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## The Use of Pyridoxine in the Treatment of Egyptian Pellagrins.

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*Spies et al.* (1939) were the first to draw attention to the beneficial effect of vitamin B<sub>6</sub> in nutritional diseases including pellagra and beri-beri. They reported a case of pellagra in which within 24 hours of one injection of 50 mg. pyridoxine the patient, previously unable to walk a few steps, was able to walk two miles.

*Rosenbaum et al.* (1942) reported similar beneficial effects on the muscle power of pellagrins; the results were measured by a bedside leg or arm test, the patient raising a weight regularly until fatigue set in.

In Egypt, pellagra is extremely common among peasants for whom normal muscle power is of the greatest importance. It was thought advisable to try the effect of pyridoxine on these patients and to compare muscle power before

and after the administration of pyridoxine. This preliminary study was made on 7 male patients, all of whom showed fairly advanced pellagrous symptoms, mainly rash and diarrhea. They were all kept on full diet and then nicotinic acid was given in daily doses of 100 mg. intramuscularly or pyridoxine<sup>1</sup> in daily doses of 50 mg. intravenously, or both were given together.

**Method:** A bedside spring ergograph was used. It consists of a strong hollow spring-manometer connected by rubber tubing to a strong rubber ball which, when compressed by the hand, slightly opens the spring and raises a rigid lever attached thereto. The method was explained to the patient who was then trained to use the ergograph. The ergogram could be obtained either by rhythmically compressing the ball or by sustained compression to the point of fatigue. The sustained grip was preferred for the ease of comparison which was made by superimposing the curves. The comparison of the muscle grips was obtained by measuring the area of the ergograms.

**Results:** The investigation was carried out on 7 cases late in the pellagrous winter season of 1946. Of these, one received a course of nicotinic acid alone, two were given nicotinic acid and then pyridoxine, two were given pyridoxine alone and the last two were given nicotinic acid and pyridoxine simultaneously.

Case reports:

**Case 1:** Patient, 20 years old, came with the third attack of pellagra, and a history of intermittent rash and diarrhea for 3 years. He had anaemia and bilharzial hepatosplenomegaly. Nicotinic acid was given for 12 days and there occurred only a slight increase in the muscle grip of about 15% as can be seen from the superimposed grip curves before and after treatment (see fig. case 1).

**Case 2:** Patient, 25 years old, came with pellagrous rash of two months duration, anaemia, bilharzial hepatosplenomegaly. He had ankylostoma, ascaris and Bilharzia Mansoni ova in stools, his nails were spoon-shaped and the haemoglobin was 25%. He was given nicotinic acid injections and tablets for one month together with daily intramuscular liver extract injections until all pellagrous symptoms disappeared. However, his muscle grip showed only an insignificant increase. He was then put on 50 mg. pyridoxine intravenously with a resultant marked increase in muscle grip; about 23% after the first injection and 94% after the second injection (see fig. case 2).

**Case 3:** Patient, 39 years old, came with pellagrous rash of 6 months duration, signs of ariboflavinosis and anaemia. There was bilharziasis of the liver, a hypogastric bilharzial mass and the spleen had been removed 3 years before admission. This patient was given both nicotinic acid and pyridoxine simultaneously for 2 weeks with a definite marked increase in the muscle grip of about 130% (see fig. case 3).

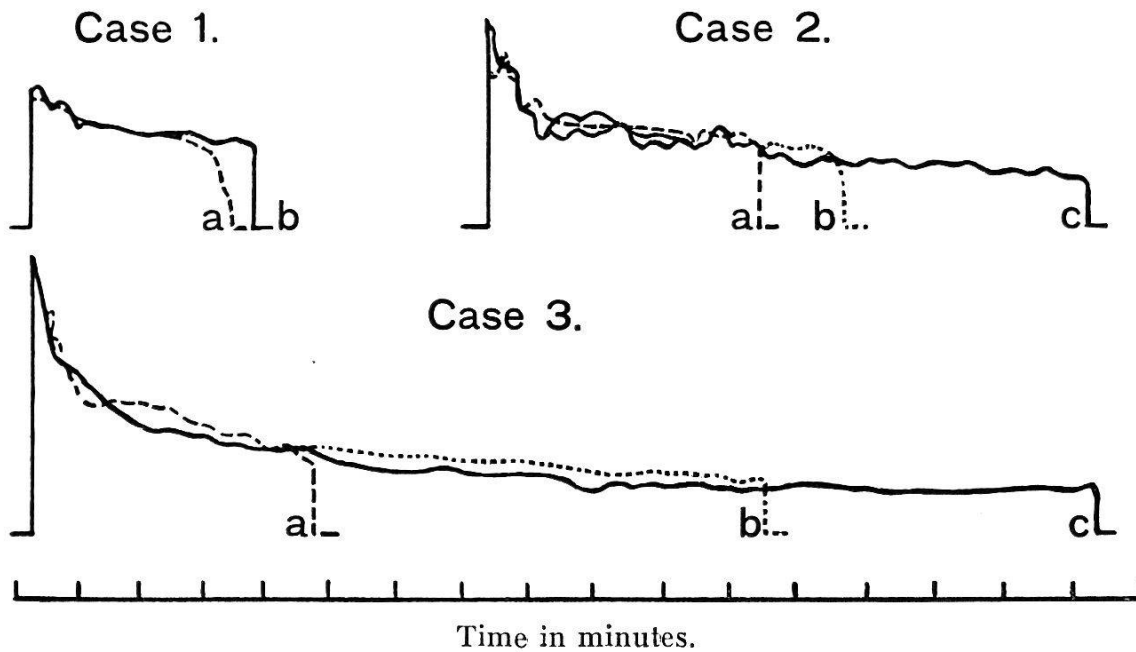
**Case 4:** Patient, 60 years old, had pellagrous rash and diarrhea of one month duration, general weakness, palpitation and dyspnea on slight exertion. Pyridoxine was given alone for 8 days and the muscle grip increased by about 100%.

**Case 5:** Patient, 20 years old, came with the 2nd attack of pellagra of two months duration, diarrhea, signs of ariboflavinosis and anaemia. Under pyridoxine alone for 8 days the muscle grip increased by about 60%.

**Case 6:** Patient, 27 years old, came with 2nd attack of pellagra of 29 days duration and a history of diarrhea for four years. He was put on nicotinic acid

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<sup>1</sup> The stock of pyridoxine, in ampoules and tablets, was kindly supplied by F. Hoffmann-La Roche & Co. Ltd. Company, Basle, Switzerland.



#### *Description of figure.*

Superimposed curves of the sustained muscle grip of pellagrins.

*Case 1:* a, before and b, after 12 days course of nicotinic acid.

*Case 2:* a, after 30 days course of nicotinic acid injections and tablets; b and c, 24 hours after the 1st and the 2nd injection of pyridoxine respectively.

*Case 3:* a, before and b and c after the combined treatment with nicotinic acid and pyridoxine, 7 and 14 days respectively.

for one week with no appreciable change in the muscle grip. Pyridoxine was then given for 6 days with marked increase in the muscle grip which was maintained for a prolonged period. The final increase was about 75% in strength and about 25% in duration.

*Case 7:* Patient, 30 years old, came with general weakness, wasting pellagrous rash, diarrhea, signs of ariboflavinosis and anaemia. Ankylostoma ova were present in the stools. He was put on iron, nicotinic acid and pyridoxine for 13 days and his muscle grip was very poor in the beginning, showed an increase of about 150%.

#### *Summary.*

The muscle power of Egyptian pellagrins was measured by a bedside spring ergograph and found to be very poor. The usual treatment of full diet and nicotinic acid improves the muscle power only very slightly. Pyridoxine restores the muscle power fairly quickly and seems to be an essential factor in the comprehensive treatment of pellagra.

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