

An underactive hypothalamo-pituitary-adrenal axis in a shift worker with chronic fatigue syndrome

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Introduction

Chronic fatigue syndrome is characterized by a state of chronic fatigue that persists for more than 6 months and has no clear cause.

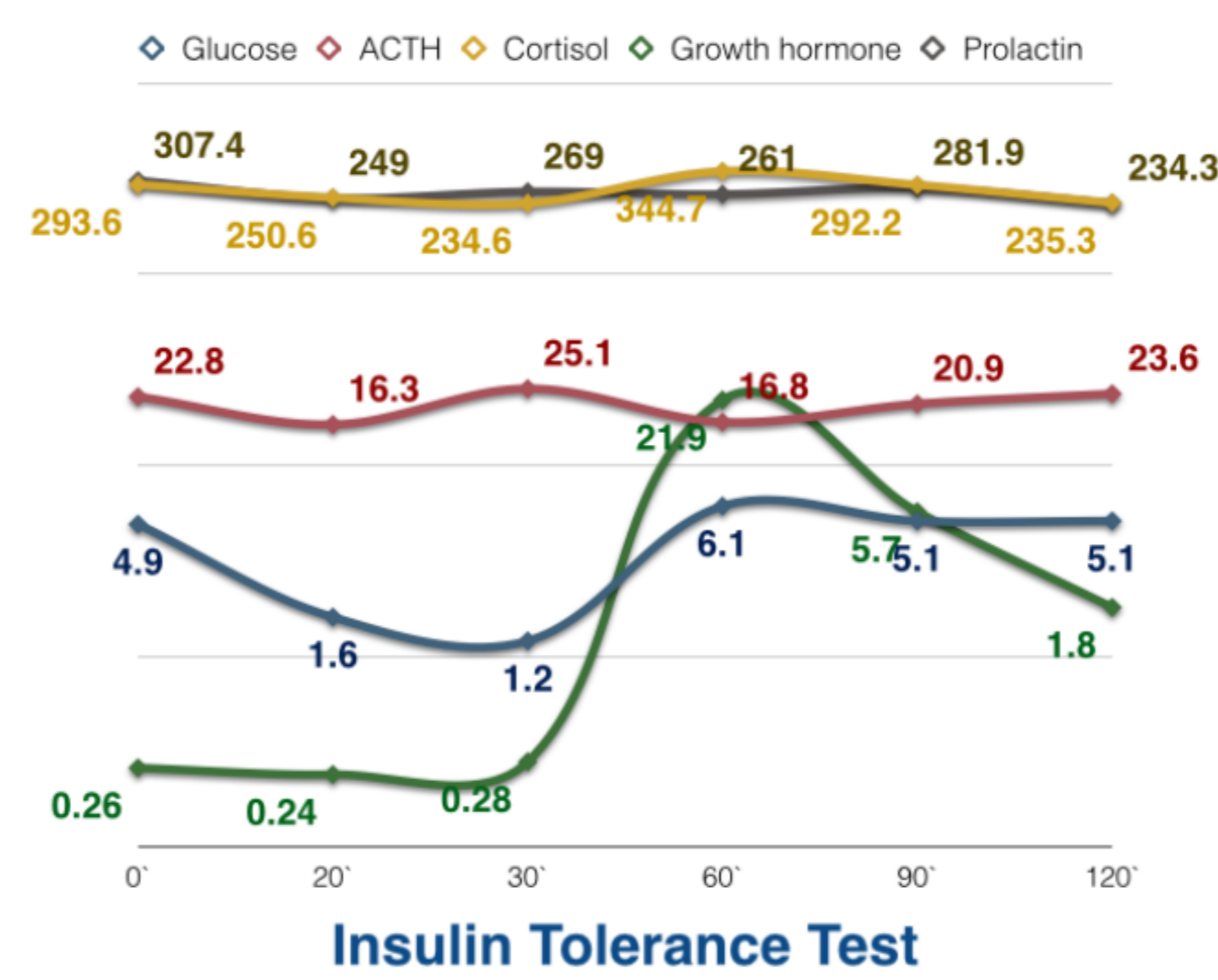
Case report

A 38-year-old male was referred to our Clinic due to chronic fatigue, unrefreshing sleep, substantial impairment in concentration, headaches and postexertional malaise lasting from 6 to 9 months for 9 years.

As a mechanical engineer he was working in shifts 12h day/24h break/12h night/72h break for 9 years. Other than allergy to penicillin he denied any significant health issues.

Complete blood count, liver and kidney function tests, basal gonadotropin, TSH, prolactin, ACTH, cortisol and testosterone levels were normal. Hepatitis B, C, HIV and anti nuclear antibodies were negative. Chest X ray and abdominal ultrasound were normal. Psychiatrist excluded a psychiatric disorder.

Standard and 1mcg **Synacthen test** showed inadequate peak cortisol 419nmol/l and 532nmol/l, respectively.

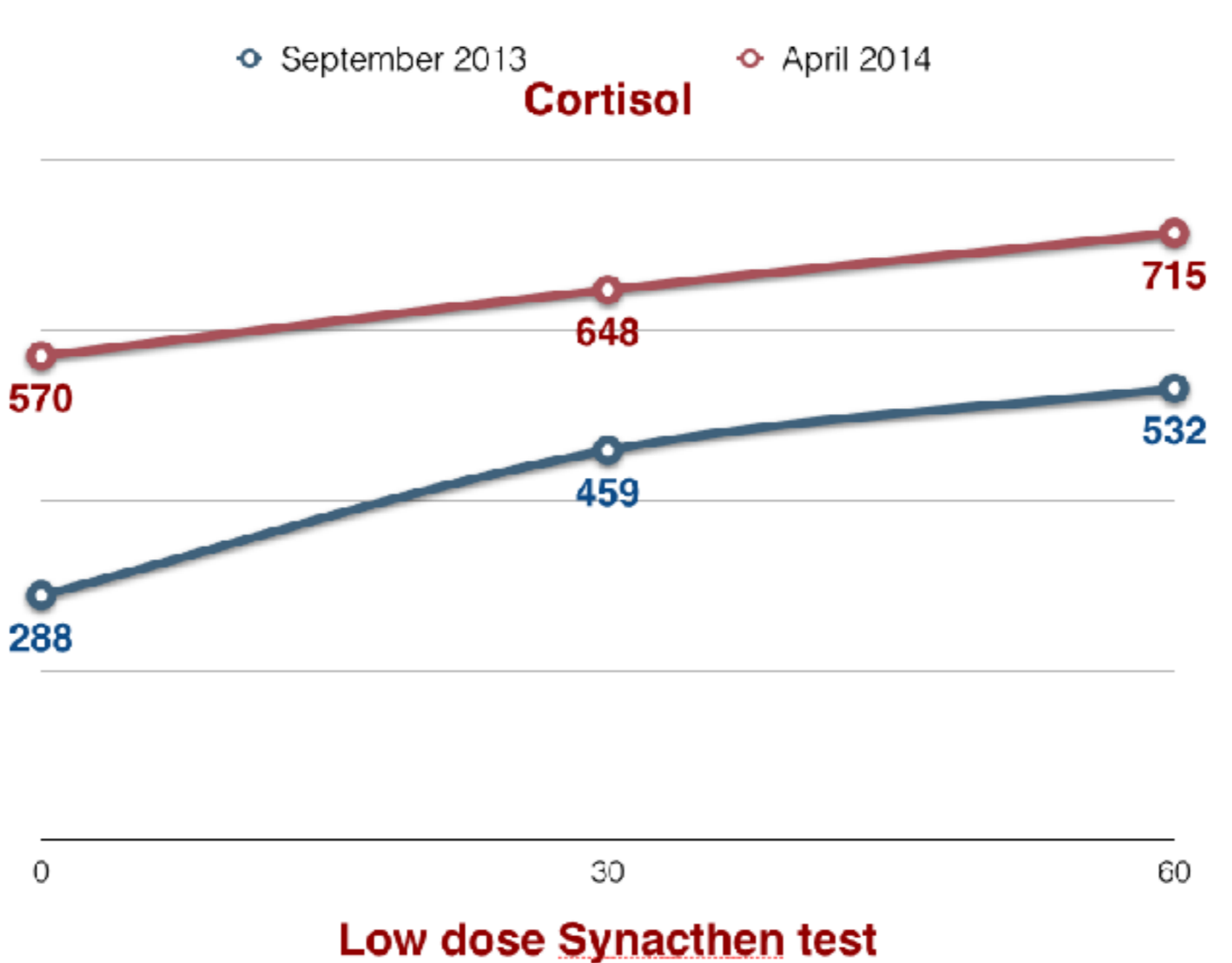
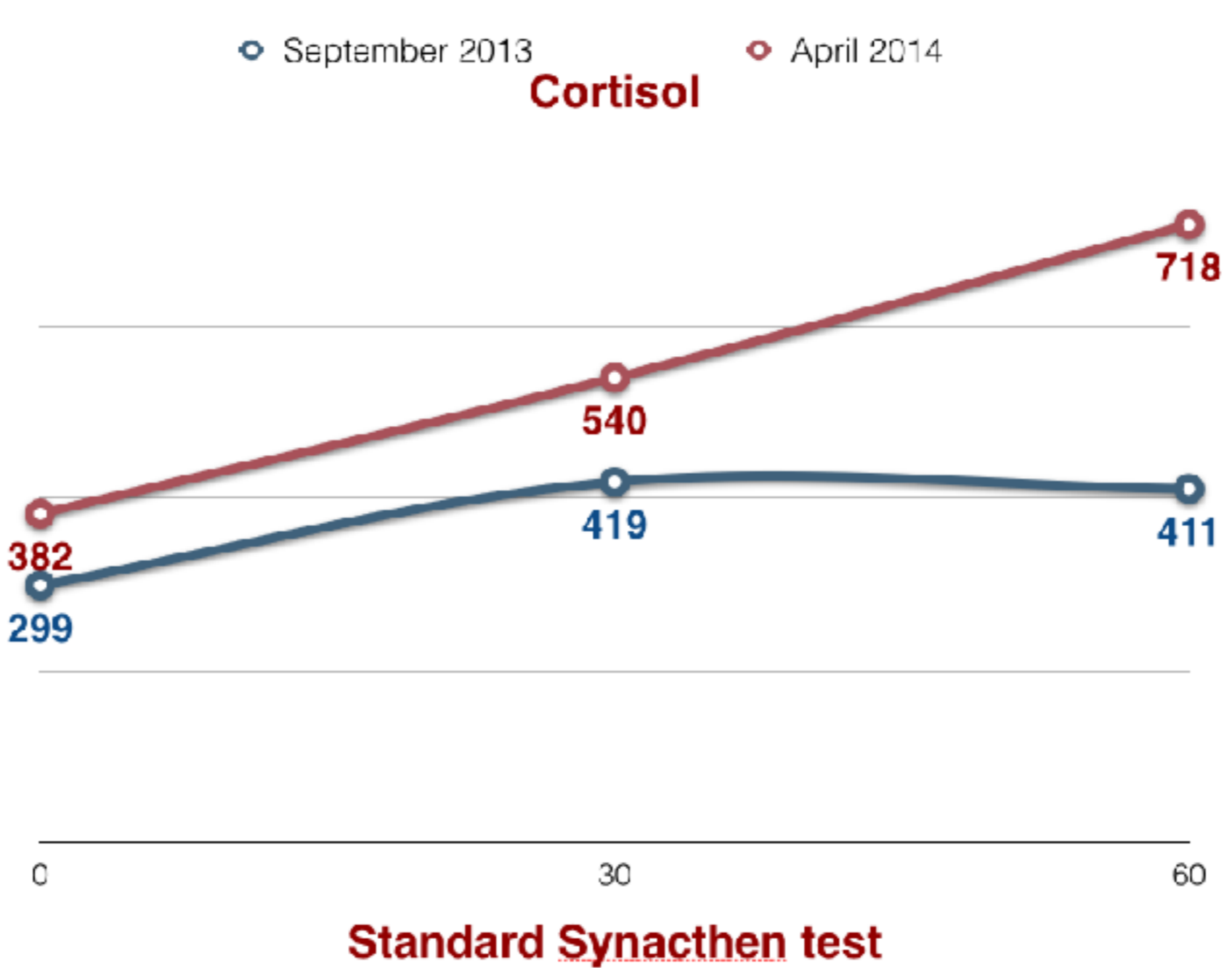


Insulin tolerance test, with hypoglycemia of 1.2mmol/l in 30', showed inadequate peak responses of ACTH 25ng/L in 30', cortisol 345nmol/l in 60', prolactin 282mIU/l and low normal growth hormone 22mIU/L in 60'.

Endocranium with hypothalamo-pituitary region MRI was normal. The patient was diagnosed with chronic fatigue syndrome (CFS).

As we advised he stopped working in shifts and commenced a low-grade physical activity with cognitive - behavioral therapy.

After 6 months he was complaint free with adequate cortisol levels in standard and 1mcg **Synacthen test**, 718nmol/l and 715nmol/l, respectively. After a year he was still complaint free with basal cortisol 570nmol/l.



Conclusion

The cause of CFS in our patient was the long-term exposure to a stressor - shift work, which led to a circadian disruption, crashing adaptive mechanisms and leading to a disease.