Cardiovascular risk factors in children and adolescents with type 1 diabetes

Introduction

Diabetics have an increased risk of cardiovascular disease

- In young adults with type 1 diabetes mellitus (T1DM) → cardiovascular events are principal cause of premature death
- In pediatric T1DM population → 35% have 2 or more cardiovascular risk factors (cvRF)

Aims

1. Determine prevalence of traditional cvRF in children and adolescents with T1DM
2. Identify association between presence of traditional cvRF and degree glycemic control

Methods

- Study type: retrospective hospital-based study
- Population: Portuguese children and adolescents with the diagnosis of T1DM
- Sample:
  - Type: convenience sample → T1DM patients with <18 yr followed in pediatric consultation of CHAA Guimarães
  - Dimensions: Total of 70 T1DM with <18 yr → n = 59 (diagnostic for at least one year)
- Source of information: S-clinic® and single process
- Outcomes: age, gender, age of diagnosis, glycemic control, autoimmune (AI) disease, DM type of treatment, cvRF assessed were body mass index (BMI), blood pressure (BP), triglycerides (TG), high-density lipoprotein cholesterol (HDL) and low-density lipoprotein cholesterol (LDL)
- Data analysis: IBM SPSS®21, (p <0.05)

Results

\[ n = 59 \text{T1DM} \rightarrow 41\% \text{ } 59\% \rightarrow \text{Mean age} = 13 \pm 1.2 \text{yr} \]

TYPE 1 DIABETES

- Mean age at diagnosis: 8±3.8yr
- Mean time of follow-up: 5±3.3yr

T1DM Treatment

- Type of treatment:
  - MDI
  - CSII

T1DM Control (HbAlc<1.5%)

- Disease control:
  - No
  - Yes

AUTOIMMUNE DISEASE

- Autoimmune Disease

TRADITIONAL CARDIOVASCULAR RISK FACTORS

<table>
<thead>
<tr>
<th>Prevalence of Traditional cvRF</th>
<th>Mean age at diagnosis</th>
<th>Time of disease duration</th>
<th>Current mean age</th>
<th>Gender</th>
<th>Disease control</th>
<th>Autoimmune disease</th>
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</thead>
<tbody>
<tr>
<td>cvRF</td>
<td>9.1±4.0yr</td>
<td>54.5±3.3yr</td>
<td>13.5±4.3yr</td>
<td>female</td>
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<td>Yes</td>
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<tr>
<td>No</td>
<td>52.5%</td>
<td>42.9%</td>
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<tr>
<td>Yes</td>
<td>47.5%</td>
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</tbody>
</table>

Cardiovascular Risk Factors

- Elevated BP
- Elevated TG
- Elevated LDL
- Decreased HDL
- Overweight/obesity

Mean at diagnosis: 7.1±3.3yr

Conclusion

- According to our study...
  - High frequency of cvRF in children and adolescents with T1DM
  - An early age at time of diagnosis is associated with more elevated prevalence of cvRF, and it was independent of disease duration
  - Importance of early and systematic screening for cardiovascular risk factors
  - Early intervention should be considered in all patients at risk