

How to estimate insulin resistance in PCOS patients -**HOMA-IR or QUICKI?**

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Insulin resistance affects 50-70% of women with polycystic ovary syndrome (PCOS).

The aim of our study was to estimate the prevalence of insulin resistance by different methods in a single cohort of 63 PCOS patients diagnosed by the Rotterdam criteria.

Methods: Anthropometric measurement, examination and fasting blood tests were made on the 3-5th days of their periods.

HOMA-IR (cut off >2.5) and QUICKI (cut off <0.357) was used to assess insulin resistance.

<u>Results</u>: Insulin resistant (IR) patients represented 48% and 65% of the cohort based on HOMA-IR (HIR) and QUICKI (QIR), respectively.

Compared to insulin sensitive (IS) patients, **IR** patients were **older** (25.5 ± 5 vs. 30 ± 6 years).

The body mass index (BMI) was similar in the HIR (35.5±7.33 kg/m2) and QIR (33.15±7.81 kg/m2) and similar BMI was detected in IS patients according to HOMA (HIS, 25.7±4.74) kg/m2) or QUICKI (QIS, 25.18 \pm 4.53 kg/m2).

Fasting glucose levels did not differ in between IR groups (HIR: 4.88±0.51; QIR: 4.88±0.53 mmol/l), but fasting insulin levels were higher in HIR (18.09±8.05 mIU/l) compared to QIR $(15.64 \pm 7.78 \text{ mIU/I})$ patients.

Lipid profiles and HbA1c did not differ significantly between IR groups.

The LH:FSH ratio was higher in IR (HIR:2.89 \pm 1.44, QIR:2.73 \pm 1.55) than in IS groups (HIS:2.11 \pm 1.12, QIS:2.38 \pm 1.21).

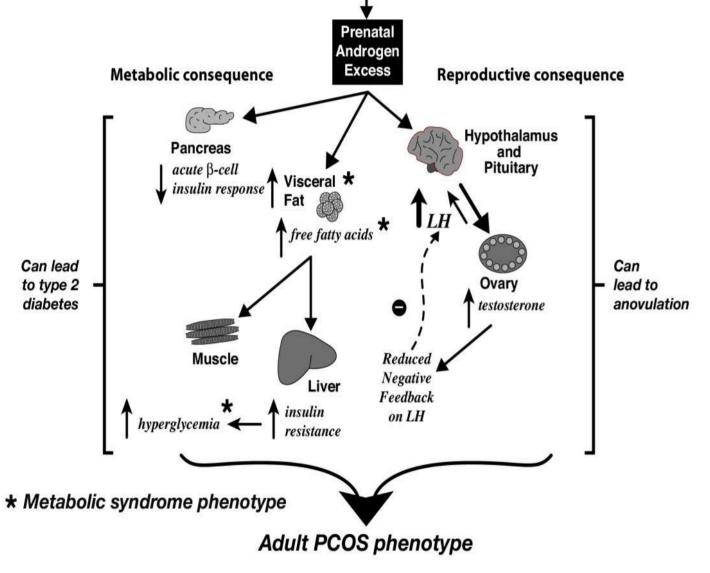
Patients in IR groups had higher free and rogen index (FAI) than IS patients (HIR: 8.64 \pm 6.4, QIR: 8.48 \pm 6.21, HIS:6.34 \pm 4.4, QIS: 5.47 \pm 3.17). OGTT was performed in 37 patients indicating neither diabetes nor IFG.

Conclusion: By using QUICKI we found more IR patient than with HOMA. Fasting insulin levels and BMI were lower in the QIR than in the HIR group. The FAI was similarly elevated in the IR groups, and was lowest in the QIS group.



Our data

Conclusions



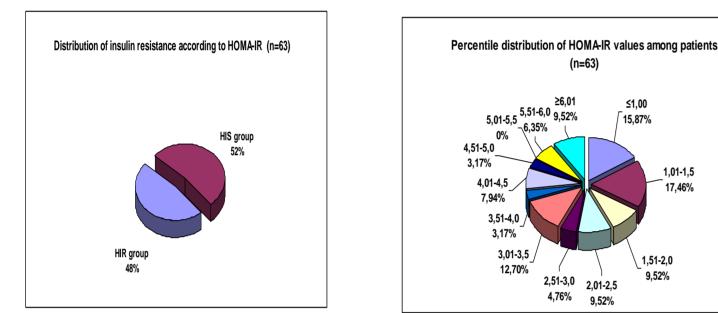
N=77 single cohort form 1 center PCOS was diagnosed based on the *Rotterdam criteria* **Insulinresistance** was calculated in 63 patients Based on **HOMA-IR and QUICKI** we divided the patients into **4 groups**: **HIR:** insulinresistant based on HOMA-IR **HIS**: insulinsensitve based on HOMA-IR **QIR:** insulinresistant based on QUICKI

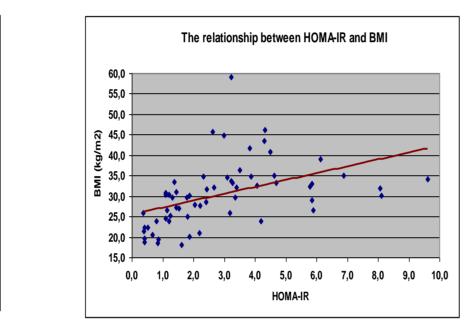
By using QUICKI we found more IR patient than with HOMA

Fasting insulin levels and BMI were lower in the QIR than in the HIR group The **FAI** was similarly elevated in the IR groups, and was lowest in the QIS group

We suggest that QUICKI detects insulinresistance earlier than HOMA

HOMA IR results

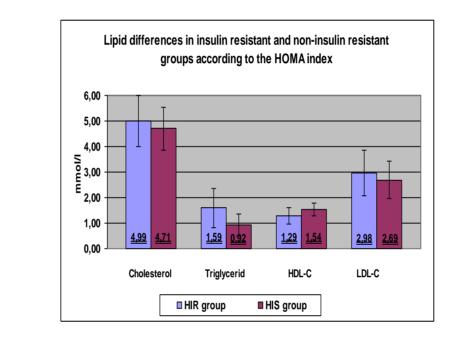


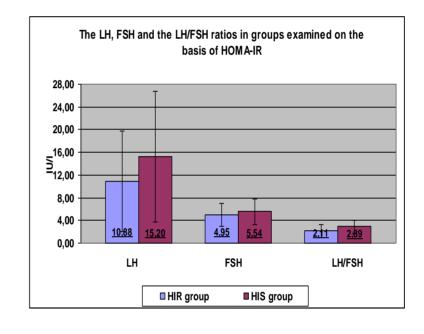


QIS: insulinsensitive based on QUICKI

OGTT (oral glucose tolerance test,75g)

was made in 37 patients





hormones	HIR group	HIS group	p value (HIRvs HIS)
Testosterone	1.87 ± 0.80	2.08 ±1.07	P=NS
SHBG (nmol/l)	29.78 ±23.48	43.17 ±27.43	p<0.05
DHEA (nmol/l)	15.22 ±13.68	20.28 ±11.55	P=NS
DEAS (nmol/l)	8.3 ±5.01	7.98 ±2.86	P=NS
A-dion (nmol/l)	4.9 ±2.41	4.68 ±1.82	P=NS
17OH prog. (nmol/l)	1.36 ±1.21	1.05 ±0.76	P=NS
FAI	8.61 ±6,4	6.34 ±4,40	p<0.05

QUICKI results

Distribution of insulin resistance according to QUICKI index (n=63)

Percentile distribution of QUICKI values among patients (n=63)

17,46%

1,51-2,0

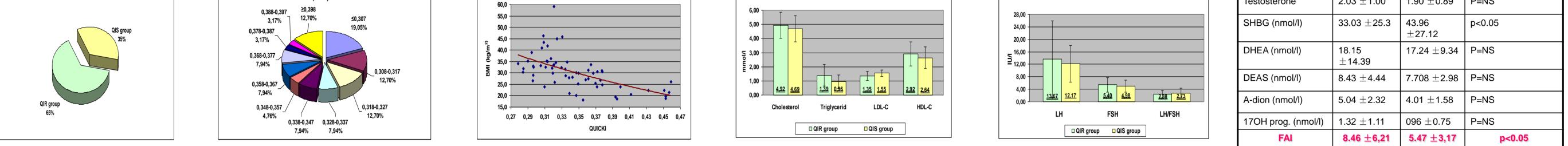
9,52%

The relationship between QUICKI and BM

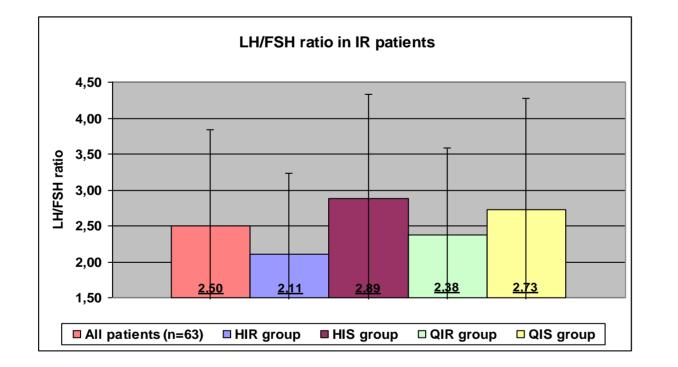
Lipid differences on the basis of the examination of QUICKI

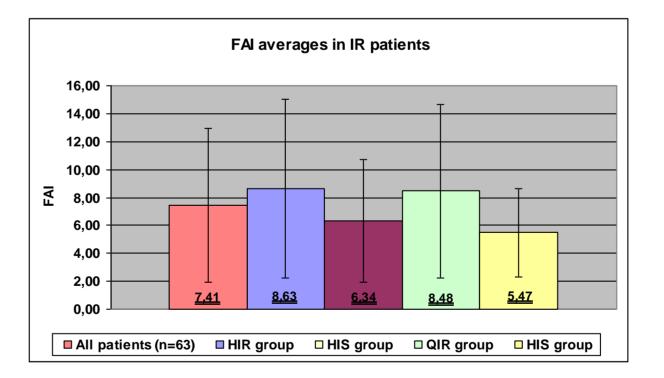
The LH, FSH and the LH/FSH ratios in groups examined on the basis of the QUICKI

hormones	QIR group	QIS group	p value (QIRvs QIS)
Testosterone	203 ± 100	1 90 +0 89	P=NS

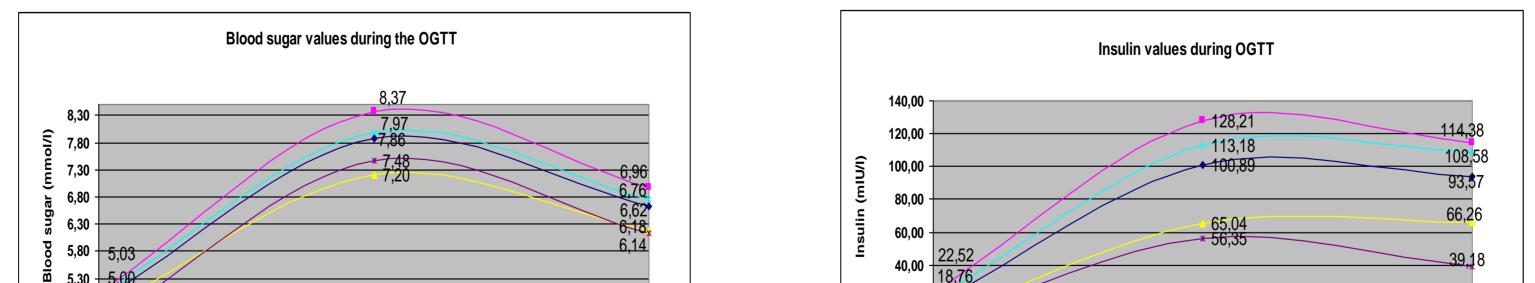


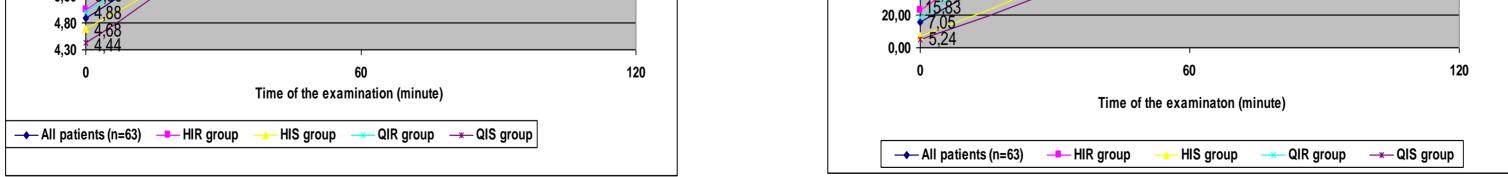
LH/FSH ratio and FAI in insulinresistant patients





OGTT results





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