

Cystatin B, cathepsin L and D related to surrogate markers for cardiovascular disease in children

SND-ID: snd1033-1. **Version:** 1.0. **DOI:** <https://doi.org/10.5878/002921>

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SND1033_001_V1_0.Codebook.pdf (105.9 KB)

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Citation

Dencker, M. (2017) Cystatin B, cathepsin L and D related to surrogate markers for cardiovascular disease in children (Version 1.0) [Data set]. Lund University. Available at: <https://doi.org/10.5878/002921>

Creator/Principal investigator(s)

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Description

Objective: This study investigated potential associations between novel biomarkers for cardiovascular disease and other surrogate markers for health.

Methods: Community sample of 170 (92 boys and 78 girls) children aged 8-11 years. Total fat mass (TBF) and abdominal fat (AFM) were measured by Dual-energy x-ray absorptiometry (DXA). Total body fat was also expressed as percentage of total body mass (BF%), and body fat distribution was calculated as AFM/TBF. Maximal oxygen uptake (VO₂PEAK), systolic and diastolic blood pressure (SBP and DBP) and pulse pressure (PP) were

measured. Echocardiography was performed. Left atrial size (LA) and left ventricular mass (LVM) were measured. A follow-up DXA scan was available in 152 children (84 boys and 68 girls). Frozen serum samples were analyzed for cystatin B, cathepsin L and cathepsin D.

Results: Partial correlations between cystatin B versus lnTBF, lnBF%, lnAFM, AFM/TBF, VO₂PEAK and PP were; $r=0.38, 0.36, 0.38, 0.29, -0.25$ and 0.25 , $P=0.001$ or less for all. Weaker predominantly non-significant correlations were found for cathepsin L, whereas cathepsin D was not related to any surrogate markers for health. No significant correlations were found between biomarkers and change in body fat over 2 years.

Conclusion: Findings from this community-based cohort of young children show that surrogate markers for cardiovascular disease such as total fat mass, percent body fat, abdominal fat, body fat distribution, maximal oxygen uptake and pulse pressure were all associated with cystatin B. This was not found for cathepsin L or cathepsin D.

Purpose:

This study investigated potential associations between novel biomarkers for cardiovascular disease (Cystatin B, cathepsin L and D9 and other surrogate markers for health.

Total fat mass (TBF) and abdominal fat (AFM) were measured by Dual-energy x-ray absorptiometry (DXA). Total body fat was also expressed as percentage of total body mass (BF%), and body fat distribution was calculated as AFM/TBF. Maximal oxygen uptake (VO₂PEAK), systolic and diastolic blood pressure (SBP and DBP) and pulse pressure (PP) were measured. Echocardiography was performed. Left atrial size (LA) and left ventricular mass (LVM) were measured. A follow-up DXA scan was available in 152 children (84 boys and 68 girls). Frozen serum samples were analyzed for cystatin B, cathepsin L and cathepsin D.

Language

[English](#)

Unit of analysis

[Group](#)

[Individual](#)

Time Method

[Longitudinal](#)

Sampling procedure

[Total universe/Complete enumeration](#)

The study population was recruited among children at four different schools in Malmö, Sweden. All 477 children (boys = 259, girls = 218) attending third or fourth grade were invited to participate in the study. Out of these 477 children 248 accepted the invitation (boys = 140, girls = 108), and 172 children gave blood samples (it was optional to do so). Blood samples and a complete data set of other variables were available in 170 children (92 boys and 78 girls) resulting in an inclusion frequency of 36%.

Biobank is connected to the study

Yes

Variables

33

Number of individuals/objects

248

Data format / data structure

[Numeric](#)

Geographic spread

Geographic location: [Sweden](#), [Skåne County](#)

Ethics Review

Lund - Ref. LU 243-01

Research area

[Medical and health sciences](#) (Standard för svensk indelning av forskningsämnen 2011)

[Demography \(population, vital statistics, and censuses\)](#) (CESSDA Topic Classification)

Keywords

[Risk factors](#), [Child](#), [Cardiovascular diseases](#), [Cathepsin d](#), [Skinfold thickness](#), [Cystatin b](#), [Cathepsin I](#)

Accessibility level

Access to data through SND

Data are freely accessible

Use of data

[Things to consider when using data shared through SND](#)

Versions

Version 1.0. 2017-10-09

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[DDI 2.5](#)

[DDI 3.3](#)

[DCAT-AP-SE 2.0](#)

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