PERSPECTIVE

Acromegaly: Hyperpigmentation of the skin

Allen James*

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INTRODUCTION

Acromegaly, cafe-au-lait hyperpigmentation of the skin, and polyostotic fibrous dysplasia are the hallmarks of McCune-Albright Syndrome (MAS). Medical management is the preferred treatment since ablative therapy in affected patients must focus on the entire pituitary gland. Somatostatin and Growth Hormone (GH) receptor inhibition are two targeted medicinal treatments that have showed promise in achieving biochemical remission.

Acromegaly is a chronic, slowly progressing condition that is typically brought on by Pituitary Neuroendocrine Tumours that produce Growth Hormone (GH) (PitNETs). Acromegaly affects between 5.3 and 6.9 people per 100,000 people, with a little female predominance. The condition is often identified in the fifth decade of life. External appearance changes, severe systemic consequences like cardiovascular, metabolic, and osteoarticular comorbidities, and an increased risk of malignancy are all frequent clinical symptoms. The higher mortality in acromegaly patients is largely brought on by cardiovascular illnesses and cancers. The risk of complications or mortality is comparable in biochemically regulated patients to that seen in the healthy population.

When the epiphyseal plates are still open during infancy, youth, or adolescence when the GH excess develops, exceptionally long stature is seen. The diagnostic delay, which varies between 5 and 10 years, is still too long despite significant advancements in acromegaly detection and treatment in recent years. Numerous factors influence the wide range of clinical outcomes that can arise during the course of the disease. Personalized treatment could be used if the natural history of acromegaly was better understood. This would result in increased biochemical control effectiveness, which continues to be the best indicator of a patient's prognosis. We looked into whether sex was related to how acromegaly progressed because several diseases exhibit sexual dimorphism. It was proposed that the GH-Insulin like Growth Factor-1 (IGF-1) axis may be affected by estrogens and androgens.

DESCRIPTION

There has also been evidence of an age related phenotype of acromegaly. Younger individuals are more likely to have an aggressive condition that is resistant to medical treatment when they first present. The sparsely granulated subtype of somatotroph tumour, higher IGF-1/GH bioactivity, T2 hyper intensity on Magnetic Resonance Imaging (MRI), or larger tumour size are additional characteristics that have been linked to a worse prognosis. This study sought to assess the relationship between sex and age at diagnosis and clinical characteristics, comorbidities, biochemical condition at diagnosis, and disease severity.

Although there was no difference in the size of the pituitary tumour between male and female subjects, there was a negative relationship between the tumor's size and age.

Elderly individuals with acromegaly had higher rates of arterial hypertension, nodular goitre, and diabetes mellitus with glucose intolerance than did middle aged and younger participants.

Sexual dimorphism is present in some diseases. Both pituitary tumours and autoimmune disorders exhibit this feature. In particular for prolactinomas, some research point to estrogens as a potential cause. Women were impacted with acromegaly more frequently than men in the majority of studies.

There is convincing evidence, based on a number of investigations, that gonadal steroids modulate the somatotropic axis. Estrogens limit GH release, which results in a reduction in the liver's ability to produce IGF-1. Contrarily, testosterone raises the level of GH. The baseline and nadir GH levels in our sample were unaffected by sex; however, male patients had higher %ULN IGF-1 levels. The IGF-1 concentration was significantly lower in women in a meta-analysis by Dal, et al. That included 3567 cases (mean difference, 106 g/l), while the nadir GH concentration was similar in both sexes. A recent study 31 also revealed that the BMI, sex, and oestrogen in oral contraceptives are additional variables influencing the nadir GH level following glucose load.

Age was inversely linked with both GH and IGF-1 values in the study sample. It was noted that the biochemical state varied with age. This finding was later validated in a number of other investigations, where older patients showed lower levels of GH and IGF-1 than middle aged and younger people did. Our research also revealed a favourable correlation between the tumour diameter and basal GH level.

A significant element in predicting treatment outcomes is the tumour size at the time of diagnosis. Aggressive conduct is linked to larger pituitary tumours. Like other studies findings, we found no correlation between sex and tumour diameter in our group. However, other scientists claimed that women's tumours were greater in size.

The GH levels and tumour growth showed a favourable correlation, which is already well-known. Young individuals may exhibit a more aggressive phenotype, manifested by a greater tumour size and higher GH levels, due to age related modifying factors such sex hormones or metabolic processes. This is consistent with the findings of our study, which revealed that after transsphenoidal surgery, acromegaly most frequently returned in younger patients.

CONCLUSION

Patients with acromegaly may develop hypogonadism as a result of prolactin hypersecretion or the tumor mass effect. However, in the absence of hyperprolactinemia, hypogonadism was seen in patients with micro adenoma. Men were found to have hypogonadism more often than women did, and younger individuals also had it. Patients with acromegaly have higher rates of cardiovascular disease, nodular goiter, and diabetes mellitus than the normal population. Although older people showed a reduced phenotype of acromegaly, long-term exposure to excessive GH/IGF-1 levels has lasting effects. Additionally, senior acromegaly patients require particular care and biochemical regulation; as a result, these aspects should be the main emphasis of patient management in this population. Acromegaly is still difficult to diagnose, therefore early discovery depends on doctors' expertise of the condition. Our findings indicate that the patient's sex and age at the time of diagnosis affect the progression of acromegaly.

Department of Endocrinology, Stanford University, Washington DC, United States

Correspondence: *Allen James, Department of Endocrinology, Stanford University, Washington DC, United State; E-mail:* jamesa12@hotmail.com

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Men were more likely to experience hypogonadism and higher IGF-1 levels, whereas younger patients were more likely to experience hyperprolactinemia, hypogonadism, and macroadenoma.