Research

Clinical Brief: Acromegaly in Adults

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Abstract

Acromegaly is a condition affecting the growth of extremities and facial features, in addition to increasing the risk of life-threatening diseases such as obesity, diabetes, and cardiovascular disease among adults. The National Organization of Rare Disorders classifies acromegaly as an orphan disease due its rare occurrence; however, medical researchers and practitioners suggest that the prevalence is much higher than current estimates. The health risks associated with this condition indicate a need for additional approaches to recognition and clinical diagnosis among healthcare providers.

Epidemiology

Acromegaly is a clinical disorder associated with excessive levels of growth hormone (GH) and insulin-like growth factor (IGF-I) generally caused by a benign pituitary adenoma in adults.[1] The prevalence rate of acromegaly has been estimated at 6% in the U.S.[2], but more recent European studies have suggested that it could be as high as 13%.[1,3,4] Although the disease is most likely under-diagnosed, current prevalence estimates suggest that about 60/1,000,000 people suffer from acromegaly with 3-4/1,000,000 new cases developing annually.[5] The most recognizable symptoms include disproportionate growth of the facial features and extremities; however, there are symptoms that pose more serious health risks including excessive weight gain, sleep apnea, headaches, and carpal tunnel syndrome.[2,6] If left untreated complications can include cardiovascular disease, diabetes, hypertension, hypopituitarism, or vision impairments.[2,6] A complete list of symptoms and complications provided by the National Institutes of Health can be found in **Table 1**.[2] Due to the often painful abnormalities that occur in acromegaly patients, the condition may have a negative effect on physical activity levels. Low physical activity levels may then exacerbate problems related to weight gain leading to increased risk of cardiovascular disease, hypertension, and type II diabetes. [2,7] The mortality rate of acromegaly is nearly three times that of the general population with primary causes related to cancer and cardiovascular disease.[8,9]

Table 1. Symptoms and Complications of Acromegaly as indentified by the NIH[2]

Symptoms	Body odor Carpal tunnel syndrome Decreased muscle strength Easy fatigue Enlarged bones of the face Enlarged feet Enlarged hands Enlarged glands in the skin (sebaceous glands) Enlarged jaw (prognathism) and tongue Excessive height (when excess growth hormone production begins in childhood) Excessive sweating Headache Hoarseness Joint pain Limited joint movement Sleep apnea Swelling of the bony areas around a joint Thickening of the skin, skin tags Widely spaced teeth Widened fingers or toes due to skin overgrowth with swelling, redness, and pain *Other symptoms that may occur with this disease:* Excess hair growth in females Unintentional weight gain
Complications if Untreated	Arthritis Cardiovascular disease Carpal tunnel syndrome Colonic polyps Glucose intolerance or diabetes High blood pressure Hypopituitarism Sleep apnea Spinal cord compression Uterine fibroids Vision abnormalities

Clinical Assessment & Treatment

Because the clinical diagnosis of acromegaly is often related to the noticeable enlargement of facial features, hands, and feet, diagnosis and treatment is frequently delayed several years (mean delay of 6-10 years after onset) with the primary care provider being the most likely to make the diagnosis.[1,10-12] Since chiropractors, physical therapists, and other manual manipulation providers are commonly exposed to a patient's body for extended sessions, this provides a unique opportunity to assess for signs of acromegaly. Multiple musculoskeletal and epidermal features are common in patients with the condition. Among those are increased thickness of the tissue of the hands and feet, enlarged jaw, arthritis, carpal tunnel syndrome, hypertrophy of the frontal bones, and widely spaced teeth. Patients with acromegaly also may exhibit oily skin, multiple skin tags, and excessive perspiration.[13]

If healthcare providers notice any of the above mentioned symptoms, particularly among patients with pre-existing cardiovascular problems, a brief screening survey can be administered. A simple two-question survey has been developed for healthcare providers who suspect acromegaly in patients.[14] The screening questions are:

- Has your shoe size increased over the last 5 years?
- Did you have to change your wedding ring or ring over the last 5 years because it became tight?

A "yes" response to one or both of these questions provides a rationale for the healthcare provider to refer patients for diagnostic screenings for acromegaly.[14] While there are certainly other factors (primarily weight gain) that may impact shoe or ring size, these changes are rare within a 5-year period among adults. This simple screening has shown potential to assist with diagnosing previously unidentified acromegaly cases to the extent that prevalence rates increased from the estimated 60 /1,000,000 to 294 /1,000,000 within one study of 17,000 patients.[12] Diagnostic screenings can include blood tests for increased GH and IGF-I levels, as well as MRI scans to detect a possible pituitary adenoma.[13,14] Treatment options include surgery for removal of adenoma, conventional radiation, and pharmacological options for hormone regulation.[15]

Early Screening Among Healthcare Providers

Although acromegaly is considered to be highly treatable, patient success depends greatly on early diagnosis. Most physiological changes progress slowly and go unnoticed by patients and family members; therefore, healthcare providers are vital in the early diagnosis process. Chiropractors and other manual manipulation providers regularly see patients who experience symptoms related to acromegaly such as joint pain and swelling, limited joint movement, arthritis, and carpel tunnel syndrome. They are also in a unique position to observe other possible symptoms such as skin tags, excessive sweating, and enlargement of extremities or

facial features. Increased awareness of the symptoms and the provision of a brief screening and referral has the potential to significantly reduce mortality related to untreated acromegaly.

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