

5.4 Serology – identification of stings

The author sent serum from 24 envenomated victims he was able to contact; Burnett examined a total 84 patients. Overall, victims had only been stung by one species except for two envenomated by *Chrysaora* and *Physalia*, one by *Chrysaora* and *Pelagia*. and another by *Cyanea* and *Physalia* (Table 5).

Table 5 - Envenomations studied serologically

Species	No. patients	Author's patients
<i>Physalia</i>	28	6
<i>Chrysaora</i> 25	25	0
<i>Chironex</i>	7	7
<i>Carukia</i>	5	5
<i>Cyanea</i>	5	2
<i>Pelagia</i>	4	0
<i>Morbakka</i>	2	2
<i>Stomolophus</i>	1	0
<i>Aurelia</i>	1	0
<i>Cassiopeia</i>	1	0
Hydroid	1	0
Unknown	7	2
TOTAL	87 (84 cases)	24 cases

In other patients never envenomated by jellyfish there were some false positive results (dilution of 125 or greater). Of patient had severe asthma, two had sustained severe bee stings, two had severe atopic dermatitis, and one had no medical complaint.

In no case of active envenomation was the titre of the offending species lower than other non-envenoming jellyfish. Cross-reacting titres of IgG were common rather than exceptional.

The serum of one patient sent by the author, the 5 yr. old Australian boy who died rapidly after receiving a major *Chironex* sting (Case history in 5.6.1) (Lumley *et al* 1988), had no antibodies in a post-mortem serum, presumably due to his rapid demise (see 5.6.1).

The sera of five patients envenomated by *Carukia barnesi* (Irukandji) sent by the author were examined for cross-reacting antigens to other more common jellyfish. No consistent cross-reactive pattern with these antigens could be determined. Because of the rarity of the *Carukia*, immune specific testing of the sera with that genera could not be performed.

In one victim from Goa this technique was used to suggest the unknown offending jellyfish (Williamson *et al* 1988). The sera of the patient checked 42 days post envenomation showed the highest titres to be due to *Physalia*.

High titres of serum IgG observed in these patients were not protective against subsequent jellyfish induced cutaneous pain, although relief of skin pain and reduction of skin damage and consequent scarring has now been reported in a number of patients (Williamson *et al* 1984; Boyd 1984; Horne 1988; Fenner *et al* 1989; Currie & Ainstey 1990; King 1991; Beadnell *et al* 1992). This is probably due to the fact that the jellyfish delivers its venom extravascularly and affects sensory nerves instantly. Also, immunoglobulin testing may detect an antigen that is not important in the production of cutaneous pain.

The persistence of these antibodies may aid in the retrospective diagnosis of serious envenomations. Yet, on the other hand, it may complicate the laboratory interpretation of serological data because of the differentiation of recently produced elevated cross-reacting jellyfish antibodies from specific antibodies persisting after earlier envenomations.