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CYTOKINES AND THE IMMUNOPATHOLOGY OF HUMAN NEUROCYSTICERCOSIS.

C. A. W. Evans[1], H. H. Garcia[2], R. H. Gilman[2], M. Martinez[2], D. G. Remick[3], J. S. Friedland[1]. Dept of Infectious Diseases, Hammersmith Hospital, London, UK[1]; Universidad Cayetana Heredia, Peru[2]; University of Michigan Medical School, USA[3].

Neurocysticercosis is a major cause of epilepsy in poorer nations. Morbidity and mortality result either from inflammation around degenerating *T. solium* larvae or are due to immune cell influx to the brain during anti-parasitic therapy. Little is known about the immunopathology of infection and current anti-inflammatory therapy has limited efficacy.

We therefore collected serum from 9 patients and 20 controls as well as CSF from 14 patients and 9 controls. We measured the concentrations of the proinflammatory cytokine TNF-α and the acute phase cytokine Interleukin (IL)-6 by bioassay and the eosinophil and neutrophil attractants IL-5 and IL-8 respectively by ELISA.

IL-6 was elevated in the CSF of 86% of patients compared to 33% of controls ($p<0.05$). The eosinophil chemoattractant IL-5 was elevated in the serum of 78% of patients versus 25% of controls and was detected in 43% of patients' CSF but not in control CSF (both $p<0.05$). In contrast, TNF-α and IL-8 were detectable in less than 25% of samples and there were no differences between patients and controls.

These data demonstrate first that patients with neurocysticercosis mount an acute phase response to the pathogen. Secondly, they indicate that eosinophil but not neutrophil influx may be critical in the human immune response. Anti-IL-5 may have a role in preventing excess cell influx during the treatment of neurocysticercosis.

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DETECTION OF *STAPHYLOCOCCUS AUREUS* IN THE ENVIRONMENT OF A NEW GENERAL SURGICAL WARD.

B Marshall, RA Sen, PR Chadwick, and MGL Keaney, Department of Microbiology, Hope Hospital, Stott Lane, Salford, M6 8HD

The aim of the project was to determine how quickly the environment of a new general surgical ward became contaminated with *Staphylococcus aureus* after opening for the admission of patients.

A representative selection of sites in the ward environment were sampled prior to and at weekly intervals for six weeks after occupancy. The old surgical ward was sampled prior to transfer of the patients. Sampling was performed using mannitol salt agar contact plates and by swabbing. Swabs were enriched in 7 % salt broth before subculture to mannitol salt agar.

Two sites out of 17 in the old ward were positive for *Staphylococcus aureus*. Prior to occupancy by patients *Staphylococcus aureus* was isolated from 1 out of 13 sites in the new ward. One week after occupancy 5 out of 26 sites were positive for *Staphylococcus aureus*, 4 positive by enrichment swabs and one by contact plating. Over the following 5 weeks between 2 and 5 sites out of 26 were positive.

The new ward soon became contaminated with *Staphylococcus aureus*.

PHENOTYPIC AND GENOTYPIC DIVERSITY AMONG ST SOUTH AFRICAN *KLEBSIELLA PNEUMONIAE* ISOLATES RESISTANT TO EXTENDED-SPECTRUM β-LACTAM ANTIBIOTICS.

S.Y. Essack, L.M.C. Hall, D.M. Livermore and D.G. Pillay*, Departments of Medical Microbiology, St. Bartholomew's and the Royal London School of Medicine and Dentistry, Turner Street, London, E1 2AD ; *University of Natal, P.O. Box 17039, Congella, 4013, South Africa

β-Lactamase mediated resistance was investigated in 26 South African *Klebsiella pneumoniae* isolates. Organisms were subjected to pulsed-field gel electrophoresis (PFGE), minimum inhibitory concentration (MIC) determinations , isoelectric focusing (IEF), E-tests for extended-spectrum β-lactamase (ESBL) production, plasmid profile evaluations, DNA hybridisation experiments and polymerase chain reaction single strain conformational polymorphism (PCR-SSCP).

PFGE indicated 17 different bacterial strains, with two groups of 9 isolates and 2 isolates respectively. Nine isolates of the same strain were obtained from the surgical and orthopaedic wards and the ICU indicating an outbreak in the latter ward while 2 isolates of the same strain were isolated in the nursery and ICU. MICs of the 12 β-lactam antibiotics tested ranged from 0.016->256 μg/ml. Twenty two isolates were ESBL positive with MIC ratios of ceftazidime alone compared with ceftazidime in combination with clavulanate being >4. IEF depicted the expression of 1-5 β-lactamases per isolate with pI values ranging from 5.4 to 8.4. Multiple plasmids were present in most organisms with sizes varying from 2.9-251.2 MDa. DNA hybridisation with TEM and SHV probes revealed the presence of both β-lactamase types in most isolates, some carrying more than one TEM and/or SHV gene. PCR-SSCP identified SHV type enzymes as SHV 1, 2, 3, 4 or 5; 3 isolates exhibiting unusual electrophoretograms indicating a potentially 'novel' SHV-type of β-lactamase , requiring confirmation by gene sequencing.

Although β-lactamase mediated resistance threatens the use of β-lactam antibiotics globally, there is little information on the aetiology and epidemiology of β-lactamases in Southern and sub-saharan Africa. In an attempt to redress this situation, this study has revealed extensive diversity in South African isolates.

SURVEILLANCE OF GRAM POSITIVE PATHOGENS INTHE UK (1996).

J.M. Andrews, J.P. Ashby, G. Jevons and R. Wise, Department of Microbiology, City Hospital Trust, Birmingham UK.

The aim of this study is to monitor the levels of resistance in Gram positive pathogens over a 3 year period isolated in 30 centres in the UK. Each centre collected 180 consecutive significant isolates (60 S. aureus (SA) and Coag Neg Staphylococci (CNS), 40 S. pneumoniae (SP) and 20 Enterococci (E)). All strains were to be sent to a central laboratory for confirmation of identity and MICs to Synercid and a wide range of comparators. A summary of the resistance rates for Synercid and some comparators for the first survey are shown below.

	SA	S.epid	SP	E.faecl	E.faecm
Synercid	0	0	S0.4	91	19.4
			M0.2	35.7	3.2
Pen	80.9	78.3	6.6	-	-
Cip	16	30	7.4	-	-
Eryth	18.3	54.2	72	68.6	83.9
Gent	2.9	44.8	-	-	-
Meth	15.4	43	-	-	-
Teic	0	20	-	0.2	6.5
Vanc	0	0	0	0.8	9.7
Chlor	-	-	1.7	20.3	25.8
Amp	-	-	-	1.4	74.2

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