

MEDLARS BIBLIOGRAPHY

PUBLICATIONS OF RELEVANCE TO PAPUA NEW GUINEA AND MELANESIA

Bibliographic Citation List generated from MEDLARS

- 1 **Alexander NDE, Bockarie MJ, Kastens WA, Kazura JW, Alpers MP.**
Absence of ivermectin-associated excess deaths.
Trans R Soc Trop Med Hyg 1998 May-Jun;92(3):342.
- 2 **Allen SJ, Raiko A, O'Donnell A, Alexander NDE, Clegg JB.**
Causes of preterm delivery and intrauterine growth retardation in a malaria-endemic region of Papua New Guinea.
Arch Dis Child Fetal Neonatal Ed 1998 Sep;79(2):F135-F140.
AIM: To identify causes of preterm delivery and intrauterine growth retardation (IUGR) in a malaria-endemic region of Papua New Guinea. METHODS: Independent predictors of preterm delivery and birthweight in term infants were identified using multiple regression analysis in a prospective study of 987 singleton live births delivered in Madang Hospital. RESULTS: Overall, *Plasmodium falciparum* infection of the placenta was associated with a reduction in birthweight of 130 g. Malaria was significantly more common in primigravidae than multigravidae and probably contributed to both preterm delivery and IUGR. Maternal haemoglobin concentrations were significantly lower in malaria-infected than noninfected women and reduced haemoglobin was the main determinant of preterm delivery. Poorer maternal nutritional status and smoking were associated with both prematurity and IUGR. Greater antenatal clinic attendance predicted increased birthweight in term infants. CONCLUSIONS: Protection against malaria during pregnancy, especially in primigravidae, improved nutrition in women and discouragement of smoking would probably reduce both preterm delivery and IUGR. Greater use of existing antenatal clinics might increase birthweight in term infants.
- 3 **Al-Yaman FM, Genton B, Clark IA.**
The ratio of reactive nitrogen intermediates to tumour necrosis factor and clinical outcome of falciparum malaria disease.
Trans R Soc Trop Med Hyg 1998 Jul-Aug;92(4):417-420.
Serum levels of reactive nitrogen intermediates (RNI; nitrate + nitrite), interferon gamma (IFN gamma) and tumour necrosis factor (TNF) were measured in 177 Papua New Guinean children with different clinical manifestations of malaria. The groups investigated were asymptomatic parasitaemic, mild malaria, cerebral malaria survivors and cerebral malaria non-survivors. The levels of TNF were highest among the cases of cerebral malaria who died and lowest among the asymptomatic parasitaemic children (mean log TNF levels 2.183 pg/ml vs 1.455 pg/ml; $p = 0.001$). Similarly, the levels of IFN gamma were highest among the cerebral and lowest among the asymptomatic patients (mean log IFN levels 0.338 pg/ml vs 0.054 pg/ml; $p < 0.0001$). RNI levels were high among both the asymptomatic parasitaemic group and those who died due to cerebral malaria (mean log RNI levels 1.56 microM vs 1.412 microM; $p = 0.18$). The ratio of RNI to TNF, however, was significantly higher among the asymptomatic parasitaemic children and lowest among those who died due to cerebral malaria (mean log (RNI:TNF) ratio 0.118 vs -0.789; $p < 0.001$). We concluded that the ratio of serum RNI to serum TNF is a more useful indicator of outcome of falciparum malaria in this population than the absolute levels of either alone.
- 4 **Brown ET, Nelson B.**
Bush thoracotomy in Papua New Guinea.
Am J Emerg Med 1998 Nov;16(7):717-719.
- 5 **Bryan J, Fa'Afoi E, Forsyth S.**
Report of the Australian Malaria Register for 1992 and 1993.
Commun Dis Intell 1998 Oct 29;22(11):237-245; discussion 245-246.
Australia is free from endemic malaria but several hundred imported cases occur each year. Notification and screening data on malaria cases are collected by State and Territory health authorities and laboratories and forwarded to the Australian Malaria Register (AMR) for national collation and analysis. This report provides information on 758 malaria cases with 5 deaths reported in Australia in 1992 and 712 cases with 1 death in 1993. In both years, just over 70% of cases were male and the modal age group was 20 to 29 years. Cases were reported from all States and Territories, with Queensland reporting the greatest number of cases in both years. The predominant species was *Plasmodium vivax*, although *P. falciparum* accounted for just over a quarter of the cases each year. Papua New Guinea (PNG) was the most common source of cases in both years, reflecting the number of people who move between Australia and PNG and the high endemicity of malaria in PNG. The incidence of malaria was also high in travellers from the Solomon Islands in both years and from Ghana in 1992 and Nigeria in 1993. The six deaths over two years highlight the need for medical practitioners to consider malaria as a diagnosis in patients with a history of travel to malarious countries and to provide appropriate advice on malaria prophylaxis to intending travellers.

- 6 **Davidoff J, Davies I, Roberson D.**
Colour categories in a stone age tribe.
Nature 1999 Mar 18;398(6724):203-204.
- 7 **Dewan PA, Lawrence MJ, Pip A, Kasa S.**
Diphallus associated with partial caudal duplication.
Pediatr Surg Int 1998 Nov;14(1-2):131-133.
A 23-year-old man with similar pathology has presented in March 1998 for primary management of his diphallus and anorectal duplication.
- 8 **Friesen H, Vince J, Boas P, Danaya R, Mokela D, Ogle G, Asuo P, Kemiki A, Lagani W, Rongap T, Varughese M, Saweri W.**
Infant feeding practices in Papua New Guinea.
Ann Trop Paediatr 1998 Sep;18(3):209-215.
Concern about a possibly increasing prevalence of bottle-feeding led in 1995 to an Infant Feeding Survey of 1822 mothers attending urban health facilities. Infant feeding practices including feeding of colostrum, exclusive breastfeeding, weaning practices and bottle-feeding were assessed. This revealed that 28.8% of mothers had not given colostrum to their babies, that 43.5% of 3-month-old babies were exclusively breastfed, and that solids were introduced before 4 months of age in over half of the study population. Bottle-feeding was used by 20% of the study population. Feeding practices differed in women of Highlands and of Coastal origin. The findings emphasize the need to strengthen health education programmes which take into account the mothers' different cultural backgrounds. The issue of breastfeeding by mothers in paid employment needs to be addressed.
- 9 **Gerard JM, Haden P, Kelly MT, Andersen RJ.**
Loloatins A-D, cyclic decapeptide antibiotics produced in culture by a tropical marine bacterium.
J Nat Prod 1999 Jan;62(1):80-85.
Loloatins A (1) to D (4), a family of new cyclic decapeptide antibiotics, have been isolated from laboratory cultures of a tropical marine bacterium recovered from the Great Barrier Reef in Papua New Guinea. The structures of loloatins A-D were elucidated via a combination of spectroscopic analyses and chemical degradation. Loloatins A-D exhibit in vitro antimicrobial activity against methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant enterococci, and drug-resistant *Streptococcus pneumoniae*.
- 10 **Gibson RS, Ferguson EL, Lehrfeld J.**
Complementary foods for infant feeding in developing countries: their nutrient adequacy and improvement.
Eur J Clin Nutr 1998 Oct;52(10):764-770.
OBJECTIVE: To assess the energy and nutrient adequacy of a variety of complementary foods used in parts of Africa, India, Papua New Guinea, the Philippines and Thailand. METHOD: The energy, nutrient and anti-nutrient (dietary fibre and phytic acid) content (per 100 g as eaten, per 100 kcal, and per day) of twenty-three plant-based complementary foods consumed in developing countries was calculated from food composition values based on chemical analysis for the trace minerals, non-starch polysaccharide and phytic acid, and the literature. Results were compared with the estimated nutrient needs (per day; per 100 kcal) from complementary foods for infants 9-11 months, assuming a breast milk intake of average volume and composition and three complementary feedings per day, each of 250 g. RESULTS: Complementary foods should provide approximately 25-50% of total daily requirements for protein, riboflavin and copper; 50-75% for thiamin, calcium and manganese; and 75-100% for phosphorus, zinc and iron. Most or all appear to meet the estimated daily nutrient needs (per day; per 100 kcal) from complementary foods for protein, thiamin and copper (per day), but not for calcium, iron, and in some cases zinc, even if moderate bioavailability for iron and zinc is assumed. Some of those based on rice are also inadequate in riboflavin (per day; per 100 kcal). CONCLUSIONS: Even if strategies to improve the bioavailability of iron and zinc are employed, they are probably insufficient to overcome the deficits in calcium, iron and zinc. Therefore, research on the feasibility of fortifying plant-based complementary foods in developing countries with calcium, iron and zinc is urgently required.
- 11 **Holian AC, Keith PP.**
Orthopaedic surgery after the Aitape tsunami.
Med J Aust 1998 Dec 7-21;169(11-12):606-609.
- 12 **Hurles ME, Irven C, Nicholson J, Taylor PG, Santos FR, Loughlin J, Jobling MA, Sykes BC.**
European Y-chromosomal lineages in Polynesians: a contrast to the population structure revealed by mtDNA.
Am J Hum Genet 1998 Dec;63(6):1793-1806.
We have used Y-chromosomal polymorphisms to trace paternal lineages in Polynesians by use of samples previously typed for mtDNA variants. A genealogical approach utilizing hierarchical analysis of eight rare-event biallelic polymorphisms, seven microsatellite loci, and internal structural analysis of the hypervariable minisatellite, MSY1, has been used to define three major paternal-lineage clusters in Polynesians. Two of these clusters, both defined by novel MSY1 modular structures and representing 55% of the Polynesians studied, are also found in coastal Papua New Guinea. Reduced Polynesian diversity, relative to that in Melanesians, is illustrated by the presence of several examples of identical MSY1 codes and microsatellite haplotypes within these lineage clusters in Polynesians. The complete lack of Y chromosomes having the M4 base substitution in Polynesians, despite their prevalence (64%) in Melanesians, may also be a result of the multiple bottleneck events during the colonization of this region of the world. The origin of the M4 mutation has been dated by use of two independent methods based on microsatellite-haplotype and minisatellite-code diversity. Because of the wide confidence limits on the mutation rates of these

loci, the M4 mutation cannot be conclusively dated relative to the colonization of Polynesia, 3,000 years ago. The other major lineage cluster found in Polynesians, defined by a base substitution at the 92R7 locus, represents 27% of the Polynesians studied and, most probably, originates in Europe. This is the first Y-chromosomal evidence of major European admixture with indigenous Polynesian populations and contrasts sharply with the picture given by mtDNA evidence.

- 13 **Kaneko A, Bergqvist Y, Takechi M, Kalkoa M, Kaneko O, Kobayakawa T, Ishizaki T, Bjorkman A.**

Intrinsic efficacy of proguanil against falciparum and vivax malaria independent of the metabolite cycloguanil.

J Infect Dis 1999 Apr;179(4):974-979.

Mutations in human CYP2C19 and parasite dihydrofolate reductase (dhfr) genes, related to poor metabolism of proguanil and resistance to cycloguanil, respectively, have both been assumed to be associated with poor antimalarial effect by proguanil. To study this, 95 subjects with uncomplicated *Plasmodium falciparum* or *Plasmodium vivax* infections in Vanuatu received proguanil treatment for 3 days (adult relative dose of 300-500 mg/day) and were followed up for 28 days. A similarly high antimalarial efficacy against both infections was observed in 62 patients with CYP2C19-related poor metabolizer genotype and in 33 with extensive metabolizer genotype, even though blood cycloguanil was significantly more often detected in those with extensive metabolizer genotype than in those with poor metabolizer genotype. All 28 *P. falciparum* isolates had two dhfr mutations (residues 59 and 108), suggesting moderate resistance to cycloguanil. The results suggest that the parent compound proguanil has significant intrinsic efficacy against falciparum and vivax malaria independent of the metabolite cycloguanil.

- 14 **Kaneko A, Taleo G, Kalkoa M, Yaviong J, Reeve PA, Ganczakowski M, Shirakawa C, Palmer K, Kobayakawa T, Bjorkman A.**

Malaria epidemiology, glucose-6-phosphate dehydrogenase deficiency and human settlement in the Vanuatu Archipelago.

Acta Trop 1998 Jul 30;70(3):285-302.

Vanuatu is located at the southeast margin of the malarious band extending from southeast Asia to eastern Melanesia. We analysed the malaria situation on different islands of Vanuatu, using passive case detection and malariometric survey data from 1985 to 1992, i.e. after the DDT residual programme ceased and before the impregnated bed-nets programme started on a larger scale. Malaria was mainly hypo-mesoendemic but with hyperendemic spots in certain years and on some islands. The transmission was generally more intense in the northern islands than in the south. In the late 1980s, annual parasite incidence per one thousand population (API) was around 180. The overall parasite rate was 11.9% with *Plasmodium falciparum*, *P. vivax* and *P. malariae* rate of 5.2,

6.7 and 0.1%, respectively. There was a seasonal fluctuation of *P. falciparum* incidence, whereas the *P. vivax* incidence was rather stable. Vivax malaria was confined to children less than 10 years old, while the prevalence of *P. falciparum* only changed moderately with age. The mean rate of glucose-6-phosphate dehydrogenase (G6PD) deficiency among male subjects was 7.4% but with a wide variation of 0-14.3% on different islands. A positive rank-order correlation was found between malaria incidence and G6PD deficiency rate on the different islands. A reasonable hypothesis is that malaria was introduced to the islands with the first human settlement 4000 years ago, with a geographical malaria distribution similar to the present situation. Different malaria endemicities possibly then selected different prevalences of G6PD deficiency over many generations.

- 15 **Kun JF, Waller KL, Coppel RL.**

Plasmodium falciparum: structural and functional domains of the mature parasite-infected erythrocyte surface antigen.

Exp Parasitol 1999 Mar;91(3):258-267.

The mature parasite-infected erythrocyte surface antigen (MESA) is a protein exported to the membrane skeleton of the infected red cell, where it forms a strong noncovalent interaction with the host red cell protein, protein 4.1. The complete gene structure of MESA from the Ugandan isolate Palo Alto is described. Comparison to the previously reported MESA sequence from the Papua New Guinean cloned line D10 reveals strong conservation of the general gene structure of a short first exon and a long second exon. The exact exon/intron boundaries were determined by the generation and sequencing of a cDNA from this region. The MESA gene from both isolates consists of seven blocks of repeats that are identical in order. Repeat blocks are conserved to a high degree; however, differences are noted in most blocks in the form of scattered mutations or differences in repeat numbers. Previous work had shown that synthetic peptides spanning a 19-residue region could inhibit the binding of MESA to protein 4.1. Removal of this region from MESA almost completely abolished the binding of MESA to IOVs. Sequencing of this region from a number of laboratory and field isolates demonstrates complete conservation of the cytoskeletal binding domain and flanking sequences.

- 16 **Lum JK, Cann RL, Martinson JJ, Jorde LB.**

Mitochondrial and nuclear genetic relationships among Pacific Island and Asian populations.

Am J Hum Genet 1998 Aug;63(2):613-624.

Mitochondrial and autosomal short-tandem-repeat (STR) genetic distances among 28 Pacific Island and Asian populations are significantly correlated ($r=.25$, $p<.01$) but describe distinct patterns of relationships. Maternally inherited mtDNA data suggest that Remote Oceanic Islanders originated in island Southeast Asia. In contrast, biparental STR data reveal substantial genetic affinities between Remote Oceanic

Islanders and Near Oceanic populations from highland Papua New Guinea and Australia. The low correlation between maternal and biparental genetic markers from the same individuals may reflect differences in genome-effective population sizes or in sex-biased gene flow. To explore these possibilities, we have examined genetic diversity, gene flow, and correlations among genetic, linguistic, and geographic distances within four sets of populations representing potential geographic and cultural spheres of interaction. GST estimates (a measure of genetic differentiation inversely proportional to gene flow) from mtDNA sequences vary between 0.13 and 0.39 and are typically five times greater than GST estimates from STR loci (0.05-0.08). Significant correlations ($r > .5$, $p < .05$) between maternal genetic and linguistic distances are coincident with high mtDNA GST estimates (> 0.38). Thus, genetic and linguistic distances may coevolve, and their correspondence may be preserved under conditions of genetic isolation. A significant correlation ($r = .65$, $p < .01$) between biparental genetic and geographic distances is coincident with a low STR GST estimate (0.05), indicating that isolation by distance is observed under conditions of high nuclear-gene flow. These results are consistent with an initial settlement of Remote Oceania from island Southeast Asia and with extensive postcolonization male-biased gene flow with Near Oceania.

17 **Mgone CS, Genton B, Peter W, Panu MM, Alpers MP.**

The correlation between microscopical examination and erythrocyte band 3 (AE1) gene deletion in South-east Asian ovalocytosis. *Trans R Soc Trop Med Hyg* 1998 May-Jun;92(3):296-299.

South-east Asian ovalocytosis status was determined by microscopical examination of peripheral blood samples collected from 137 individuals in Papua New Guinea. The examination was performed separately by 2 microscopists, one of whom was very experienced in examining peripheral blood films for the diagnosis of South-east Asian ovalocytosis and the other was recently trained. The samples were also analysed by polymerase chain reaction (PCR) to determine ovalocytosis status by demonstrating a 27-base pair deletion in erythrocyte band 3 protein of the affected individuals. The microscopists were unaware of each other's results and of those obtained by PCR. Generally, there was very good agreement between the results obtained by both microscopists and the PCR. Although there was considerable inter-observer variation in the final ovalocyte count between the 2 microscopists, this did not affect their ability to discriminate between ovalocytic and normocytic individuals. Taking the PCR results as the standard, for the first, more experienced observer, the most efficient ovalocyte count cut-off point was around 50%. At this ovalocyte count the sensitivity and specificity of microscopical examination were 93.6% and 92.2%, and the positive and negative predictive values

86.3% and 96.5%, respectively. The second microscopist generally underscored the ovalocyte counts and his most efficient cut-off point was 20%, with sensitivity and specificity of 85.1% and 93.3% and positive and negative predictive values of 87.0% and 92.3%, respectively.

18 **Morbidity and Mortality Weekly Report.**

Final stages of poliomyelitis eradication, Western Pacific Region, 1997-1998. *MMWR Morb Mortal Wkly Rep* 1999 Jan 22;48(2):29-33.

In 1988, the World Health Assembly resolved to eradicate poliomyelitis globally by 2000. A plan of action for polio eradication in the Western Pacific Region (WPR) by 1995 was adopted in 1990. The plan was based on routine and supplemental vaccination activities with oral poliovirus vaccine (OPV) and acute flaccid paralysis (AFP) surveillance in the eight countries where polio was endemic (Cambodia, China, Laos, Malaysia, Mongolia, Papua New Guinea, Philippines, and Vietnam). Regionwide, the number of reported polio cases decreased from approximately 6000 in 1990 to zero in 1998. This report describes the extensive efforts to eliminate the last chains of poliovirus transmission in the Mekong River area.

19 **Morillon M, Monchy D, Duval P, Rougier Y.**

[Focus. New Caledonia: Western medicine in the tropical islands]. *Med Trop Mars* 1998; 58(2):123-127. [Fr]

20 **Müller I, Smith T, Mellor S, Rare L, Genton B.**

The effect of distance from home on attendance at a small rural health centre in Papua New Guinea. *Int J Epidemiol* 1998 Oct;27(5):878-884.

BACKGROUND: The willingness of patients in the rural tropics to seek medical care at primary health care facilities is influenced by the distance they have to travel, but few studies have tried to estimate these distance effects. **METHODS:** Distance decay effects in attendance rates were estimated from a database of 4348 attendances at a rural health centre in Papua New Guinea, linked to demographic and house position data for the catchment population. Small-scale spatial patterns and differences between diagnoses, age groups and gender are described. **RESULTS:** Attendance decreased markedly with distance both overall (50% decrease at 3.5 km) and for patients with malaria or acute respiratory infections. This decrease was non-linear (on log scale) with distance. Although constant over time, there were big differences in this distance effect among age and gender groups: female patients showed less distance decay in adolescents and adults, but higher in the infant group. Spatial patterns accounted for 32% of the variation in age- and gender-specific attendance rates. Of the spatial effects more than 50% were due to distance effects. **CONCLUSIONS:** Distance effects were similar in magnitude to those reported elsewhere, suggesting that distance effects may be generalizable to many parts of the rural tropics. The non-linearity of

distance decay implies that a bell-shaped demand function should be used in health planning.

- 21 **O'Neill AM, Gillespie SH, Whiting GC.** Detection of penicillin susceptibility in *Streptococcus pneumoniae* by pbp2b PCR restriction fragment length polymorphism analysis. *J Clin Microbiol* 1999 Jan;37(1):157-160.

A PCR-restriction fragment length polymorphism strategy directed against the pbp2b gene was evaluated for identification of penicillin susceptibility. A total of 106 United Kingdom (UK), 30 Danish and 11 Papua New Guinean strains were tested. Of the UK strains, all the susceptible and all but one of the resistant isolates were correctly assigned. By using conventional definitions of 'not resistant' and 'not susceptible', the sensitivities were 97.5 and 94.4%, the specificities were 100 and 98.9%, the positive predictive values were 100 and 94.4%, and the negative predictive values were 93.1 and 98.9%, respectively. This technique may allow susceptible (MIC <0.1 mg/liter) and resistant (MIC >1 mg/liter) isolates to be distinguished in a single PCR.

- 22 **Oppenheimer SJ.** Iron and infection in the tropics: paediatric clinical correlates. *Ann Trop Paediatr* 1998 Sep;18 Suppl:S81-S87.

Iron deficiency is prevalent in children worldwide. Programmes of presumptive therapy, mass supplementation and food fortification have been introduced in many countries. The continuing unresolved debate over the interaction of iron and infection in the clinical setting indicates the need for firm guidelines for these practices. Iron overload is associated with increased susceptibility to certain infections, although the exact mechanisms may vary with the main pathology. Iron treatment has been associated with acute exacerbations of infection, in particular malaria. In Papua New Guinea parenteral iron was associated with increased rates of malaria and increased morbidity due to respiratory disease in infants but not in school children. Several subsequent studies in Africa using oral iron showed deleterious effects. In most instances cited, immunity was compromised, and therapeutic doses of oral iron were used. Knowledge of malarial endemicity, immunity with respect to age and the prevalence of haemoglobinopathies is important in planning interventions. A fine balance needs to be struck in the timing and dose of oral iron if informed recommendations are to be made. In parallel with supplementation studies, the effects of iron chelation on infection are being reported increasingly. Such therapy is clearly protective against malaria and some other infections but may predispose to fungal and *Yersinia* infections.

- 23 **Passey M, Mgone CS, Lupiwa S, Tiwara S, Lupiwa T, Alpers MP.**

Screening for sexually transmitted diseases in rural women in Papua New Guinea: are WHO therapeutic algorithms appropriate for case

detection?

Bull World Health Organ 1998;76(4):401-411.

The presence of a large reservoir of untreated sexually transmitted diseases (STDs) in developing countries has prompted a number of suggestions for improving case detection, including the use of clinical algorithms and risk assessments to identify women likely to be infected when they present to clinics for other reasons. We used data from a community-based study of STDs to develop and evaluate algorithms for detection of cervical infection with *Chlamydia trachomatis* or *Neisseria gonorrhoeae*, and for detection of vaginal infection with *Trichomonas vaginalis* or bacterial vaginosis. The algorithms were derived using data from 192 randomly selected women, then evaluated on 200 self-selected women. We evaluated the WHO algorithm for vaginal discharge in both groups. The prevalences of cervical and vaginal infection in the randomly selected group were 27% and 50%, respectively, and 23% and 52%, respectively, in the self-selected group. The derived algorithms had high sensitivities in both groups, but poor specificities in the self-selected women, and the positive predictive values were unacceptably low. The WHO algorithms had extremely low sensitivity for detecting either vaginal or cervical infection because relatively few women reported vaginal discharge. Simple algorithms and risk assessments are not valid for case detection in this population.

- 24 **Piper KP, Roberts DJ, Day KP.**

Plasmodium falciparum: analysis of the antibody specificity to the surface of the trophozoite-infected erythrocyte.

Exp Parasitol 1999 Feb;91(2):161-169.

Current opinion supports the view that immunity to the surface of the trophozoite-infected erythrocyte (IE) is to *Plasmodium falciparum* erythrocyte membrane protein 1 (PfEMP-1). Here we provide further evidence using the mutant cell line 1776/C10 which no longer expresses PfEMP-1 at the IE surface, due to a subtelomeric deletion in chromosome 9. We have measured antibody reactivity to this mutant in comparison to its intact isogenic parent line 1776, which does express PfEMP-1, using the sensitive technique of flow cytometry. IgG-specific antibodies (subclass IgG1) in the plasma of hyperimmune adults reacted to 1776 but never to the 1776/C10 mutant. Antibody subclasses were also measured in individual plasma samples to the surface of trophozoite-IE. Predominantly IgG1 antibodies were detected, with a few individual plasmas having additional IgG3 antibodies. Previous studies have used the agglutination assay to measure sero-conversion to PfEMP-1. Here we show that both agglutination and flow cytometric methods are comparable, suggesting that agglutination of trophozoite-IE is mediated by IgG antibodies. Comparison of the isogenic cell lines 1776 and 1776/C10 differing in expression of PfEMP-1 provides further evidence that IgG antibodies, in particular of the cytophilic subclasses, mediate recognition of PfEMP-1.

- 25 **Rees DC, Williams TN, Maitland K, Clegg JB, Weatherall DJ.**
Alpha-thalassaemia is associated with increased soluble transferrin receptor levels.
Br J Haematol 1998 Nov;103(2):365-369.
Although alpha+-thalassaemia is the commonest haemoglobinopathy in the world, it is not known if it is associated with significant ineffective erythropoiesis, a fact of importance in interpreting its complex interaction with malaria. To study this problem, we have measured the concentrations of soluble transferrin receptor (sTfR) and ferritin in 181 children from Vanuatu with heterozygous (68) and homozygous (46) alpha+-thalassaemia, and normal controls (67). sTfR concentrations were significantly higher in both homozygotes (mean 3.1 mg/l, range 2.8-3.4) and heterozygotes (2.86 mg/l, 2.6-3.2) compared to the normal controls (2.48 mg/l, 2.3-2.7), suggesting that although globin chain imbalance is minimal, there is ineffective erythropoiesis in both these conditions. Age was also shown to significantly affect sTfR, with peak levels occurring in the 5-9 years age group. Ferritin concentrations showed a similar trend, being higher in the thalassaemic groups, although this did not reach statistical significance. No individuals had low ferritin concentrations, although two had significantly elevated sTfR levels. These observations suggest that the alpha+-thalassaemia phenotype includes an expansion of the erythron, and may suggest possible mechanisms for the increased susceptibility in babies with alpha-thalassaemia to both *P. falciparum* and *P. vivax* malaria.
- 26 **Sabchareon A, Yoksan S.**
Japanese encephalitis.
Ann Trop Paediatr 1998 Sep;18 Suppl:S67-S71.
- 27 **Shann F, Macgregor D, Richens J, Coakley J.**
Cardiac failure in children with pneumonia in Papua New Guinea.
Pediatr Infect Dis J 1998 Dec;17(12):1141-1143.
BACKGROUND: Cardiac failure is suspected of contributing to mortality from pneumonia in children in developing countries, but its role has not been clearly defined. METHODS: A convenience sample of 47 children admitted to Goroka Hospital in Papua New Guinea was studied prospectively with ultrasound, chest radiographs and assays of creatine kinase and lactate dehydrogenase. RESULTS: 7 (15%) of the 47 children died. Of the 43 children who had a chest radiograph, 31 (72%) had severe or very severe pneumonia. No child had poor contractility of the heart on ultrasound examination or unequivocally raised cardiac isoenzymes; therefore no evidence of myocardial injury from sepsis was found. However, ultrasound examination showed dilatation of the right ventricle or hepatic veins in 12 (26%) of the children (both were dilated in 7 children) and 4 (33%) of these children died; this suggests that right ventricular cardiac failure secondary to pulmonary hypertension was present in 26% (95% confidence interval, 14 to 40%) of these children with severe pneumonia. Tachycardia was not associated with right ventricular dilatation on ultrasound, but 3 of the 4 children with more than 3 cm of liver palpable in the abdomen had right ventricular dilatation. Only 4 of the 12 children with right heart failure had hepatomegaly, tachycardia, raised jugular venous pressure or peripheral edema. CONCLUSIONS: Right ventricular failure is common in children with severe pneumonia, and it is probably caused by pulmonary hypertension rather than septic toxemia. The clinical signs of heart failure are unreliable. There is no evidence that digoxin is effective treatment for right ventricular failure secondary to pulmonary hypertension.
- 28 **Steadman DW, White JP, Allen J.**
Prehistoric birds from New Ireland, Papua New Guinea: extinctions on a large Melanesian island.
Proc Natl Acad Sci USA 1999 Mar 2;96(5):2563-2568.
At least 50 species of birds are represented in 241 bird bones from five late Pleistocene and Holocene archaeological sites on New Ireland (Bismarck Archipelago, Papua New Guinea). The bones include only two of seabirds and none of migrant shorebirds or introduced species. Of the 50 species, at least 12 (petrel, hawk, megapode, quail, four rails, cockatoo, two owls, and crow) are not part of the current avifauna and have not been recorded previously from New Ireland. Larger samples of bones undoubtedly would indicate more extirpated species and refine the chronology of extinction. Humans have lived on New Ireland for ca 35,000 years, whereas most of the identified bones are 15,000 to 6,000 years old. It is suspected that most or all of New Ireland's avian extinction was anthropogenic, but this suspicion remains undetermined. Our data show that significant prehistoric losses of birds, which are well documented on Pacific islands more remote than New Ireland, occurred also on large, high, mostly forested islands close to New Guinea.
- 29 **Su B, Chakraborty R, Jin L, Xiao J, Lu D.**
An HIV-resistant allele is exceptionally frequent in New Guinean highlanders.
JAMA 1998 Dec 2;280(21):1830.
- 30 **Taylor PR, Emonson DL, Schlimmer JE.**
Operation Shaddock: the Australian Defence Force response to the tsunami disaster in Papua New Guinea.
Med J Aust 1998 Dec 7-21;169(11-12):602-606.
Operation Shaddock was the name given to the deployment of a major field medical unit of 58 Australian Defence Force medical and other personnel to Vanimo, in northwestern Papua New Guinea. Hundreds of victims of the tsunami disaster were treated and more than 200 surgical procedures performed in a 10-day mission.
- 31 **Van Dam MG, Seaton RA, Hamilton AJ.**
Analysis of HLA association in susceptibility to infection with *Cryptococcus neoformans* var. *gattii* in a Papua New Guinean population.
Med Mycol 1998 Jun; 36(3):185-188.

The possible association between susceptibility to infection with *Cryptococcus neoformans* var. *gattii* and HLA phenotype was examined in a group of Papua New Guinean patients. There was no evidence for a statistically significant association between susceptibility to infection and HLA class I and HLA class II phenotypes, although analysis of data which had not been subjected to the appropriate Bonferroni correction factor suggested a trend for susceptibility linked to HLA B*5601.

32 **Verma N, Melengas S, Garap JA.**

Ipsilateral rotational autokeratoplasty for the management of corneal opacities.

Aust NZ J Ophthalmol 1999 Feb;27(1):21-25.

PURPOSE/BACKGROUND: Penetrating keratoplasty is the logical solution for the management of corneal opacities. In situations such as in Papua New Guinea, where donor corneal tissue is scarce and corneal opacities are plenty, an alternative procedure for the management of corneal opacities in the form of ipsilateral rotational autokeratoplasty was considered. **METHODS:** In the present prospective study, ipsilateral rotational autokeratoplasty was performed in 17 eyes over a 2-year period in a general hospital. The patient's cornea was trephined eccentrically and the corneal opacity was dialed out of the visual axis and was replaced by clear peripheral cornea. **RESULTS:** Most opacities were leucomata (76.4%). The average size of the opacity was 5.1 mm and the corneal button size was 7 mm. A final visual acuity of 6/18 or better was obtained in 64.7% of cases (at 12 months). No significant postoperative complications were encountered. No complex formula was needed to calculate the size of the button and, by simply adding 3 mm to the pupillary diameter in standard illumination, one could make an estimation of the graft diameter. **CONCLUSIONS:** Rotational autokeratoplasty has a definite role in places where donor corneal tissue is scarce, in patients in whom long-term steroids are a risk or in situations where follow-up of patients is difficult. Rejection is a theoretical impossibility, but late endothelial failure could occur, requiring regrafting. Rotational autokeratoplasty should be seriously considered as an alternative to conventional penetrating keratoplasty.

33 **Verma N, Murthy DP, Kerek A.**

Orbital malignancy in Papua New Guinea: a 21-year review.

Aust NZ J Ophthalmol 1999 Feb;27(1):27-31.

BACKGROUND: Information about orbital

malignancies in Papua New Guinea (PNG) is limited to reports published 20 years ago. The present retrospective study was performed to establish the pattern of malignant orbital lesions occurring in PNG and to see whether the pattern is any different from that reported in the earlier series and in other countries. Papua New Guinea is special in that it has a large and relatively homogeneous population unaffected, to a large extent, by contact with the outside world. **METHODS:** The records of 176 proven cases of orbital malignancy treated between 1975 and 1996 were studied with respect to type of tumour, age, gender, mode of presentation and, where possible, treatment and its outcome. **RESULTS:** Orbital tumours were found to be uncommon relative to other malignancies. The most common orbital tumour encountered in the present study was orbital extension of retinoblastoma (40.3%). These tumours were all unilateral and were associated with a very high mortality. No bilateral or familial cases were seen. Squamous cell carcinomas were the second most common tumours (25.6%) and were seen in young adults (average age 36.6 years). Basal cell carcinomas (9.1%) occurred later (average age 54 years) and were more common in the lighter-skinned Southern Highlanders and expatriates. The other malignancies seen included lacrimal gland tumours (3.4%), malignant melanomas (4.5%), lymphomas (3.4%), rhabdomyosarcomas (1.7%), meibomian cell carcinomas (1.7%) and soft tissue sarcomas. **CONCLUSIONS:** Most patients presented late and the mortality rate was high. This could also reflect the relative paucity of ophthalmic and oncological services in the country as well as psychosocial attitudes to disease. Many patients live far from medical services and may be treated by traditional healers before coming to a hospital.

34 **White AD, Barnetson RS.**

Practising dermatology in the South Pacific.

Med J Aust 1998 Dec 7-21;169(11-12):659-662.

35 **Zampella A, Giannini C, Debitus C, Roussakis C, D'Auria MV.**

New jaspamide derivatives from the marine sponge *Jaspis splendans* collected in Vanuatu.

J Nat Prod 1999 Feb;62(2):332-334.

Two new jaspamide derivatives (1 and 2) along with jaspamide have been isolated from the marine sponge *Jaspis splendans* collected in Vanuatu. Their chemical structures were determined from 1D and 2D NMR studies and MS data. These two compounds inhibited the in vitro growth of the NSCLC-N6 human tumor cell lines with IC50 values in the microg/ml range.

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