

Components of metabolic syndrome in young adults with life-long HIV

Claire Thorne¹, Alessandra Vigano², Tessa Goetghebuer³, Naufil Alam¹ for the European Paediatric HIV and Lipodystrophy Study in EuroCoord

¹ MRC Centre of Epidemiology for Child Health, UCL Institute of Child Health, University College London, UK

² Department of Paediatrics, Hospital L. Sacco, University of Milan, Italy

³ Department of Paediatrics, Hospital St Pierre, Brussels, Belgium



Background

- A small but increasing group of 'long-term survivors' of vertically-acquired HIV infection are now young adults
- The current and future impact of life-long HIV infection and long exposure to antiretroviral therapy (ART) in these young adults remains unclear
- There is particular concern with respect to the potential for metabolic complications
- Metabolic syndrome (MS) is associated with increased risk of cardiovascular disease and type 2 diabetes
- Prevalence of MS in the general adult population is an estimated ~15% in Europe and ~25% in the US

Methods

- European Paediatric HIV Lipodystrophy Study recruits children, adolescents and young adults across 15 clinical sites in Belgium, Italy and Poland
- Data on young adults (≥18 years at enrolment) with vertically-acquired HIV infection were selected
- The World Health Organization definition of MS was used:
 - Insulin resistance (HOMA-IR >4.0) or impaired fasting glucose (IFG) / glucose intolerance (>6.10 mmol/L) AND at least one of the following:
 - Hypertension ≥140/90 mmHg
 - Triglycerides ≥1.7 mmol/L and/or high-density lipoprotein cholesterol (HDL-C) ≤0.9 mmol/L (male), ≤1.0 mmol/L (female)
 - Waist / hip ratio >0.9 (male), >0.85 (female) and/or body mass index (BMI) >30 (i.e. obese)

Objectives

- To describe the population of young adults with vertically-acquired HIV infection
- To estimate the prevalence of MS and its individual components

Results

- 68 young adults (49% female) were included (see Table for characteristics at enrolment)

	N (%)
Age (years)	
Median at enrolment	19.8 (18, 23)
Ethnicity	
Black	8 (12%)
White	58 (87%)
Other	1
Tanner Stage 5	63 (94%)
Clinical history	
Max CDC stage C	25 (37%)
HCV coinfectd	7 (10%)
ART initiation	
Median age (years)	7.4 (0.5, 20)
Current ART	68 (100%)
PI-based cART	32 (47%)

Results

Fig 1: Prevalence of components of MS, by sex

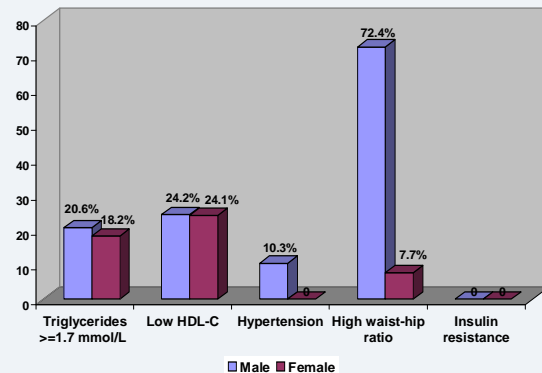


Fig 2: Prevalence of over- and under-weight and body fat redistribution

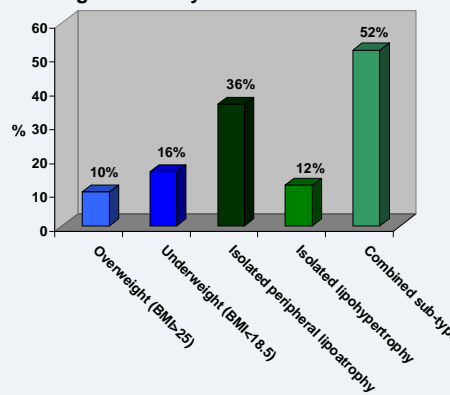
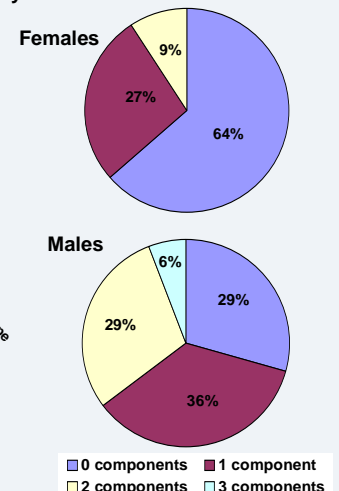


Fig 3: Number of MS components, by sex



- Median BMI was 21.2 (IQR 19.4, 23.2)
- No obesity but 10% overweight (Fig 2)
- Half of the participants had body fat redistribution
- No participant had MS** (95% confidence limit, 5.2%) as none had IR or IFG according to WHO definition (although 3 males had fasting glucose >5.55 mmol/L (American Diabetic Association threshold for IFG))
- However, 37 (54%) subjects had at least one other MS component, with more males than females having ≥1 component ($p < 0.005$) (Fig 3)

Conclusions / Future work

- In this small cohort of vertically-infected young adults, none had yet developed MS, although just over half had at least one component of the syndrome
- A better understanding of this issue is particularly necessary given that HIV infected children are increasingly exposed to ART at younger ages
- Young men in this study appear to be at potentially greater risk of developing MS than their female counterparts
- Future analyses will use longitudinal data to investigate incidence; data on smoking and alcohol use are now being collected
- It is important that follow-up of vertically-infected young adults continues, as they may have different risks for development of cardiovascular disease and diabetes compared with horizontally-infected adults

Address for correspondence

Email: c.thorne@ich.ucl.ac.uk



Acknowledgements

We would like to thank the young people who participated in the study.

European Paediatric HIV and Lipodystrophy Study Group: UK: C Thorne, M Cortina Borja, N Alam; Italy: A Vigano, GV Zuccotti, V Giacomini, V Fabiano, V Pivetti, R Badolato, C Bertulli, L Galli, R Pepe, R Rosso, G Secondo, C Viscoli, F Salvini, C Bettiga, A Guarino, Giannatasio, C Giaquinto, O Rampon, A Maccabruni, S Bernadi, A Martino, G Pontrelli, H Tchidjou, C Gabiano, F Mignone; Poland: M Marczyńska, M Kaflik, S Dobosz, J Popielska, A Oldakowska; Belgium: T Goetghebuer, J Levy, M Hainaut, B Brichard, J De Camps, N Thiry, G Deboone, H Waterloos, V Schnitz

Funding

C Thorne is supported by a Wellcome Trust Research Career Development Fellowship. N Alam holds a PhD studentship funded by the UK Medical Research Council through the MRC Centre of Epidemiology for Child Health, UCL Institute of Child Health. GOSH/UCL received funding from the UK DoH NIHR Biomedical Research Centres funding scheme. This work is partially supported by a grant (grant number 40H1) from Istituto Superiore di Sanita, Progetto Nazionale di Ricerca sull'AIDS 2009-10. The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under EuroCoord grant agreement n°260694.