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Abdominal Pain, Nausea, Headache and Vomiting as Early Predictors of Systemic Envenoming in a Cohort of Snake Envenomed Patients in Sri Lanka

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OBJECTIVE: This study was aimed at assessing non-specific symptoms; abdominal pain, nausea, vomiting and headache as early predictors of systemic envenoming in snakebite.

METHODS: Adult patients admitted before 6h post-bite, over 14 months to a tertiary care centre in Sri Lanka were recruited. Clinical examination and blood sampling were serially performed on admission, 1,4,8,12,24 hours and daily, post-bite. Systemic envenoming was defined to be the presence of coagulopathy, neurotoxicity and/or acute kidney injury (AKI). Coagulopathy was defined as an International Normalised Ratio (INR)>1.5 or positive 20-minute whole blood clotting test. Neurotoxicity was defined by having ptosis or ophthalmoplegia. Severe systemic envenoming was defined by having bulbar or respiratory paralysis, bleeding manifestations, INR>3 and/or AKI of AKIN3.

RESULTS: Of 628 recruited patients [median age, 40y; 409 males (65%)], the snake was authenticated in 415 (66%). On admission, 264 (42%) had non-specific features such as nausea (185, 29%), abdominal pain (170, 27%), headache (140, 22%) and vomiting (135, 21%). Systemic envenoming developed in 278 (44%) of which 138 (22%) had severe systemic envenoming. 182 (29%) received antivenom.

The four symptoms individually had sensitivity and specificity ranging 36-53% and 89-95% respectively for systemic envenoming and 33-54% and 77-85% respectively for severe systemic envenoming. Vomiting had the best specificity with 95% [95% confidence intervals (CI):92-97%] for systemic envenoming and 85% (95%CI:82-88%) for severe systemic envenoming. The specificity of vomiting improves in combing with abdominal pain in detecting systemic envenoming [97% (95%CI:95-98%)] and severe systemic envenoming [89% (95%CI:86-92%)]. Presence of all four symptoms had specificity of 99% (95%CI:98-100%) for systemic envenoming and 94% (95%CI:91-96%) for severe systemic envenoming. Combinations of symptoms had poor sensitivity in detecting systemic envenoming and severe systemic envenoming.

CONCLUSION: Abdominal pain, nausea, headache and vomiting, when present predict systemic and severe systemic envenoming early, hence should be considered in decision making in antivenom therapy.