



REVIEW ARTICLE

THE SCORPION ENVENOMING SYNDROME

M. ISMAIL

The Antivenom and Vaccine Production Center, King Fahad National Guard Hospital, Riyadh 11426,
Saudi Arabia

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M. Ismail. The scorpion envenoming syndrome. *Toxicon* **33**, 825-858, 1995. —The pathophysiology of the scorpion envenoming syndrome is reviewed with emphasis on the body systems commonly affected. Concepts of the mechanisms underlying venom action, as can be explained by the recently discovered effects on ionic channels, are discussed. The results of clinical analysis of cases of scorpion sting victims and animal experiments with scorpion envenomation supporting these concepts are presented. The pharmacokinetic characteristics of scorpion venoms and their correlation to the magnitude of toxic effects are presented in relation to the potentials of therapeutic intervention. The pharmacological basis of the therapeutic usefulness and toxicities of the drugs commonly used in the treatment of scorpion envenoming is also projected. Finally, the results of a successful nation-wide clinical study with serotherapy of scorpion envenoming are presented and evaluated.

INTRODUCTION

Scorpion envenoming is a common event in tropical and subtropical countries. Coupled with the fact that this part of the world comprises the majority of underdeveloped and developing countries, the consequences of the scorpion envenoming syndrome have been underestimated, never projected truly in health statistics and treated using old-fashioned and mostly ineffective procedures. With the exception of sporadic studies carried out by individual concerned scientists, the problem of the scorpion envenoming syndrome has suffered from international neglect. It is probably due to the isolation of some scorpion toxins acting selectively on certain ionic channels (Schweitz *et al.*, 1989; Mackinnon *et al.*, 1990; De Bin *et al.*, 1993) that scorpion envenoming has recently attracted world-wide concern and attention. However, the impact of these recent discoveries has served mainly to develop tools to recognize the ionic channels or map certain receptors (Schweitz *et al.*, 1989; Mackinnon *et al.*, 1990; Garcia *et al.*, 1991; Valdivia *et al.*, 1992; Gehlert *et al.*, 1992; De Bin *et al.*, 1993). The utilization of these findings to develop treatment protocols for scorpion envenoming or explain pathophysiological effects of the scorpion venom was very scarce (Strong *et al.*, 1989; Sirinathsinghji, 1989; Harvey *et al.*, 1990; Cena *et al.*, 1991; Ishii and Sumi, 1992). The few reviews published in the last decade were mainly concerned