TREATMENT OF PNEUMONIA IN CHILDREN

USE OF ORAL PENICILLIN IN OUT-PATIENTS

BY

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The use of oral preparations of penicillin in the successful treatment of pneumonia in adults and children has been reported (*British Medical Journal*, 1956; Austrian and Winstone, 1956; McWhorter *et al.*, 1957). Because of the shortage of hospital beds, some cases of pneumonia in children have to be treated as out-patients. This necessitates daily attendance for procaine-penicillin injections. A study was undertaken to determine the efficacy of oral penicillin in the out-patient treatment of pneumonia in non-white (Coloured and African) children attending the Paediatric Department at Coronation Hospital, Johannesburg.

Material and Methods

Selection of Cases.—Cases were included in the study if they manifested dyspnoea in the presence of radiographic evidence of pneumonia. Sixteen cases showed lobar consolidation, eleven patchy consolidation, and six moderate but unequivocal loss of translucency in one or more lobes. Dyspnoea was evidenced by mobile *ala nasi*, tachypnoea, and subcostal recession. Most of the cases also had other signs of pneumonia, including pyrexia, dullness to percussion, and bronchial breathing, and crepitations. The absence of dyspnoea or radiographic changes automatically excluded cases from the series. Not all patients were considered suitable for out-patient treatment. Infants less than 3 months of age and those with cyanosis or cardiac failure were admitted to the wards.

Treatment.—All cases were treated with a suspension of phenoxymethyl penicillin (penicillin V), containing 62.5 mg. per drachm (3.5 ml.), equivalent to 100,000 units. The dosage varied between 2 dr. (7 ml.) four-hourly and six-hourly, depending on the age of the patient. The average case was treated with a total of 2 oz. (60 ml.). During a period of one month 33 patients ranging between the ages of 4 months and 8 years were treated in this manner. Ten were under the age of 1 year. During this same period of time 24 cases of pneumonia were admitted to the wards.

Results

Seventeen cases (52%) returned within one week of the initial visit and were found to be clinically cured (see Table). One patient returned after one month for an unrelated complaint showing no evidence of pneumonia. Ten patients did not return. An attempt was made to follow these up, and three were found to be perfectly well. The remaining seven were not traced. Thus, 63% of the series were known to be definitely cured. It is customary for all children

attending this department not to return if they improve. Should death occur at home, certification is always requested. Furthermore, the poverty of this group largely precludes attendance by private practitioners. It can therefore be safely assumed that the remaining seven cases recovered, bringing the total to 29 recoveries (87%).

One case was inadvertently given intramuscular penicillin, and is therefore excluded.

Four cases failed to respond to oral penicillin. Case 3, aged 6 months, appeared to respond to treatment but returned one month later with clinical and radiographic recurrence in the same lobe, which failed to respond to a second course of oral penicillin. Case 7 failed to respond to oral penicillin and was subsequently proved to be suffering from whooping-cough bronchopneumonia. Case 17 improved initially, but after nine

Summary of Results

Age	No. of Cases	No. of Failures	Comment
3-6 months	4	1	One case resistant to penicillin
-12	6	0	Nil
1-2 years ..	12	2	Failures found to have respectively pertussis and pulmonary tuberculosis
-8	11	1	Failure, subsequently developed Bell's palsy

days relapsed and developed Bell's palsy. At this stage an x-ray examination of the chest showed complete resolution of the original lesion. The case was, however, treated with a broad-spectrum antibiotic. Case 24 failed to respond, and was subsequently proved to have pulmonary tuberculosis.

Discussion

Though oral penicillin has been shown to be effective in the treatment of acute pneumonia, its use in the treatment of out-patients has been restricted by fears of inadequate administration. In no case in this series could failure be attributed to this cause. It seems clear that even mothers in an unsophisticated population can be entrusted with the adequate medication of their children.

The presence of severe dyspnoea did not seem to make oral administration ineffective or difficult. Reactions to oral penicillin V were not encountered.

A notable feature in this series was the relative absence of relapses due to superinfection by penicillin-resistant strains of organisms. Superinfection constitutes a major problem of in-patient treatment. This strongly suggests that out-patient treatment is the treatment of choice in all cases of pneumonia uncomplicated by severe anoxia or congestive cardiac failure.

Summary

Thirty-three cases of pneumonia in infants and children were treated as out-patients with phenoxymethylpenicillin, and 87% were clinically cured by this treatment.

It is suggested that out-patient treatment with oral penicillin is the method of choice in cases of mild and moderately severe cases of pneumonia.

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PILOT HISTOPLASMOSIS SURVEY IN DELHI AREA

BY

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Clinical and epidemiological research during the past 12 years has demonstrated that histoplasmosis, caused by *Histoplasma capsulatum*, is one of the widely prevalent chronic pulmonary diseases in certain areas of the world. Before 1945 histoplasmosis was regarded as a fatal disease with widespread involvement of the reticulo-endothelial system. Now that the existence of a benign form of the disease is recognized, future epidemiological studies are bound to reveal its more extensive prevalence.

The widespread incidence of the benign primary form along the valleys of the Mississippi and Ohio rivers has been discovered by Christie and Peterson (1945) and by Palmer (1945). There is high incidence of positive reactors to histoplasmin in Mexico and Panama. It is also found to exist in Australia and in certain countries of northern Europe, but to a less extent.

Information regarding the prevalence of histoplasmosis in India is scanty. Wahi (1952, 1955) conducted a pilot survey in Agra with skin tests. He found 22 positive reactors to histoplasmin out of 1,331 people tested, giving 1.65% positives. Sen and Ghosh (1956), in a histoplasmin survey in Calcutta, found 0.67% positive reactors. Panja and Sen (1954) reported on "a unique case of histoplasmosis." Kalra *et al.* (1957) reported a case of histoplasmosis from Poona and claimed to have isolated the fungus and identified the same as *Histoplasma duboisii*. Recently Sen Gupta *et al.* (1957) have reported another case of histoplasmosis confirmed by culture.

The present pilot study was undertaken with a view to finding out the possible incidence of benign histoplasmosis in the Delhi area.

Material and Methods

Three areas were chosen for survey. One was in Alipur, a small village situated about 10 miles (16 km.) from Delhi. The second was in Nai Basti and Jumna Bazaar, which are situated on the bank of the River Jumna. The third area, which constitutes the urban area, was represented by patients attending the Municipal Tuberculosis Clinic and the Clinical Research Centre of the Chest Institute.

People tested were selected at random and belong to all age-groups above 5 years. The histoplasmin used for the survey was the one manufactured by Parke,

Davis & Co. and supplied by the courtesy of the Technical Co-operation Mission of the U.S.A. 0.1 ml. of 1 in 100 dilution of the antigen was given intradermally on the forearm. All cases were simultaneously tuberculin-tested by intradermal injection of 5 T.U. of P.P.D. Readings were made 48 hours after the test. A reaction showing an induration measuring 5 by 5 mm. or greater was taken as positive.

All available histoplasmin reactors were subjected to thorough physical, radiological, and laboratory examinations, which included complement-fixation test, blood culture, bone-marrow biopsy, and culture of bronchial aspirations. Sabouraud's glucose agar incubated at 25° C. and brain-heart infusion blood-agar incubated at 37° C. were used as media for culturing the fungus. The cultures were kept under observation for three to four weeks before they were discarded as negative for fungus. Examination for acid-fast bacilli was also done simultaneously.

Results

The results of skin-testing and examination of histoplasmin-positive reactors are summarized in Tables I and II. It will be seen from Table I that the

TABLE I.—Incidence of Histoplasmin-positive Reactors and Their Response to the P.P.D. Test in Different Areas

Place	No. Tested	No. Read	No. of Histoplasmin Positives	% of Histoplasmin Positives	Response of Histoplasmin Positives to P.P.D. Test		% of P.P.D. Negatives Histoplasmin Positives
					No. of P.P.D. Positives	No. of P.P.D. Negatives	
Delhi, rural	112	103	3	2.9	3	0	
Delhi, riverine	235	162	20	12.3	18	2	10%
Delhi, urban	400	301	15	4.9	15	0	

TABLE II.—Results of Investigations on 26 Histoplasmin Reactors

No. with no signs	3
" " multiple pulmonary calcifications	17
" " pulmonary calcifications and tuberculous lesions	3
" " hilar enlargement only	2
" " other diseases (cancer)	1
" " positive histoplasma culture	0

highest percentage of histoplasmin-positive reactors—namely, 12.3—was found among the population inhabiting Nai Basti and Jumna Bazaar areas. Even in the rural and urban areas our percentages for positive reactors are higher than those reported by Wahi in Agra and Sen and Ghosh in Calcutta.

During the course of another study which is being conducted in this institute, out of 30,000 chest x-ray films examined, 29 showed multiple pulmonary calcification without any evidence of any other disease in the lungs. Seven of these 29 were positive to the histoplasmin test. In the present study 17 out of 26 histoplasmin-positive reactors had multiple pulmonary calcifications.

The diagnosis of endemic histoplasmosis in a certain area will no doubt depend upon the four criteria laid down by Grayston and Furcolow (1956): (a) positive histoplasmin skin test, (b) positive histoplasmin serology, (c) development of miliary pulmonary calcification, and (d) isolation of *Histoplasma capsulatum* from the soil. Even though all the criteria have not been satisfied in the present survey, the significantly high percentage of histoplasmin-positive reactors and the not uncommon finding of multiple pulmonary calcification without any