

# THE RELATIONSHIP BETWEEN ACANTHOSIS NIGRICANS AND VITAMIN D LEVELS IN OBESE CHILDREN

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**Aim:** Acanthosis nigricans (AN) is the most important skin complication of obesity. In our study, the relationship of acanthosis nigricans and vitamin D levels was evaluated in children.

**Methods:** Obese children aged between 6 and 18 years old, who were examined in the pediatric endocrinology outpatient clinic, were included. The patients' anthropometric measurements and laboratory results and vitamin D levels were recorded.

**Results:** Eighty nine obese children were evaluated. The mean age of the cases was 11,51±3,04 years old. Of the cases, 57.1% were female (n=51) 42.9 % (n=38) were male, 59,6% of them were pubertal (n=53) while 40,6 of them were prepubertal (n=36). In 60,9 % of cases (n=53) AN was determined. In the cases, Low vitamin D level was found in 83.1% (n=74) of cases. Obese children with AN have lower levels of vitamin D (11,59±4,33; 14,83±7,52p=0.013) and significantly higher insulin levels and HOMA-IR p=0.005, p=0.001). Obese children who have low vitamin D levels have higher HOMA-IR (5.43±2.20; 4.04±1.72 p=0.035).

**Conclusions:** In our study, a relationship between acanthosis nigricans and vitamin D levels were detected. Acanthosis nigricans is a skin sign that can be easily detected by clinician. It is an important and easy-to-detect dermatosis that helps determine patients at risk of metabolic complications and related with low vitamin D levels in obese children.

**Key words:** obesity, children, acanthosis nigricans, vitamin D

Table 1. In obese children, demographic and laboratory features of those having or not having acanthosis nigricans

	Children with acanthosis nigricans n=55	Children without acanthosis nigricans n=34	p
Age(years)	12.23±2.64	10.92±2.82	0.03
Sex (girl/boy)	32/23	19/15	0.50
Pubertal/ Prepubertal	35/20	17/17	0.26
BMI	39(38,84±60,03)	28(28,56±17,63)	0,383
BMI-SDS	45(18,73±14,91)	15(22,95±9,39)	0,207
Glucose (mg/dl)	53(92.87±9,22)	33(90±6,22)	0.089
Insulin (U/L)	55(24,69±19,24)	29(15,55±9,42)	0.005
Hba1c (%)	50(5.38±0,87)	31(5.44±0,34)	0.703
Homa-IR	53(5.76±4,43)	28(3.34±2,01)	0.001
Trygliceride (mg/dl)	44(93,52±58,84)	33(61,89±37,93)	0.05
Total cholesterol(mg/dl)	25(165,35±29,086)	6(161,23±36,74)	0.769
LDL cholesterol (mg/dl)	46(127,24±46,53)	33(147,38±49,55)	0.069
HDL cholesterol (mg/dl)	45(62,19±31,63)	32(82,99±29,95)	0.005
Vitamin D (ng/dl)	53(11,59±4,33)	34(14,83±7,52)	0,013

Table 2. In obese children, demographic and laboratory features of those having or not having normal vitamin d level

	Children with low vitamin D (n=74)	Children with normal vitamin D (n=15)	P
Age (Age)	11.90±2.60	10.71±3.66	0.24
BMI-SDS	19.54±14.16	18.63±12.14	0.87
HOMA-IR	5.21±4.06	3.96±2.58	0.30
Sex (girl/boy)	43/31	9/6	0.56
Pubertal/Prepubertal	47/27	6/9	0.08
Glucose (mg/dl)	71(92.08±8.48)	15(89.02±6.94)	0.19
Insulin (U/L)	71(22.69±17.51)	12(17.78±1.65)	0.31
Hba1c (%)	67(5.41±0.76)	13(5.30±0.45)	0.65
Homa-IR	68(5.21±4.06)	12(3.96±2.58)	0.30
Trygliceride (mg/dl)	65(85.01±55.73)	12(54.63±20.81)	0.06
Total cholesterol(mg/dl)	29(164.83±29.71)	3(163.4±34.86)	0.93
LDL cholesterol (mg/dl)	67(134.24±46.57)	12(138.64±60.18)	0.77
HDL cholesterol (mg/dl)	65(67.86±31.64)	12(81.61±34.84)	0.17

Table 3. Acanthosis nigricans and vitamin d level in obese children

	With acanthosis	Without acanthosis	P
Vitamin D level normal	13	6	0.001
Vitamin D level low	34	83	