URIC ACID AND TRIGLYCERIDES/HDL RATIO AS A PREDISPOSING FACTOR FOR METABOLIC SYNDROME IN CHILDREN

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Metabolic Syndrome is defined as a group of disorders including diabetes mellitus, central obesity, dyslipidaemia, and hypertension. Uric acid and Triglycerides/HDL ratio are an important risk factor for cardiovascular diseases and insulin resistance.

Aim: To investigate how Triglycerides/HDL ratio and uric acid are correlated with children’s biochemical and anthropometric characteristics, depending on the predisposition for Metabolic Syndrome (MetSyn)

Results

Total Population

- 39.1% of children had BMI ≥ 85%
- 71.7% had waist circumference (WC) ≥ 95%
- 3.64% had uric acid ≥ 5.5 mg/dl
- 8.2% glucose ≥ 100 mg/dl
- 3.64% triglycerides ≥ 150 mg/dl
- 12.7% cholesterol ≥ 200 mg/dl
- no child with HDL ≤ 40 mg/dl

The triglycerides/HDL ratio was:
- 2:1 in 3.6%
- ≥ 3:1 in 3.6% of children

- 17.27% of them were predisposed for MetSyn

Methods:

110 students, 6-12 years old, living in Sparta-Greece, participated in our research. Anthropometric and biochemical analyses were performed

Children without predisposition for MetSyn

- Triglycerides/HDL ratio was positively correlated with
  - body weight (p=0.035),
  - uric acid (p=0.002),
  - CAD (p<0.001) and
  - white blood cells (p<0.001)

- Uric acid increased
  - WC% (p=0.027) and cholesterol (p=0.035)

- Uric acid decreased HDL (p<0.001)

Children with predisposition for MetSyn

- Triglycerides/HDL ratio was positively correlated with
  - CAD (p<0.001)

- Uric acid was positively correlated with
  - triglycerides (p=0.003)

- Uric acid was negatively correlated with HDL (p=0.023)

Conclusion

- Despite the fact that HDL was normal in all children, triglycerides and uric acid levels were increased in a small percentage of children, making them important predisposing factors for the acquisition of metabolic disorders.

- The deposition of visceral fat can supercharge the lipid profile and raise the concentration of insulin, reducing renal clearance, resulting in hyperuricemia.

- At the same time, uric acid has a mechanistic role in atherosclerosis through the removal of nitric oxide which may be an early indicator of endothelial dysfunction and cardiovascular diseases.