

Rapid Diagnosis of Poisonous Snakebites

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Background: The clinical diagnosis of snakebite is critical and necessary in the world where poisonous snakebites are important for public health; such as Southeastern Asia area. It is difficult to define a poisonous snakebite only by overlapping clinical manifestations. Developing a quick and reliable method to identify the responsible snake seems to be sensible. Methods: We develop a kit with immunochromatographic method for the rapid detection of cobra venom (*Naja atra*) in human serum. On nitrocellulose membranes, the test line was made with 1 mg/ml duck polyclonal antibody solution and control lines with goat anti-rabbit immunoglobulin antibody solution 0.5 mg/ml. The colloidal gold was conjugated with rabbit polyclonal anti-cobra antibodies.

Results: This kit can detect the cobra venom in plasma samples in 20 min. The detection limit of the assay is 5 ng/ml. From July 2007 to June 2008, 15 serum samples of snakebites (7 cobra and 8 others) were tested. The sensitivity of strip based on the enzyme-linked immunosorbent assay (ELISA) is 88.9%, and specificity 100%. Negative cross-reactivity with the cobra strip was noted while tested with non-cobra venoms. The strips can be stored at room temperature and available up to 1 year. Discussion and Conclusion:

Immunochromatographic strip might be suitable for venom detection and could be used as a rapid assay tool in cases of poisonous snakebite. More investigations are needed for clinical applications.