NON-ALCOHOLIC FATTY LIVER YOUTH WITH OBESITY

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BACKGROUND

- Non-alcoholic fatty liver disease (NAFLD) is the most common liver disease seen in the pediatric population.
- It occurs in the setting of: insulin resistance and increased adiposity.
- NAFLD can be:
  - Non-alcoholic fatty liver (NAFL): bland steatosis
  - Non-alcoholic steatohepatitis (NASH): steatosis and lobular inflammation and hepatocellular injury
- Fibrosis: indicate a more severe phenotype even in the absence of NASH
- Liver biopsy should be considered in children who have increased risk of NASH and/or advanced fibrosis (1B):
  - ↑ liver enzymes (ALT>80 U/L or AST/ALT>1)
  - Splenomegaly
  - T2D
  - Panhypopituitarism

OBJECTIVE

To investigate NAFLD in youth with overweight and obesity

METHODS

- retrospective analyses
  - Clinical
  - Laboratory
  - Imaging
  - Histological data
- Underwent liver biopsy:
  - During bariatric surgery (n=22)
  - Percutaneously (n=15)
- Exclusion criteria: other causes of chronic liver diseases
- Results: NASPGHAN criteria
- Approved by the Institutional Ethic Committee and patient/parental consent was obtained
- Co-morbidities evaluated:
  - ↑ Liver enzymes
  - Splenomegaly
  - Hypertension: BP ≥ 130x80 mmHg or use of anti-hypertensive drugs
  - Dysglycemia:
    - T2D: 2h-OGTT > 200 mg/dL
    - IGT: 140 < 2h OGTT < 200 mg/dL
    - IR: HOMA-IR ≥ 2.5
  - Dyslipidemia:
    - TC > 200 mg/dL
    - non-LDL-C > 135 mg/dL
    - HDL-C < 40
    - HDL-C < 45
    - TG > 130 mg/dL

RESULTS

37 children and adolescents with overweight/obesity (2006-2017)

mean age: 15.8 years (7-21)

mean BMI: 39.3 kg/m²

0% splenomegaly

65% Waist Circumference > p90

73% Ultrasound with steatosis

78%

76%

14%

10%

Non-Alcoholic Steatohepatitis (NASH) 65% (24/37)

Stage 1 60%

Stage 2 73%

Stage 3 11%

Dysglycemia 92%

Dyslipidemia 9%

Liver Enzymes 6%

Hypertension 78%

CONCLUSION

- NAFLD was highly prevalent among youth with overweight/obesity
- Although NASH was diagnosed in 65%, if we were to use NASPGHAN criteria only 20% would have been recommended liver biopsy
- Since NAFLD can result in progressive fibrosis and lead to end-stage liver disease, other criteria should be considered for the early diagnosis in this population