

## The onset of HLA-B27-associated diseases in diabetic patient during a period of religious fasting.

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### Abstract

**The association of HLA-B27 with its associated diseases is far from complete. The role of HLA-B27 in disease susceptibility is still not known, although many suggestions have been proposed. We are now presenting a diabetic patient who suffered three different HLA-B27-associated diseases (including acute anterior uveitis, ulcerative colitis and ankylosing spondylitis) in the last three years as a result of prolonged fasting for one week each year.**

**Keywords:** HLA-B27, Fasting, Ankylosing spondylitis, Ulcerative colitis, Acute anterior uveitis.

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### Introduction

The association of HLA-B27 with its associated diseases is far from complete. The role of HLA-B27 in disease susceptibility is still not known, although many suggestions have been proposed. We are now presenting a diabetic patient who suffered three different HLA-B27-associated diseases in the last three years as a result of prolonged fasting for one week each year.

### Case Report

The patient was a 46-years-old policeman who had the history of obesity, diabetes and hypertension. He was a Shaolin lay disciples and would keep on fasting for at least one week at the Shaolin Temple once each year since 2014. During the fasting period he did not take anything except water. On Nov 27th, 2014, He was sent to hospital for emergency 5 day after fasting. He was diagnosed as having ankylosing spondylitis (AS) with HLA-B27 (+). AS is a chronic, multisystem inflammatory disorder involving primarily the sacroiliac (SI) joints and the axial skeleton. The diagnosis of AS was made by rheumatologist according the history, signs and symptoms of the patient. One year later, he was diagnosed as having ulcerative colitis (UC) just after finishing fasting on Dec 12 2015. UC is a disease that causes inflammation and ulcers in the lining of the large intestine. It usually affects the lower section (sigmoid colon) and the rectum. His diagnosis was mad by digestive physician according his history, signs and symptoms. Interestingly, he was diagnosed with acute anterior uveitis (AAU) five days after the completion of fasting on Dec 14 2016. His diagnosis was

mad by oculist according his signs of anterior uveitis include dilated ciliary vessels, presence of cells and flare in the anterior chamber, and keratic precipitates ("KP") on the posterior surface of the cornea. Each time he would successfully lose weight, had his blood pressure and glucose well controlled without medicine after prolonged fasting (Table 1).

### Discussion

HLA-B27 is considered to be an important factor in the pathogenesis of HLA-B27 associated diseases, but different diseases may develop along different lines. However, it is rare to have one patient taken three different HLA-B27-associated diseases. This case further confirmed that UC, AS and AAU may be different clinical manifestations of HLA-B27 abnormality.

Although the role of HLA-B27 has been the focus of intense investigation for the last 30 years, none of the postulated mechanisms has been proven or eliminated [1]. Approximately 40% of patients with AS will experience a sudden onset of a unilateral anterior uveitis sometime during the course of their disease. Patients with AAU, especially those who are HLA-B27 positive, should be questioned about inflammatory low back pain and also evaluated for other clinical features of spondyloarthropathy (SpA). Our case suggested that prolonged fasting may lead to the onset of HLA-B27-associated diseases in diabetic patient. Preliminary data [2] indicating that HLA-B27 misfolding may be a stimulus for activating the IL-23/IL-17 axis, suggests aovel mechanism that may explain, at least in part, the role of HLA-B27 in colitis in transgenic rats. Prolonged fasting

**Table 1.** Data of the diabetic patient with HLA-B27 associated diseases as a result of prolonged fasting

Year	Fast last	Disease occur	Time to Onset	BW (kg) Pre/post	BP (mmHg) Pre/post	FBG (mmol/l) Pre/post
2016	7d	AAU	12d	92/83	155/98; 138/87	9.1/6.1
2015	7d	UC	7d	93.5/82	160/102; 135/90	8.7/5.9
2014	5d	AS	5d	95/86	155/100; 130/85	9.5/6.3

UC: Ulcerated colitis; AS: Ankylosing Spondylitis ; AAU: Acute Anterior Uveitis; BW: Body weight; BP: Blood Pressure; FBG: Fasting Blood Glucose

may lead to metabolic disorder of fat, sugar and protein in diabetic patients. This kind of metabolic disorder may be one of the reasons of HLA-B27 misfolding which would cause HLA-B27-associated diseases. In addition [3], metabolic inflexibility associated "immunological fitness" induced by fasting may be another possible reason.

### **Conclusion**

Chinese traditional medicine [4] suggests that bigu (refraining from eating grain) would do no harm to human body. However, our findings suggest that prolonged fasting in diabetic patient may cause the onset of HLA-B27 related diseases. The relationship between the prolonged hunger in diabetic patients and the general disease need further investigation.

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