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ABSTRACTS OF THE CURRENT LITERATURE

THE NEWBORN

Intakes and excretions of iron, copper, and zinc in the neonatal period : P. A. CAVELL and E. M. WIDDOWSON—*Arch. Dis. Childh.*, **39 :** 496, 1964.

The outstanding question raised by the results of this study is how and why do babies at the end of the first week after birth excrete more iron and zinc in their stools than they get from their milk, and sometimes more copper as well ? The quantities involved are considerable. The baby gets from breast milk every day amounts equivalent to about 0.1% of its body iron, 2.5% of its copper, and 4.3% of its zinc. The losses correspond to more than 1% of the body's iron and zinc and 0.2% of the copper. There is no evidence from the results of this investigation how long these losses continue, though they continued for the 3 days of the study. Haemolysed red blood cells are the probable source of the iron, and also of the zinc. The mechanism by which absorption is controlled is still not clearly understood, but there seems no doubt that when erythropoietic activity is high iron absorption is increased, and conversely when it is low iron absorption is diminished. In neither situation, however, do the faeces contain more iron than the food. This is evidently not the case in young babies, though why the iron and indeed the zinc and copper enter the intestine is not known. The bile is a possible source of the iron and copper. Little may be known about the fundamental aspects of iron metabolism in the neonatal period, but still less information is available about the metabolism of copper and zinc, and speculation about it would be futile.

Meconium passed during the first 24 hours after birth was collected from 6 babies and analysed for iron, copper, and zinc. The intake and urinary and faecal excretion of the three metals were measured on another 10 babies, all breast-fed, over a three-day period at the end of the first week.

Meconium contained on average of 1.7 mg./100 gm. iron and copper and 6.5 mg./100 gm. zinc.

The concentration of all three metals was very variable in breast milk and there was no relation between the volume of milk secreted and its composition.

All the babies were in negative iron balance ; the faeces contained on the average more than 10 times as much iron as the food and the mean loss of iron from the baby's body amounted to 3.6 mg. a day.

Some of the babies were in negative and some in positive copper balance, but all except one were in negative zinc balance. They were losing more than 1%

of the body's total iron and zinc each day. It is not known how long these large negative balances continue, but possible explanations for them are discussed.

Mother's cigarette smoking and survival of infant : J. YERUSHALMY - *Amer. J. Obstet. Gynec.*, **88 :** 505, 1964. From *Excerp. med. (Amst.) Sect. VII*, **18 :** 554, 1964.

An investigation of 5,381 White and 1,419 Negro single live births for whom the smoking status of the mother was known shows the following : Smoking mothers had a substantially larger proportion of infants of 'low birth weight' (5 pounds, 8 ounces or less) than nonsmokers. The over-all neonatal mortality rate, however, was the same for infants of smoking and nonsmoking mothers. The neonatal mortality rates for single live births of low birth weight were substantially and significantly lower for infants of smoking than of nonsmoking mothers. Infants of smoking mothers weighed less than infants of nonsmoking mothers in each gestational age. The incidence of single live births of short gestation was only slightly and not significantly higher for smokers than for nonsmokers. The neonatal mortality rate of single live births of short gestation did not differ for Negro infants of smoking and nonsmoking mothers, and was only slightly lower for infants of smokers among whites. The neonatal mortality rate of single live births which satisfied both criteria of prematurity, i.e., with an interval of less than 37 weeks from LMP and a birth weight of 5 pounds, 8 ounces or less, were substantially and significantly lower for infants of smoking than of nonsmoking mothers. These findings are discussed as to possible explanations for the phenomenon of relatively more, but apparently healthier, infants of 'low birth weight' among smoking than nonsmoking mothers. A causal hypothesis may be postulated in biochemical terms, but until such a mechanism can be demonstrated, it may not be unreasonable to suppose that it is not the smoking but the smoker which may offer an explanation for the observed differences.

INTERNAL MEDICINE

A new look at enuresis : J. G. BRODY—*Med. J. Aust.* **50 :** 578, 1963. From *Excerp. med. (Amst.) Sect. VII*, **18 :** 585, 1964.

The mechanism of bladder control is discussed and the causes of bed-wetting, which may be psychological, such as excitement and disturbed sleep, dreams, nightmares, jealousy of new baby in the family, organic causes such as spina bifida and myelomeningocele with paraplegia, often congenital abnormalities such as double ureters or renal abnormalities. Epilepsy can occasionally manifest itself in nocturnal enuresis. Bed-wetting in girls may often also be due to chronic cystitis or cystopyelitis. One should recognize that enuresis is but a symptom with a great variety of conditions as underlying causes.

Eczema vaccinatum : P. W. MONCKTON COPEMAN and H. J. WALLACE—*Brit. med. J.*, **2 :** 906, 1964.

When generalized vaccinia occurs in a patient with eczema the disorder is known as eczema vaccinatum, a grave and sometimes fatal illness. The characteristic rash of profuse vaccinal lesions, particularly dense in eczematous areas, is sometimes known as Kaposi's varicelliform eruption. Since, however, a clinically indistinguishable eruption and illness may be caused

by herpes simplex in an eczematous subject, the terms eczema vaccinatum and eczema herpeticum are more exact.

Eczema vaccinatum is usually distinguishable from eczema herpeticum by the history, although for diagnosis virological studies may be necessary. In generalized vaccinia in non-eczematous subjects the systemic upset is usually less severe and the eruption is more scattered. The variolas, modified smallpox, varicella, and erythema multiforme occasionally minic eczema vaccinatum.

In the 1962 mass smallpox vaccination in England and Wales 185 patients had eczema vaccinatum, an estimated incidence of 1 in 20,000 intended primary vaccinations. There were 11 deaths ; a mortality of approximately 6%.

About half of the patients, including 8 of the 11 who died, were under the age of 5 years. Eczema vaccinatum was twice as common in males as in females.

Vaccination was accidental in 89 (65%) of 137 patients.

The eczema at the time of vaccination was reported as inactive in two-thirds of the patients. It was predominantly of the atopic variety.

Recommendations for prophylaxis and treatment are given.

From the findings in this series and from information which has since become available, the authors' conclusions about prophylaxis and treatment may be summarized thus : (1) Before vaccination, specific inquiries should be made about eczema both in the patient and in potential conitacts. (2) Atopic eczema, even if quescent, is an absolute contraindication to vaccination except when the patient is a contact of a known or suspected case of smallpox or is going to an area where smallpox is endemic. (3) Eczematous subjects, particularly in childhood, and even if the eczema is quiescent, should be isolated strictly from the recently vaccinated. The risk of accidental vaccination should be emphasized. (4) Hyperimmune antivaccinial gammaglobulin should be given to any patient seriously ill with eczema vaccinatum. It should be given prophylactically if vaccination of an eczematous subject is essential. (5) These conclusions probably apply to Darier's disease.

Tropical eosinophilia : Case report and review of the literature : A. KERTESZ and J. D. L. FITZGERALD—*Canad. med. Ass. J.* **91 :** 562, 1964.

Tropical eosinophilia is an easily recognizable, effectively treatable, but relatively uncommon disease. It appears only in persons who have been infected in the tropics. Two salient features of this disease are an extremely high eosinophil count and asthma which is nocturnal in the majority of cases.

No effective means of identifying the causative parasite in the blood, sputum and faeces are available at present. However, other parasites may be found by coincidence. The eosinophilia is extreme, and since leukocytosis is common, this may result in a total direct eosinophil count of over 10,000 per c.mm.

The clinical course is benign but can be very troublesome. Chronic nocturnal dyspnoea and unproductive cough are the characteristic features. Physical signs may include rhonchi and occasionally rales, hepatomegaly, splenomegaly and lymphadenopathy. Chest radiographs may show fine mottling or increased bronchovascular markings, or they may be negative. All patients with this disorder have positive complement fixation and skin tests with antigen of *Dirofilaria immitis* (not available in Canada). The erythrocyte sedimentation rate (ESR) and total serum proteins are elevated, with

decreased albumin and increased alpha$_1$, alpha$_2$ and gamma globulins. Finally, an effective response to diethylcarbamazine (Hetrazan) constitutes one practical diagnostic aid, and indicates a parasitic (filarial) etiology.

Available evidence supports the view that this disease is caused by filaraial infestation. Recent liver, lung and lymph node biopsies have demonstrated the presence of microfilaria measuring 200 micra, in the midst of an intense granulomatous reaction which appeared to be caused by local reaction to the parasites. In a recent review of the subject of "occult filariasis", microfilaria were also described in small pools of eosinophils in lymph nodes. Sometimes acidophilic hyaline material may also be seen in the centre of eosinophil collections, often surrounding dead microfilariae. These are called Meyers-Kouwenaar bodies, and are usually surrounded by histiocytes and foreign-body giant cells. Occult filariasis or tropical eosinophilia differs from classical filariasis in that in the former the microfilariae are trapped and killed in the tissues, while in the latter they circulate freely in the blood. Consequently, the pathological changes in the former are due to dead microfilariae in lungs, liver, spleen and lymph nodes, and in the latter are due to the adult worm. Dramatic response is obtained by the administration of diethylcarbamazine (Hetrazan), 5 mg./kg., daily for six days. During the first few days of treatment a temporary exacerbation of pulmonary symptoms may occur, as in our case. This has been described as analogous to the Herxheimer reaction.

A case of tropical eosinophilia is presented characterised by nocturnal asthma and very high eosinophilia. The patient was a 33-year old Indian male law student from Calcutta in Toronto.

Emphasis is placed on the prevalence of this illness in people coming from the tropics, and on the dramatic results of treatment with diethylcarbamazine (Hetrazan) as occurred in the patient reported.

Incidence of intestinal helminths in Bombay : P. F. ANTIA, H. G. DESAI, K. N. JEEJEEBHOY and A. V. BORKER—*Indian J. med. Sci.*, **18 :** 635, 1964.

The incidence of intestinal helminths was studied in Bombay in 4160 patients consisting of (i) 1000 patients with different gastrointestinal symptoms treated in private practice, (ii) 1500 with gastro-intestinal symptoms, (iii) 920 with dysentery, (iv) 240 with non-dysenteric diarrhoea, (v) 500 with symptoms not related to the gastro-intestinal tract.

The incidence of intestinal helminths was 35.5 per cent in patients with gastro-intestinal symptoms, 22.2 per cent in patients with dysentery, 47.3 per cent in patients with diarrhoea, 41.6 per cent in patients with symptoms not related to the gastro-intestinal tract, and 8.5 per cent in 1000 patients with gastro-intestinal symptoms seen in private practice. The incidence of intestinal helminths was 33.4 per cent in 3160 hospital patients and 27.4 in a total of 4160 patients.

The commonest intestinal helminth in patients from the city of Bombay was *Ascaris lumbricoides* and not *Ankylostoma duodenale.*

The following infestations were noted : *Ascaris lumbricoides*, *Trichuris trichura*, *Ankylostoma duodenale*, *Enterobius vermicularis*, *Strongyloides sterocoralis* (larvae), *Hymenolopis nana*, *Tenia*, *Schistosoma hematobium.*

The incidence of intestinal helminths in patients without any gastro-intestinal symptoms was not less than in patients with gastro-intestinal symptoms. The incidence of intestinal helminths in the

urban population was much lower than that reported in the rural population and the incidence in patients drawn from the higher economic groups is significantly lower than in hospital patients. These variations depended upon the sanitary conditions and hygienic habits of the population.

THERAPEUTICS

The use of oral penimepicyclin in treatment of current diseases of the lung : P. GROUSSIN. —*Ouest Med.* **16 :** 946, 1963. From *Excerp. med., (Amst). Sect. VII,* **18 :** 582, 1964.

This drug, supplied in capsules of 250 mg. for oral use, corresponding to a dose of 125 mg. tetracycline base and 160,000 U. penicillin, has 2 advantages : rapid diffusion and high blood levels. The antibiotic is bactericidal against cocci. A clinical study was made in 50 adults with current pulmonary diseases : bronchitis, pulmonary congestion, pneumonia and superimposed infections of cancers. Dosage was from 4 to 6 capsules per 24 hours, in 2-12 hour doses uncombined with lactic enzymes. The over-all results were excellent in 68% of cases, moderate in 14%and nil in 18%. In bronchitis due to banal pathogenic bacteria, pulmonary congestion and pneumococcal pneumonia, the improvement was remarkable in 80% of cases. Only 3 side-effects were noted : diarrhoea which disappeared rapidly with lactic enzymes and 2 cases of stomatitis which were controlled by vitamin PP.

Treatment of infectious mononucleosis with steroids. A preliminary report : T. G. VANDIVIER.—*J. lab. clin. Med.* **62 :** 1018, 1963. From *Excerp. med. (Amst.) Sect. VII,* **18 :** 605, 1964.

The results of treatment of 10 patients are presented. Only 10 of 20 patients observed were ill enough to interrupt their school or work, and therefore were treated. Haldrone in doses of 12 to 16 mg. daily was employed the first 2 days, with prompt resolution of the symptoms in all instances. The steroid dosage was decreased 4 mg. within 2 or 3 days in most instances and thereafter gradually tapered. The duration of treatment averaged about 3 weeks with the variation in duration and dosage depending upon physical and laboratory manifestations. Resolution of lymphadenopathy did not necessarily parallel subjective improvement, but incidence of sore throat, pharyngeal exudate, and fever did correspond to steroid dosage and duration of treatment. Heterophile titres, per cent atypical lymphocytes, and liver function studies often improved after steroid treatment was started. However, the changes in these laboratory procedures corresponded with the natural course of the illness in most instances. In cases with elevated bilirubin and rather marked increases in SGOT values, steroid therapy seemed to result in fairly prompt improvement in these tests. Steroid treatment of infectious mononucleosis suppresses much of the inflammatory reaction and allows the patient to be relatively asymptomatic while the disease runs its natural self-limited course. In no instance there was any suggestion that it prolonged the illness, and there were no side effects from the steroid therapy. Malaise was not a problem after steroids were discontinued.

SURGERY

Water and electrolytes metabolism in pediatric surgical patients : K. NAGASHIMA —*Acta Pediat. Jap.,* **6 :** 49, 1964.

Postoperative water and electrolyte changes in the urine were studied in 63 pediatric surgical patients including 28 newborn infants and 35 older infant for 7 days following the operation. Studies were made on volume, specific gravity, and electrolytes (Na, K and Cl).

All diseases were classified into the following 3 groups :

A Group—Inguinal hernia, cleft lip, cleft palate and spina bifida.

B Group—Colostomy, radical operation and closure of colostomy for Hirschsprung's disease.

C Group—Congenital esophageal atresia, congenital hypertrophic pyloric stenosis, congenital intestinal obstruction and anal atresia.

The results were as follows :

(1) Urine volume and urinary electrolytes excretion were always larger in older infants than in newborn infants without any relation to the degree of surgical manipulation.

(2) Urinary electrolytes excretion was markedly less in group C than in groups A and B (throughout 7 days).

In group C, urinary excretion of Na and Cl was reduced remarkably, especially in congenital intestinal obstruction and congenital hypertrophic pyloric stenosis.

(3) Postoperative oliguria was observed in groups B and C, but not in group A. It may be that water-intake was sufficient in group A, but not in groups B and C.

(4) Group C was subdivided into mature and premature infants on the basis of their birth weight.

Intake-Excretion intake ratio of Na, Cl and water were higher on 1st postoperative day and became lower on 2nd and 3rd postoperative days in premature infants in comparison with mature infants, however they showed almost similar values in both groups after the 4th postoperative day.

The ratio of K was higher in mature infants than in premature infants, after going into positive balance on the 4th postoperative day.

(5) Specific gravity and electrolytes concentration of the urine specimens collected at every 6 hours were markedly lower in group C in comparison with groups A and B. They lowered rapidly in the first 48 hours and then slowly until the 7th postoperative day.

(6) Both premature and mature infants revealed an almost similar course concerning specific gravity and electrolytes concentration of the urine.

Burn management in children : E. T. BOLES —*Sth. med. J.* **56** : 1089, 1963. From *Excerp. med. (Amst.) Sect. VII,* **18** : 620, 1964.

Intravenous fluid therapy is essential to maintain normal peripheral circulation and an adequate urinary output during the shock phase following a major burn. Sepsis is the major cause of death. Measures to prevent infection have not succeeded. Control depends on adequate drainage of the wound, mechanical cleansing and early grafting. Nutritional losses are minimized by nasogastric tube feedings. Most children tolerate a milk base formula well. The intake should be geared to provide approximately 50 to 100 calories and 3 gm. protein per kg. In full thickness burns of limited extent, early excision and grafting are very successful. In large burns conservative measures including multiple debridements, tubbing and saline dressings are presently preferred. Grafting should be started within a month following the injury. Operations on these children should be well planned and brief.