

Post-Viral Burden of Dengue in Vietnam

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Introduction

- Underestimation of true DALY burden of dengue
- Post-viral symptoms persist well after acute episode
- Lacking data on long-term sequelae associated with dengue fever

Research Objectives

- Generate data on frequency, duration, symptoms, and risk factors of post-viral fatigue and persisting symptoms after acute dengue
- Compare frequency and duration of post-viral fatigue and persisting symptoms between dengue and other acute febrile illness
- Estimate true DALY burden of dengue by accounting for fatigue and post-viral symptoms that persist after acute episode

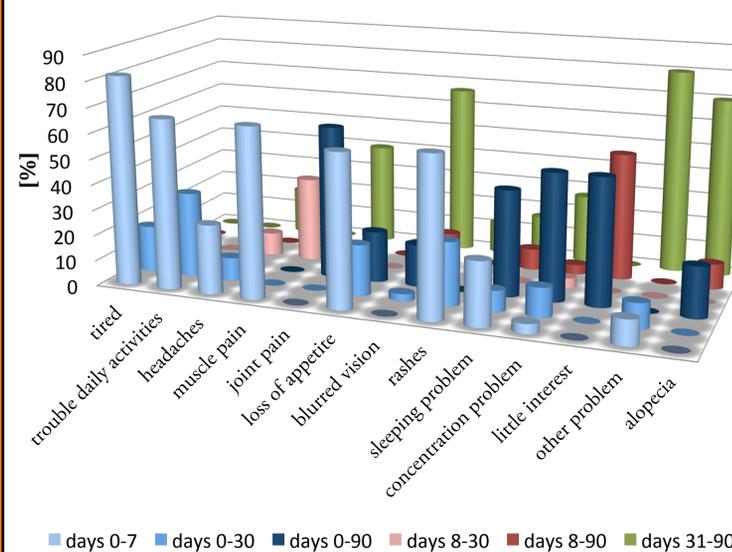
Methods

- Patients >18 yrs from HTD interviewed 2-3 months after final follow-up about pre-illness health and persisting symptoms since acute episode
- Data on symptoms was matched with dengue diagnosis
- Logistic analysis using binary symptom outcome

Results

- Post-viral symptoms are present from 0-9 days to over 3 months after acute episode
- Duration and onset depends on symptom
- Blurred vision, alopecia, and joint pain have later onset and longer duration
- Fatigue, trouble resuming daily activities, muscle pain, loss of appetite, and rashes often follow immediately after acute episode

Duration Range of Post-Viral Symptoms



- Post-viral alopecia is significantly associated with positive diagnosis of dengue
- Positive associations found with fatigue, rashes, sleeping problems
- Robust to all 3 models
- Experiencing other acute illnesses after febrile period is negatively associated with dengue

Statistical Model

Logistic regression for binary post-viral fatigue outcome, 3 models, repeated for each symptom

$$\Pr(\text{Fatigue} = 1 | \beta) = \text{Log}[\varphi(1 - \varphi_i)] = \beta_0 + \beta_1(\text{Dengue}) + \beta_2 Y + \beta_3 Z + \varepsilon$$

Y = pre-illness health (model 2)

Z = disease severity grade (model 3)

Model 1

VARIABLES	(1) Tired	(4) Rashes	(5) Sleeping Problem	(7) Other Acute Illness	(8) Alopecia
Diagnosis	0.00656 (0.580)	0.549 (0.639)	0.0660 (0.798)	-0.834** (0.356)	1.302* (0.750)
Constant	-2.420*** (0.522)	-2.730*** (0.596)	-3.157*** (0.722)	-0.724** (0.305)	-3.157*** (0.722)
Observations	256	256	256	256	256

Model 2

VARIABLES	(1) Tired	(4) Rashes	(5) Sleeping Problem	(7) Other Acute Illness	(8) Alopecia
Diagnosis	0.0810 (0.588)	0.700 (0.651)	0.0844 (0.806)	-0.819** (0.359)	1.407* (0.758)
Pre-illness health	-0.525 (0.549)	-0.931* (0.493)	-0.142 (0.808)	-0.123 (0.411)	-0.664 (0.480)
Constant	-2.058*** (0.631)	-2.127*** (0.659)	-3.055*** (0.922)	-0.634 (0.427)	-2.711*** (0.779)
Observations	256	256	256	256	256

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Discussion

- Positive association with post-viral symptoms between dengue and non-dengue groups, significant in alopecia
- The DALY burden of dengue is underestimated because it does not account for persisting symptoms and impairment that last up to 1 year after acute episode

Remaining questions

- How can the post-viral burden best be integrated into the overall total DALY burden of Dengue?

Conclusion

The DALY burden of dengue should be updated to account for the statistically significant increase in certain post-viral symptoms in dengue patients compared to those with other febrile illnesses

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