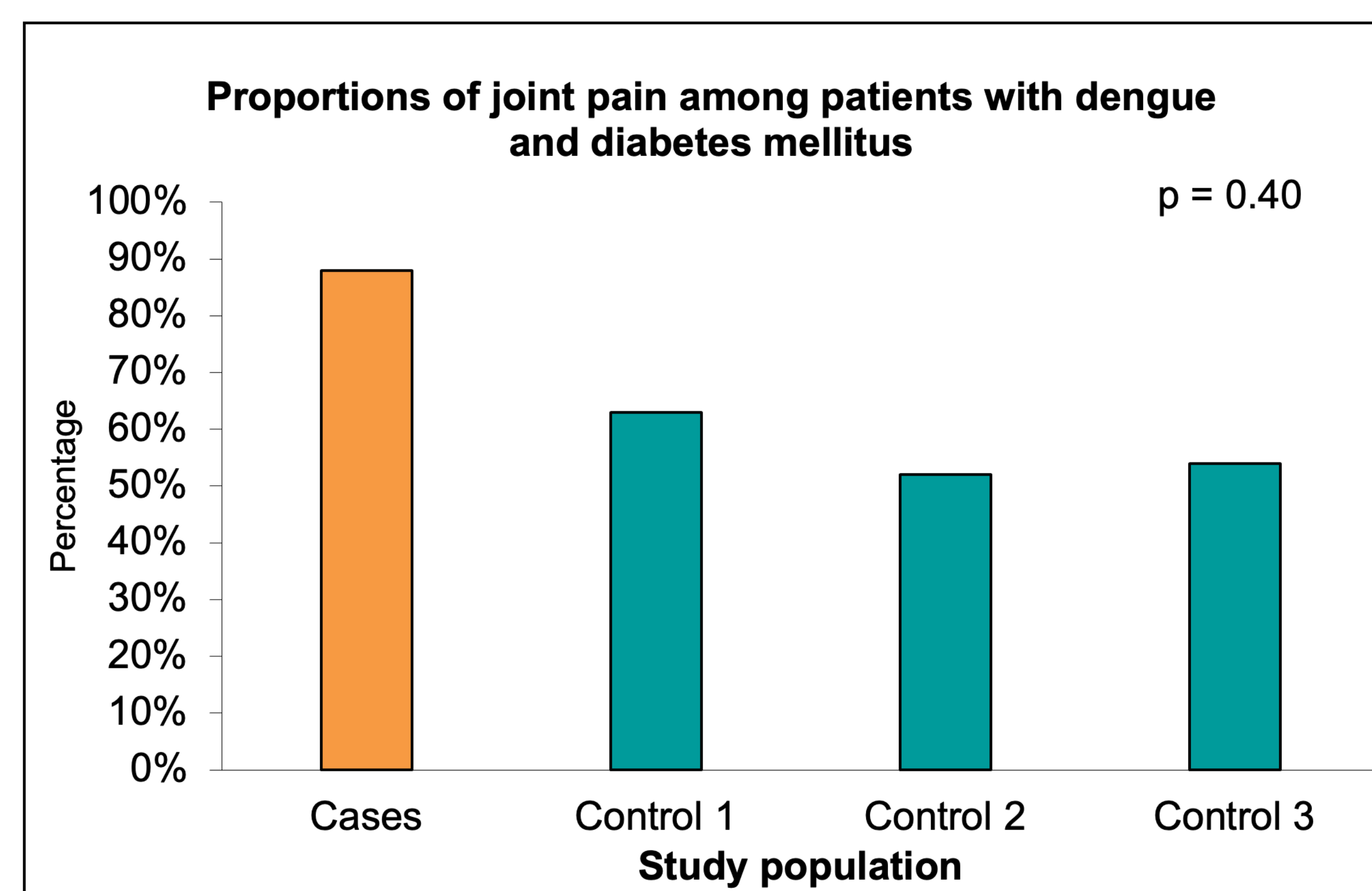
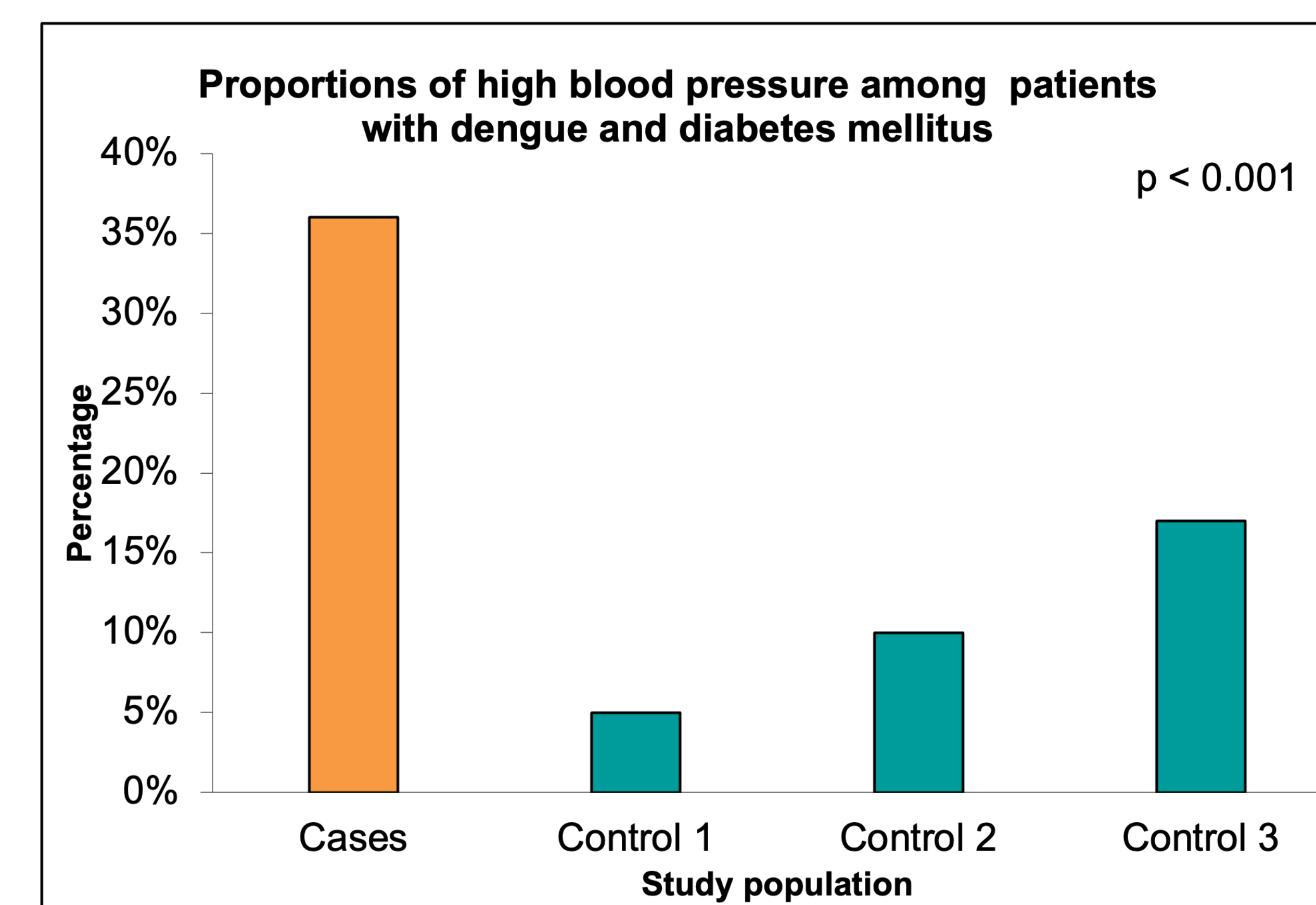
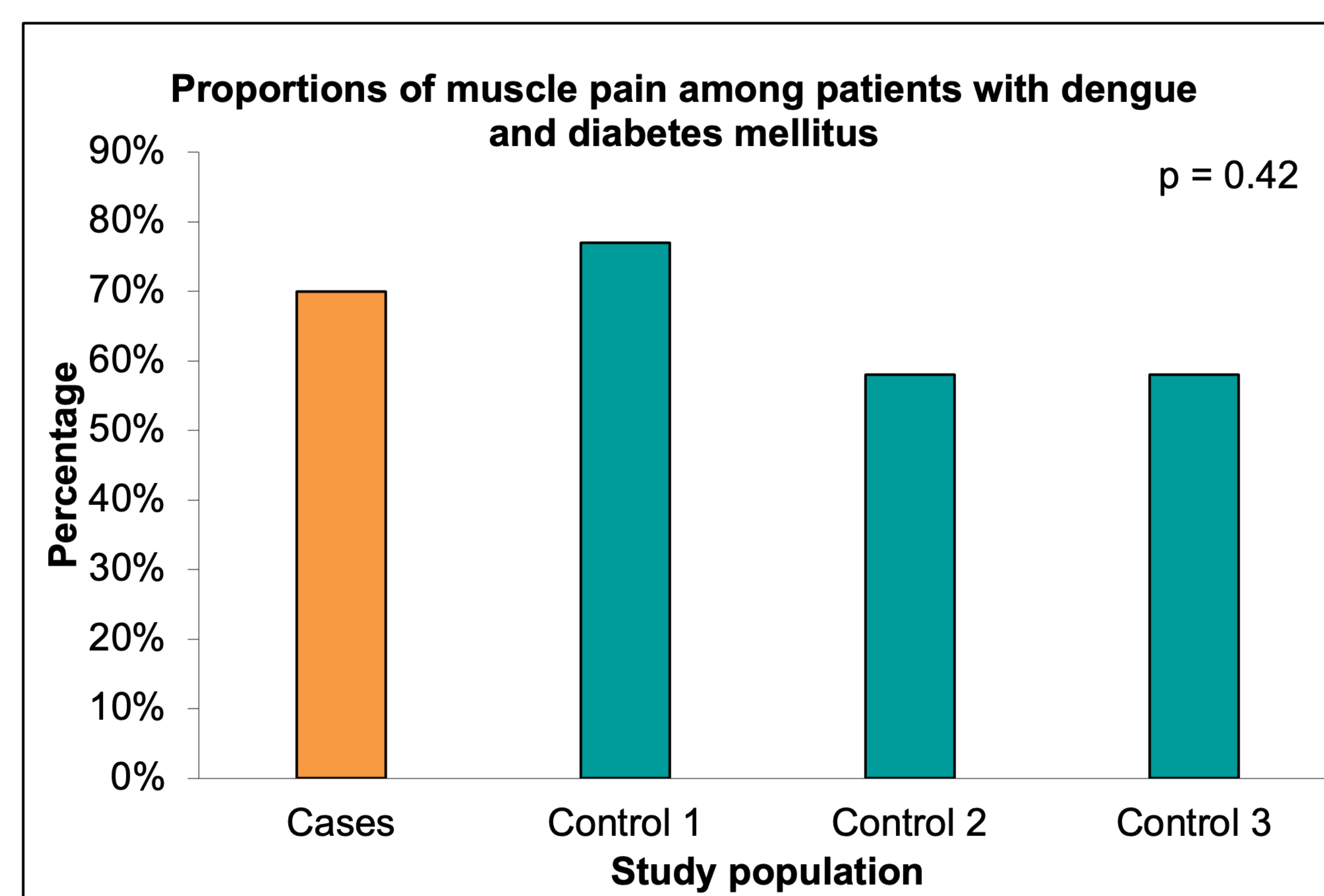
Results

Demographic and admission data of study participants

Age group (years)	Study population			
	Cases	Control 1	Control 2	Control 3
< 10	9%	32%	32%	26%
10 to 19	32%	42%	49%	50%
20 to 29	7%	12%	9%	7%
30 to 39	0%	7%	2%	3%
40 to 49	5%	4%	2%	5%
50 to 59	12%	4%	5%	3%
60 to 69	21%	0%	2%	2%
70 to 79	9%	0%	0%	2%
≥ 80	5%	0%	0%	2%
Total	100%	100%	100%	100%

Sex	Study population			
	Cases	Control 1	Control 2	Control 3
Male	54%	53%	42%	54%
Female	46%	47%	58%	46%
Total	100%	100%	100%	100%

Admitted	Study population			
	Cases	Control 1	Control 2	Control 3
	44%	44%	42%	47%



Laboratory parameters of study participants

Laboratory parameters	Study population				Significance
	cases	control 1	control 2	control 3	
Thrombocytopenia	40%	28%	31%	56%	p > 0.5
High creatinine (>1.2)	19%	2%	7%	5%	p < 0.01
High bun	17%	0%	4%	2%	p < 0.01

Discussion

- This retrospective case-control study of diabetic patients with dengue infection indicated an association in these patients to develop greater clinical manifestations with a p < 0.001.
- The study findings showed that dengue and DM patients with thrombocytopenia were twice as likely to be admitted to hospital.
- In addition, a significant relationship was observed in patients with dengue and DM, they tend to present a higher percentage of clinical characteristics, being more symptomatic with an increase in altered laboratory parameters, which may be a factor that explains a greater clinical risk of dengue among patients with DM.

Future Directions

- Determine if there is any difference between primary and secondary dengue infection.
- Identify other comorbidities and assess if the risk of each of these new comorbidities leads to the development of dengue hemorrhagic fever (severe dengue).

Acknowledgments

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Contact Information



Lorreine Rivera Ortiz, MPH
email: lorriviera@psm.edu
Natasha S. Torres Borrero, MPH
email: ntorres@psm.edu
Vanessa Rivera-Amill, PhD
email: vriviera@psm.edu