pital as a day centre, but financed from hospital revenue.

In a paper by us and C. M. Hyland³ the case was put that a day ward should not be provided by the hospital service to make up for the deficiencies of the welfare services, but should highlight these deficiencies so that they can be remedied. De Martino⁴ stressed that as long as the finance of the National Health Service is divided into hospital, general practitioner, and local authority services, it is essential that the hospital service should spend its money only to perform a hospital function.

We wish to draw the attention of those in the specialty of geriatric medicine to the fallacious reasoning and inherent dangers of the Department of Health's current method of financing day hospital running costs, which will penalize the smaller and busier day hospital with a high turnover at the expense of the larger day centre type of day hospital.—We are, etc.,

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- ¹ Brocklehurst, J. C., *The Geriatric Day Hospital*, London, King Edward Fund for London, 1970.
- ² Andrews, J., and Joines, D., *Report of an Investigation into the Costs of the West Middlesex and Durham Day Hospitals*, 1965, unpublished.
- ³ Andrews, J., Fairley, A., and Hyland, M., *Journal of the American Geriatrics Society*, 1970, **18**, 378.
- ⁴ De Martino, J., *Medical World*, 1968, **106**, No. 1, p. 18; No. 2, p. 16.

Immunosuppressive Drugs in Rheumatoid Arthritis

SIR,—The place of so-called immunosuppressive agents in the treatment of rheumatoid arthritis and similar diseases is now one of the most important questions in clinical immunology. Controlled trials have shown definite benefit in rheumatoid arthritis. Thus, Mason and colleagues¹ using azathioprine in steroid-treated, late rheumatoid arthritis and a committee of the American Rheumatism Association² using cyclophosphamide in rheumatoid arthritis both obtained favourable results. Arising from these results, a statistically controlled study of cyclophosphamide, azathioprine, and sodium aureothiomallate in the treatment of the earlier stages of rheumatoid arthritis is under way. It seems important to find out if these immunosuppressive drugs are able to prevent the development of the morbid anatomical changes of rheumatoid arthritis when used in good time. The criteria of improvement, except the criteria of radiological improvement, are the same as those by which anti-inflammatory drugs are measured. Since at least one of the immunosuppressive drugs, namely 6-mercaptopurine, has been shown to have aspirin-like action in experimental inflammation in animals³ it seemed essential to rule out aspirin-like action in man. This question had to be answered to interpret any possible improvement in the criteria studied in the longer term trial.

Fourteen inpatients with definite or classical rheumatoid arthritis involving the proximal interphalangeal joints took part. They had not had gold, steroid, or anti-malarial treatment. Haematological indices were followed carefully. Measurements of

grip strength, total proximal interphalangeal joint girth, and assessments of morning stiffness were made by standard methods⁴ before 9.30 a.m. on each assessment day. All patients were treated with placebo for one week. This was to establish a stable base for comparison and to allow for the non-specific improvement which often follows the admission of patients to hospital. After this, patients were allocated to one of the six possible treatment sequences of the three active drugs, aloxiprin (aluminium polyoxyaspirin), azathioprine, and cyclophosphamide. Spacing placebo periods of two to five days separated the five or seven day periods on active drug to eliminate any possible carry-over from one drug to another. Azathioprine was given at a dose of 2.5 mg/kg body weight, cyclophosphamide 1.5 mg/kg, and aloxiprin at 6 g per day. We compared the mean readings at the end of the initial period of placebo treatment with those at the end of each period of active drug treatment.

Grip strength.—There were no differences between placebo, cyclophosphamide, and azathioprine. T-tests showed a small increase ($p=0.1$) with aloxiprin.

Joint Girth.—The total period of study was associated with a reduction in joint girth. Most of this reduction occurred in the initial period of placebo treatment. Significant further reduction ($p=0.05$) occurred with aloxiprin but not with azathioprine or cyclophosphamide.

Morning Stiffness.—Assessments gave no reliable data.

Subjective Assessment.—The patient (and sometimes her nurses) noted improvement in well-being and joint symptoms on aloxiprin and deterioration on change to placebo or immunosuppressive drugs in most instances.

Thus, in this double-blind, short-term, crossover trial of azathioprine, cyclophosphamide, and aloxiprin in 14 inpatients with rheumatoid arthritis aloxiprin caused the expected improvement, the other drugs little or none. We conclude that any benefits shown by immunosuppressive drugs in long-term treatment of rheumatoid arthritis are unlikely to be a reflection of an anti-inflammatory "aspirin-like" action, even though such actions have been demonstrated in experimental animals.—We are, etc.,

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- ¹ Mason, M., Currey, H. L. F., Barnes, C. G., Dunne, J. F., Hazleman, B. L., and Strickland, I. D., *British Medical Journal*, 1969, **1**, 420.
- ² American Rheumatism Association, *New England Journal of Medicine*, 1970, **283**, 883.
- ³ Page, A. R., Condie, R. M., and Good, R. A., *American Journal of Pathology*, 1962, **40**, 519.
- ⁴ Boardman, P. L., and Hart, F. D., *British Medical Journal*, 1967, **4**, 264.

Solubility Test for Hb S

SIR,—A rapid and highly reliable screening test for the presence of Hb S in whole blood is available as a commercial kit.¹ Exactly comparable results can be obtained by the following method, which is based on the original observations of Itano.²

A 2.24M buffer at pH 6.7 is made as follows:

K₂HPO₄, 220.3 g; KH₂PO₄, 132.45 g; saponin 5 g; water to 1,000 ml. Put 10 mg of sodium dithionite (Na₂S₂O₄) into a small test-tube (exact measurement is not required after the appearance of 10 mg has been appreciated). Add 1 ml of buffer and mix. Introduce 0.02 ml of whole blood (from a Hb pipette) and mix. Normal blood produces a clear purplish-red solution after 3–5 min; AS, SC, and SS bloods give a cloudy precipitate. The cost of the chemicals to provide 1,000 tests is about 8s.

There are circumstances in which it might be advantageous to distinguish AS from SS blood. This can be done by the use of a 1.8M buffer, (conveniently prepared from the preceding one by adding 2 ml of water to 8 ml buffer, which gives a 1.79M buffer). When a buffer of this strength is used in the test AS blood is soluble, while SS blood gives a precipitate; the reading is not quite as easy as with the standard test but definite enough to act as a preliminary screen. If the suspected SS blood is known to have a low Hb level, it is advisable to add two 0.02 ml amounts in the test. It is also wise to include known positive and negative controls.

Fuller details will be presented later.³—I am, etc.,

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- ¹ Ballard, M. S., Radcliff, E., Sakthadeo, S., and Schorr, J. B., *Journal of Pediatrics*, 1970, **76**, 117.
- ² Itano, H. A., *Archives of Biochemistry and Biophysics*, 1953, **47**, 148.
- ³ Cook, A., and Raper, A. B., *in press*.

Obesity and Respiratory Infection in Children

SIR,—May I correct the statement made by Dr. V. V. Tracey and his colleagues (2 January, p. 16), in which they state that I used the 70th weight percentile as a criterion of obesity in infants. In the paper to which they refer calculations were made using the accepted definition of obesity as "a weight which exceeds the mean weight for height and sex by 20% or more"; in terms of percentiles this would be equivalent to the 90th percentile or greater, the figure used by Dr. Tracey and colleagues, who chose the alternative criterion of obesity.

I am also surprised that they should think that there is little published work to confirm or disprove the clinical impression of the relationship between obesity in infants and respiratory infection. May I briefly summarize the findings of studies in this area?¹

A retrospective study of 345 infants admitted to hospital with lower respiratory infection showed that infants who were obese required more antispasmodic drug therapy, but were less severely affected than those who were of average weight. Obese infants comprised 30% of the number of infants admitted with lower respiratory infection. A prospective study comprised the study of 200 infants at intervals between 1 month and 1 year old. Ninety-five per cent of infants were examined at home; data were recorded on each visit of the weight, height, subcutaneous fat thickness, respiratory infections, and feeding. The main findings were: of the 200 infants 176 (88%) had respiratory infections, 41 (20%) had lower respiratory infections. There were 459 infections in the 200 infants, of which 62 (13.5%) were lower respiratory. Male infants showed a significant increase in lower respiratory infections compared with females ($P<0.01$).

There was a significant increase in the proportion of infants with infection who weighed 2.5 kg or less at birth, compared with those over