Remission of acanthosis nigricans after treatment with metformin in a teenager

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Introduction: Acanthosis nigricans is a condition commonly associated with disorders characterized by insulin resistance. Data regarding the treatment of acanthosis nigricans are still insufficient.

Case report: A 10- year old overweight girl (BMI=24 kg/m2) presented at the obesity outpatient clinic. Her family history was negative for metabolic syndrome. Clinical examination revealed extensive acanthosis nigricans involving the neck and armpit . Laboratory tests were normal apart from high insulin levels related to glucose levels, that confirmed insulin resistance (HOMA-IR=14) (Table 1). The patient followed hypocaloric diet and exercise and had no clinical improvement one year after. Acanthosis nigricans expanded involving neck, armpit and thorax (Figure 1A), as insulin resistance index increased (HOMA-IR=28.6). Metformin at a dose of 1700 mg daily was added to the diet and exercise with good clinical response. Insulin resistance decreased significantly (HOMA-IR=5.85) and acanthosis nigricans improved during the next 12 months (Figure 1B). Moreover there was improvement in OGTT during the follow-up period (Table 2).

Figures: 1A **1B**

Time (min)	0	30	60	90	120
9,5 years					
Blood Glucose (mg/dl)	93	150	147	109	110
Insulin (µUI/ml)	62,9	626,4	759,4	394,3	396,5
10,5 years					
Blood Glucose (mg/dl)	88	137	134	109	122
Insulin (µUI/ml)	132,0	469,0	546,0	470,0	530,0
11,5 years					
Blood Glucose (mg/dl)	80	159	153	138	119
Insulin (µUI/ml)	29,6	300,0	300,0	281,0	80,8
13 years					
Blood Glucose (mg/dl)	81	159	167	138	125
Insulin (µUI/ml)	11,2	130,0	116,0	110,0	94,9

Table 2. Oral glucose tolerance tests (OGTT)

Age (years)	9,5	10,5*	11,5	13
HOMA-IR	14,44	28,68	5,85	2,24

Table 1. HOMA-IR before and after metformin
***Onset of metformin treatment**

Conclusions: Metformin may be an effective treatment option in some cases of acanthosis nigricans. Larger studies are necessary to establish the efficacy and safety of agents that reduce hyperinsulinemia and insulin resistance in the treatment of acanthosis nigricans.

References

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