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Role of insulin and insulin resistance in androgen excess disorders

Unluhizarci K *et al.* Insulin resistance and androgen excess disorders

Kursad Unluhizarci, Zuleyha Karaca, Fahrettin Kelestimur

Abstract

Insulin has complex effects on cell growth, metabolism and differentiation which is mediated by a cell-surface bound receptor and eventually a cascade of intracellular signaling events. Among the several metabolic and growth promoting effects of insulin,

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Insulin resistance and androgen excess are the **cardinal phenotypic features of polycystic ovary syndrome (PCOS)**. The severity of **hyperandrogenism and metabolic dysfunction in PCOS** are closely correlated. Aldoketoreductase type 1C3 (AKR1C3) is an

Author: Michael O'Reilly Publish Year: 2015

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severe insulin resistance, ovulation rates have reached 92%[34]. **Insulin-sensitizing agents logically are more likely to induce ovulation in women with higher levels of insulin resistance[32,33,34]**. Therefore, insulin-sensitizing agents are most useful for use in the HAIR-AN subset of PCOS. Insulin-sensitizing agents also improve hyperandrogenism.

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Insulin Resistance

Medical Condition

A condition where the body does not respond to insulin.

 Very common (More than 3 million cases per year in US) Requires lab test or imaging Treatments can help manage condition, no known cure Can last several years or be lifelong

The exact cause is not known, but contributing factors include obesity, sedentary lifestyle, and chronic stress. Insulin resistance is generally asymptomatic. Symptoms of high blood sugar include lethargy, difficulty concentrating, increased thirst and hunger. Treatment consists of self-care practices such as physical exercise and maintaining a healthy weight.

Symptoms

Insulin resistance does not present with symptoms until it leads to high blood sugar levels, which may cause:

- Darkening of armpits, neck, and groin
- Absence of menstruation
- Lethargy
- Brain fog
- Hunger

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Thus, androgen excess in women, as documented in those with polycystic ovary syndrome, can **adversely affect insulin sensitivity, promoting visceral adiposity, adipose tissue dysfunction, and, ultimately, insulin resistance.** © 2019 S. Karger AG, Basel.

Author: Evanthia Diamanti-Kandarakis, Olga Papalou, Eleni A Kandarakis

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