

Title: Mortality amongst children and adolescents with type 1 diabetes in sub-Saharan Africa: The case study of the Changing Diabetes in Children Programme in Cameroon

Short running title: Mortality in type 1 diabetes in sub-Saharan Africa

Jean Claude Katte ^{1,2}, Gaelle Lemdjo ², Mesmin Y. Dehayem ^{2,3}, Angus G. Jones ¹, Timothy J. McDonald ¹, Eugene Sobngwi ^{2,3}, Jean Claude Mbanya ^{2,3}

Author's institutional affiliations:

¹ National Institute for Health Research (NIHR) Global Health Research, University of Exeter Medical School, Exeter, United Kingdom

² National Obesity Centre and Endocrinology and Metabolism Diseases Unit, Yaounde Central Hospital, Yaounde, Cameroon

³ Department of Internal Medicine and Specialities, Faculty of Medicine and Biomedical Sciences, University of Yaounde 1, Yaounde, Cameroon

Corresponding author: Jean Claude Mbanya

National Obesity Centre and Endocrinology and Metabolism Diseases Unit, Yaounde Central Hospital, Yaounde, Cameroon. Email: jcmbanya@yahoo.co.uk. Telephone: +237 660741255.

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Abstract

Introduction

Type 1 diabetes in Africa has been associated with high mortality attributed mainly to poor insulin access. Free insulin provision programmes for people with type 1 diabetes have been introduced across Africa recently. We aimed to determine the mortality rate and associated factors in a cohort of children and adolescents with type 1 diabetes who receive free insulin treatment in sub-Saharan Africa.

Methods

We conducted a retrospective analysis using the Changing Diabetes in Children (CDiC) medical records in Cameroon between 2011 and 2015.

Results

The overall mortality rate was 33.0 per 1000 person-years (95% CI 25.2 – 43.2). Most deaths (71.7%) occurred outside of the hospital setting, and the cause of death was known only in 13/53 (24.5%). Mortality was substantially higher in CDiC participants followed up in regional clinics compared to the main urban CDiC clinic in Yaounde; 41 per 1000 years (95% CI 30.8-56.0) vs 17.5 per 1000 years (95% CI 9.4-32.5), and in those with no formal education compared to those who had some level of education; 68.0 per 1000 years (95% CI 45.1-102.2) vs 23.6 per 1000 years (95% CI 16.5-33.8). In Cox proportional multivariable analysis, urban place of care (HR=0.23, 95% CI 0.09 – 0.57; p=0.002) and formal education (HR=0.42, 95% CI 0.22 – 0.79; p=0.007) were independently associated with mortality.

Conclusion

Despite free insulin provision, mortality remains high in children and adolescents with type 1 diabetes in Cameroon and is substantially higher in rural settings and those with no formal education.

Keywords: Type 1 diabetes, mortality, Changing Diabetes in Children, Insulin access, Cameroon