

## **Cytokine profiles in cutaneous leishmaniasis patients in Sri Lanka**

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Cytokines play a vital role in the host immune response to infection and initiating the healing process and/or progression of the disease in cutaneous leishmaniasis (CL). No information is available in cytokine profiles and their regulatory function in CL patients in Sri Lanka. Therefore, the aim of this study was to determine the cytokine expression pattern of IFN- $\gamma$ , IL-4, IL-11 and IL-12 in CL patients.

Patients with suspected CL lesions attending to dermatology clinic in Anuradhapura Teaching Hospital were included in the study. Patients who had less than six months old lesions were defined as acute lesions and over six months old lesions were considered as chronic lesions. Fifty seven biopsy samples were obtained from CL patients and control group. RT-qPCR was performed to determine the relative expression level. Data were analyzed using SPSS version 20.

The expression level of IFN- $\gamma$ , IL-4, IL-11 and IL-12 were significantly high in CL patients irrespective of the duration (acute or chronic) of lesions compared to control (IFN- $\gamma$ : median 18.20, inter-quartile range 4.65-47.13,  $p < 0.001$  for ACL and 153.28 (50.56-461.40),  $p < 0.001$  for CHL; IL-4: 3.10 (1.51-10.67),  $p = 0.008$  for ACL and 6.28 (1.16-21.86),  $p = 0.003$  for CHL; IL-11: 2.50 (1.13-8.27),  $p = 0.040$  for ACL and 3.81 (0.81-16.11),  $p = 0.025$ ; IL-12: 3.87(1.56-14.03),  $p = 0.012$  for ACL and 5.10 (2.99-32.22),  $p = 0.002$  for CHL).

It can be concluded that the expression levels of all cytokines tested in the present study are significantly ( $< 0.05$ ) high in all CL patients. Therefore, the results suggest that Th1 response (IFN-  $\gamma$  and IL-12) is more prominent compared to the Th2 (IL-4) response in skin lesions of CL patients.

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