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EMERGING RICKETTSIOSES

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The world of *Rickettsia* is rapidly evolving.

Rickettsiae are small gram negative bacteria transmitted to human by arthropods. In most cases (except for *R. prowazekii* the agent of louse borne typhus) they are transmitted transovarially from mother to its progeny in the arthropod, human beings are, in these cases, incidental hosts. *Rickettsiae* could be transmitted by acarids (ticks, mite) or insects (fleas, lice).

In recent years, the use of cell culture and molecular biology deeply changed our knowledge on rickettsiae. As a matter of fact before 1990, 7 pathogenic rickettsial species were identified (*R. prowazekii*, *R. typhi*, *R. conorii*, *R. rickettsii*, *R. sibirica*, *R. australis*, *R. acari*) and since 1991, 10 were discovered (*R. japonica*, *R. honei*, *R. africae*, *R. slovaca*, *R. parkeri*, *R. helvetica*, *R. aeachlimanii*, *R. massiliae*, *R. heilongjiangensis* transmitted by ticks and *R. felis* transmitted by fleas). New rickettsial diseases were found under 3 main conditions :

- In place where none was identified, typical rickettsial diseases (including fever and a rash) were found (Japan, China).
- In some place typical rickettsioses could be caused by different organisms. In such cases, the new *Rickettsia* was misdiagnosed with a previously identified bacterium (such as *R. massiliae* with *R. conorii*).
- In some cases atypical clinical findings were found (no rash, no fever) to be caused by Rickettsial organisms such as *R. slovaca* or *R. helvetica*.

These findings challenge the old dogma postulating that of one tick borne rickettsiosis was prevalent in one geographic area. For many years for example, *R. rickettsii*, the agent of Rocky Mountain Spotted Fever, was considered the only spotted fever group rickettsia in the USA and the only ticks transmitted rickettsiosis in America. *R. felis*, a flea transmitted spotted fever, and *R. parkeri*, a tick transmitted spotted fever, have

been shown since to infect for human beings in the USA and in Uruguay. Moreover, *R. africae* has been found in patients in West Indies.

Many *Rickettsia* have been identified in ticks but have not been currently found in patients. These *Rickettsiae* should be considered potential pathogens. Louse transmitted diseases, including typhus, have recently re-emerged in Africa and Europe when wars and abrupt social changes happened. Flea transmitted diseases (*R. typhi* and *R. felis*) were found to be transmitted by pet fleas, thus extending to identified risk for acquiring these pathogens. Among mite transmitted diseases, rickettsial pox diagnosed cases in New York city recently increased, as after September 11 as special attention was paid to necrotic skin lesions and vesicular eruption in the differential diagnosis of anthrax and smallpox. All known or suspected Rickettsial diseases should be treated (including children) by doxycycline. Short treatment was demonstrated efficient in typhus and Mediterranean Spotted. New macrolide compounds are alternative treatment in Mediterranean spotted fever.

These new findings should stimulate investigations to identify new rickettsial diseases. Patients with atypical rash or fever after arthropod bite should be targeted. Skin biopsies are the preferred samples in this purpose.