



FIG. 1.  
Effect of oil supplements on the iodine number of serum fatty acids in infantile eczema.

actually fell slightly. Infant DL was carefully observed in the hospital for about 3 months for any sign of a spontaneous remission before being given oil. No improvement occurred during this period and the iodine number remained low. Three weeks after oil was added to the diet, however, the skin became clear and the iodine number rose to the normal level as it had done in the other 2 treated cases.

## 7040 P

### Possible Mechanism of Crude Coal Tar Therapy in Infantile Eczema.\*

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The therapeutic value of ointments containing crude coal tar in infantile eczema has long been recognized. It is not infrequently noted in eczema cases showing extensive skin eruption that untreated

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areas, as well as those to which direct application of the tar is made, improve. This suggests that crude coal tar may have a systemic as well as a local effect.

In the light of the observations that the serum fatty acids of infants with eczema are less unsaturated than those of normal subjects of the same age<sup>1</sup> and that administration of oils high in unsaturated fatty acids causes an increase in the degree of unsaturation as well as a clinical improvement in the condition,<sup>2</sup> a preliminary study of the effect of local applications of tar ointment on the fatty acids of the serum has been made. Data from 3 cases followed over a period of several months are presented here.

Case 1, an eczematous male infant 15 months of age, showed values of 334 and 322 mg. iodine absorbed per 100 cc. of serum on 2 successive days at the height of an outbreak of eczema. Eight days after local treatment with crude coal tar ointment the patient had improved clinically and the iodine absorption had risen to 486. One and 2 months later the values were 494 and 520 respectively and the condition remained good. In subsequent cases the iodine number of the serum fatty acids was studied.

Case 2, an infant 5 months of age with severe eczema, was found during the active phase of the disease to have an iodine number of the serum fatty acids ranging between 79 and 81. After application of coal tar ointment for one week, which caused marked improvement in the condition of the skin, the iodine number was found to be 109. At the end of the second week of treatment it was 95 and two weeks later was 101. Active treatment was then omitted for 3 weeks, during which the skin remained entirely clear, except for the appearance of a slight eruption in the folds of the neck. The iodine number at the end of this period was 113.

Case 3, a 6-months-old infant with severe eczema showed an iodine number of the serum fatty acids of 78 before the ointment was applied. This had risen to 96 at the end of a 10-day period of treatment during which the lesions showed marked improvement. Four weeks after the tar was stopped the iodine number had again fallen to 84 and in 5 weeks it was found to be 76. Coincidentally with the fall in iodine number, there was a recurrence of the skin lesions. Tar was reapplied and in one week the iodine number of the serum fatty acids had risen to 93 and one week later to 103. At the end of the third week it was still 101. At the end of the fifth week the treatment was discontinued but there was no recur-

<sup>1</sup> Hansen, Arild E., *PROC. SOC. EXP. BIOL. AND MED.*, 1933, **30**, 1198.

<sup>2</sup> Hansen, Arild E., *PROC. SOC. EXP. BIOL. AND MED.*, 1933, **31**, 160.

rence of the eczema. One month after discontinuance of treatment the iodine number was found to be 97 and 2 weeks later still it was 112, the skin remaining clear. The patient was discharged from the hospital in good condition. Ten days later she returned with a marked generalized eruption and the iodine number determined at the height of eruption was 83.

The tentative conclusion drawn from these preliminary studies is that the mechanism by which external application of crude coal tar effects healing in infantile eczema has much in common with that observed when oils containing unsaturated fatty acids are fed. In both instances clinical improvement is accompanied or preceded by a return of the iodine number of the serum fatty acids from subnormal to normal levels.

## 7041 P

### Adrenal Insufficiency and Capacity for Sustained Work Output.

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During the past 2 years the writer has been investigating work output of adrenalectomized rats with the object of evaluating work capacity as a criterion of adrenal cortex insufficiency. Other questions which we hope to answer are: is the medulla necessary to maintain capacity for normal work? will the injection of extracts completely replace the rôle of the normally functioning cortex? and, is nervous innervation necessary for the normal secretory activity of the cortex? Several findings seem to be reliably established and to deserve report.

We have previously made a brief report on methods.<sup>1</sup> The gastrocnemius muscle of an intact animal is loaded with 100 gm. and is forced to contract 3 times per second by faradic stimulation. The animal is anesthetized with sodium luminal. Our setup allows temperature and humidity control. Four animals may be worked simultaneously, the electrodes to each animal being connected in series allowing the same impulse to stimulate each animal. Automatic recording devices are used. Each animal receives 5 cc. of a 10% dextrose solution through subcutaneous injection every 6

<sup>1</sup> Heron, W. T., Ingle, D. J., and Hales, W. M., *Science*, 1932, **76**, 550.