

**76.023****Neuroimmunological findings from the first report of Angiostrongylus cantonensis outbreak in Ecuador**

A.J. Dorta-Contreras<sup>1,\*</sup>, B. Padilla-Docal<sup>1</sup>, J.M. Moreira<sup>2</sup>, L. Martini Robles<sup>3</sup>, J. Muzzio Aroca<sup>3</sup>, F. Alarcon<sup>4</sup>, R. Bu Coifu Fanego<sup>1</sup>

<sup>1</sup> *Universidad de Ciencias Medicas de la Habana.Facultad Miguel Enriquez, Ciudad de la Habana, Cuba*

<sup>2</sup> *Ministerio de Salud Pública, Quito, Ecuador., Quito, Ecuador*

<sup>3</sup> *Instituto Nacional de Higiene. "Dr.Leopoldo Izquieta Perez", Guayaquil, Ecuador*

<sup>4</sup> *Hospital "Eugenio Espejo, Quito, Ecuador*

**Background:** Angiostrongylus cantonensis meningoencephalitis was recently reported in South America. The aim of this paper is to present a neuroimmunological study of the first report of two outbreaks in subtropical regions from Ecuador.

**Methods:** Eight young adults from two different outbreaks were studied. Simultaneous blood and cerebrospinal fluid samples were taken. IgA, IgM, IgG and albumin were quantified by radial immunodiffusion. Corresponding reibergams were employed. The diagnosis of *A. cantonensis* meningoencephalitis was based on a previous antecedent of raw snail consumption, its symptoms and the cerebrospinal fluid characteristics.

**Results:** A moderate elevation of protein content in cerebrospinal fluid with 7, 7 and 26% of mean eosinophilia in serum and cerebrospinal fluid were respectively observed. Three immunoglobulins synthesis pattern was the most frequent one and IgM was presented in all the different patterns.

**Conclusion:** The reported patterns may be useful epidemiologically. The neuroimmunological findings contribute to improve and confirm the diagnosis of this disease now spreading over South America.

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**76.024****Pericarditis caused by spatype t011 MRSA in a butcher; an occupational hazard**

M. Schouten

*Rivierenland Hospital, Tiel, Netherlands*

**Background:** A 39 year old man from Turkish descent was admitted to our cardiology ward for evaluation of general malaise, fever and pericardial calcification with effusion. Diagnostic pericardiocentesis was performed and fluid was sent to the microbiology laboratory. Cultures revealed growth of methicillin resistant Staphylococcus aureus (MRSA) spatype t011, indicating veterinarian MRSA origin. Additionally Mycobacterium tuberculosis was cultured from the same material. Vancomycin treatment was started and the patient was transferred to the pulmonology department for further evaluation of his mycobacterial infection and for antituberculosis treatment.

**Methods:** MRSA of veterinarian origin is an emerging pathogen in the Netherlands causing a wide variety of infec-

tions. The majority of pigs and calves in our country is MRSA colonized; a quarter of the farmers is also MRSA positive. About eighty percent of meat from pigs and calves is MRSA colonized. Veterinarian MRSA strains almost all have spatype t011. Our patient was working in a large abattoir; his job was to carry large heaps of meat, resting on his chest, from one place to another.

**Results:** Our hypothesis is that our patient was MRSA colonized due to his profession. During pericardiocentesis the cardiologist perceived a suctioning sound. Tuberculous pericarditis causes pericardial calcification. During systolic contractions a vacuum will form in the pericardial space caused by non-compliance of the pericardium due to calcification. The vacuum causes inward airflow transporting airborne microorganisms to the pericardial space. Despite skin disinfection airflow during pericardiocentesis probably introduced MRSA from the patient chest. Nosocomial MRSA acquisition was ruled out; none of the healthcare workers involved was MRSA positive. Furthermore human to human spread of veterinarian MRSA is extremely rare.

**Conclusion:** We present a case of occupational MRSA acquisition which led to MRSA pericarditis by pericardiocentesis in a patient with preexisting tuberculous pericardial calcification.

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**76.025****Skin and soft-tissue infections caused by community-associated methicillin-resistant Staphylococcus aureus**

W. Cornistein\*, M.I. Lespada, C. Rodriguez

*Argerich Hospital, Buenos Aires, Argentina*

**Background:** Community-associated methicillin-resistant Staphylococcus aureus (CAMRSA) is an increasingly common cause of substantial morbidity worldwide. In several Latin American countries-including our own- the incidence of CA-MRSA infections has dramatically increased although it remains underdiagnosed in many cases. Skin and soft-tissue involvement are the most common, accounting for 85 to 95% of infections caused by this microorganism. The aim was to describe the epidemiological, clinical and prognostic features of skin and soft tissue infections caused by CA-MRSA treated in general hospital.

**Methods:** We included all patients with furunculosis and skin abscess by CA-MRSA treated in the infectology service between may of 2008 and september of 2009. CA-MRSA association was defined by epidemiological (community arousement) and microbiological features (oxacillin resistant isolates). The following variables of interest were analysed age, sex, risk factors, number of lesions, surgical drainage required, recurrence, presence of familiar furunculosis, empirical and post-isolation treatment, and CA-MRSA nasal carriers.

**Results:** 23 patients were included. Men: 56%. Mean age: 32 years (3-69). Only one patient had classic risk factors (health care center worker). 52% (n=12) had a sole lesion, while the others presented between 2 and 5. Only 6 cases required surgical drainage. Recurrence occurred in 21% (n=5) and the majority, 74% (n=17), had a history of familiar furunculosis. Empirical treat-

ment had been given to 20 patients; being inadequate in 16 (80%) (first generation cephalosporin or amoxicillin plus clavulanic). Antibiotic treatment after isolation was: Trimethoprim/Sulfamethoxazole ( $n=18$ ), clindamycin ( $n=4$ ) y Vancomycin plus rifampicin ( $n=1$ ). Nasal sample was taken in 11 of 23, being positive only in 3 of them (27%).

**Conclusion:** Patients with forunculosis CA-MRSA related were generally men of adult age and lacked risk factors. There was a large number of family outbreaks and nasal carriers were scarce, suggesting infection was due to inter-personal contact rather than state of carrier. Inadequate empirical treatment was very common.

**Comment:** It is of paramount importance to bear in mind CA-MRSA as a possible cause of skin and soft-tissue infections in the community -even when risk factors are not present and particularly in a family outbreak- in order to start adequate empirical treatment and drain surgically if needed.

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### 76.026

#### The emergence of *Clostridium difficile* NAP1 hypervirulent strain in Latin America

C. Quesada-Gómez<sup>1,\*</sup>, T. Du<sup>2</sup>, M.D.M. Gamboa-Coronado<sup>1</sup>, C. Rodríguez<sup>1</sup>, M.R. Mulvey<sup>2</sup>, E. Rodríguez-Cavallini<sup>1</sup>

<sup>1</sup> University of Costa Rica, San José, Costa Rica

<sup>2</sup> National Microbiology Laboratory, Winnipeg, MB, Canada

**Background:** The NAP1 strain of *Clostridium difficile* have been linked to nosocomial outbreaks of antibiotic-associated diarrhea (AAD) in North American and European countries. We found these strains, together with seven additional PFGE patterns, among 37 isolates recently recovered from patients with AAD in a Costa Rican hospital.

**Methods:** The isolates were recovered by inoculating a loopful of diarrheic stool samples onto CCFA agar plates (Oxoid®). They were identified with the rapid ID32A (bioMérieux®) and a PCR reaction targeting the *tpi*. We typed the isolates using pulsed-field gel electrophoresis (PFGE) with *Sma*I and amplified fragments of the *tcdA*, *tcdB*, *tcdC*, and *cdtB* genes using PCR. Minimal inhibitory concentrations (MICs) of clindamycin, metronidazole, vancomycin, moxifloxacin, ciprofloxacin, and amoxicillin-clavulanate were determined using E-test strips.

**Results:** Nine different PFGE types were identified. All isolates were positive for *tcdA* and *tcdB* and susceptible to vancomycin and metronidazole, which are the first antibiotics to be prescribed for this type of infections. They were also susceptible to amoxicillin/clavulanate. More than half the isolates exhibited the macro-restriction pattern of the NAP1 strain (54%). Ten NAP1 were intermediate (50%) and another nine resistant to clindamycin (45%). One clindamycin-resistant NAP1 strain had a MIC of  $>256 \mu\text{g}\cdot\text{ml}^{-1}$ . All NAP1 isolates were highly resistant to the two fluoroquinolones ( $>32 \mu\text{g}\cdot\text{ml}^{-1}$ ). The 13 isolates with novel PFGE patterns 447, 448, 449, and 452 clustered together. These isolates lacked the binary toxin but had a deletion in *tcdC*. They were without exception categorized as highly resistant to clindamycin, moxifloxacin and ciprofloxacin. All the NAP1 isolates had the *tcdB* and a deletion in *tcdC*. One isolate with the pattern 447, and the isolates with the patterns 449 and

452 exhibited the highest MICs to vancomycin ( $2-4 \mu\text{g}\cdot\text{ml}^{-1}$ ). The isolates with the PFGE patterns 100, 450, 451 (NAP2) and 247 (NAP9) were negative for *ctdB* and did not have deletions in *tcdC*. The strains with the patterns 100, 450, and 247 (NAP9) were resistant to clindamycin, moxifloxacin and ciprofloxacin.

**Conclusion:** The finding of the NAP1 strain in Latin American countries is novel and deserves attention from infectious disease specialists and epidemiologists to prevent its dissemination.

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### 76.027

#### Differential patterns of tuberculosis disease between immigrant and native Spanish patients

P. Merino\*, A. Vanegas, R. Cias, I. Gestoso, J. Picazo

Hospital Clinico San Carlos, Madrid, Spain

**Background:** The increase of the tuberculosis (TB) cases in Spain has been observed in the last years respect to the European Union. This fact correlates with the high immigrants waves coming from countries with high-incidence of the disease. The knowledge of the possible differential characteristics of the disease depending on its origin could be useful for the correct diagnosis and treatment.

**Methods:** Patients newly identified with *M.tuberculosis* culture positive in January 2004 to July 2009 were included. Drug susceptibility testing was performed on at least one isolate per patient by using a radiometric BACTEC 460 system (Becton Dickinson Diagnostic Systems).

**Results:** 193 (57,1%) out of 338 patients with positive culture were from Spain and the remaining 145 (42,9%) were immigrants. Taking into account the whole group, the resistance to isoniazid, and rifampicin was 4,9% and 1,9%, respectively and the multiresistance (isoniazid and rifampicin) was 1,9%. These percentages totally correlate with the immigrant group. Pulmonar TB was the most frequent form of the disease (80%) independently of the patient origin. Miliar TB was more frequent in Spanish patients (statistically non significant). Renal failure and haematology diseases are the differential risk factors in developing TB in Spaniards respect to the immigrant group.

**Conclusion:** This study demonstrates that the immigrants presented more resistance than the Spanish group and they had less risk factors to develop TB. Therefore, the origin of the patients is important in the diagnosis and treatment of the disease.

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