

# Research spotlight: Projects on neonatal hypoglycemia

University Children's Hospital Duesseldorf, Germany



**European  
Reference  
Network**

for rare or low prevalence  
complex diseases

**Network**  
Endocrine Conditions  
(Endo-ERN)



# Goals

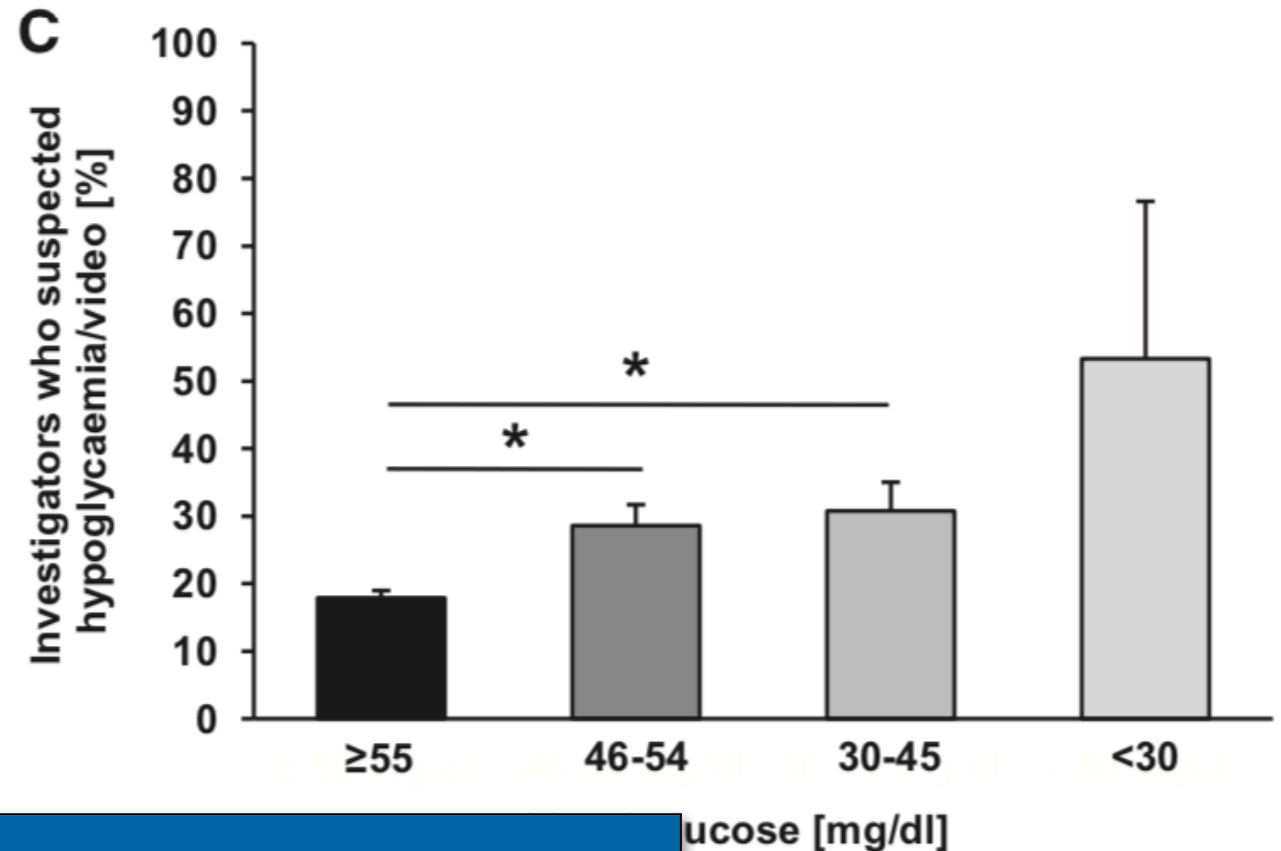
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- To provide data to convince neonatologists, midwives, obstetricians etc that hypoglycemia is a problem (“*glucose as a vital sign*“)
  - To progressively increase knowledge about mechanisms and circumstances that are worth preventing, but keeping the balance not to “overdiagnose“/“overtreat“
  - To develop, evaluate and improve management concepts for neonatal hypoglycemia
  - Learning about „real life“ burdens of a systematic hypoglycemia prevention/detection/treatment standards
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# Can we rely on clinical symptoms for detection of hypoglycemia?



- 430 video recordings with corresponding blood glucose measurements in 145 neonates
- 10 blinded investigators of different professions



ORIGINAL  
ARTICLES

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## Reliability and Observer Dependence of Signs of Neonatal Hypoglycemia

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Carsten Hagenbeck, MD<sup>2</sup>, Ertan Mayatepek, MD<sup>1</sup>, Sebastian Kummer, MD<sup>1,\*</sup>, and Thomas Meissner, MD<sup>1,\*</sup>

# Which glucose levels are worth to prevent?



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## Does neonatal hypoglycemia cause brain injury? – A cohort study on long-term neurodevelopmental outcome in former neonates with mild or severe hypoglycemia

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### Background

Neonatal hypoglycemia is the most common metabolic condition in neonates. It affects about 15% of all neonates and about 50% of neonates born with risk factors, including maternal diabetes, large or small for gestational age, or prematurity. Although it is known that hypoglycemia in congenital hyperinsulinism can lead to brain injury, it is still not clear to what extent transitional neonatal hypoglycemia is tolerated during the first days of life without damage. Thus, treatment thresholds and management strategies for neonatal hypoglycemia are controversially discussed. Aim of this study was to obtain evidence on whether episodes of transitional neonatal hypoglycemia  $\leq 30$  mg/dl are a risk factor for mild brain damage.

Poster P1 yesterday on ESPE

Funding: Junior clinician scientist program, Medical Faculty

# Pathomechanism of transient hyperinsulinism?

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Increased catecholamines link fetal stress or growth  
restriction and neonatal hyperinsulinemic  
hypoglycemia: a prospective cohort study

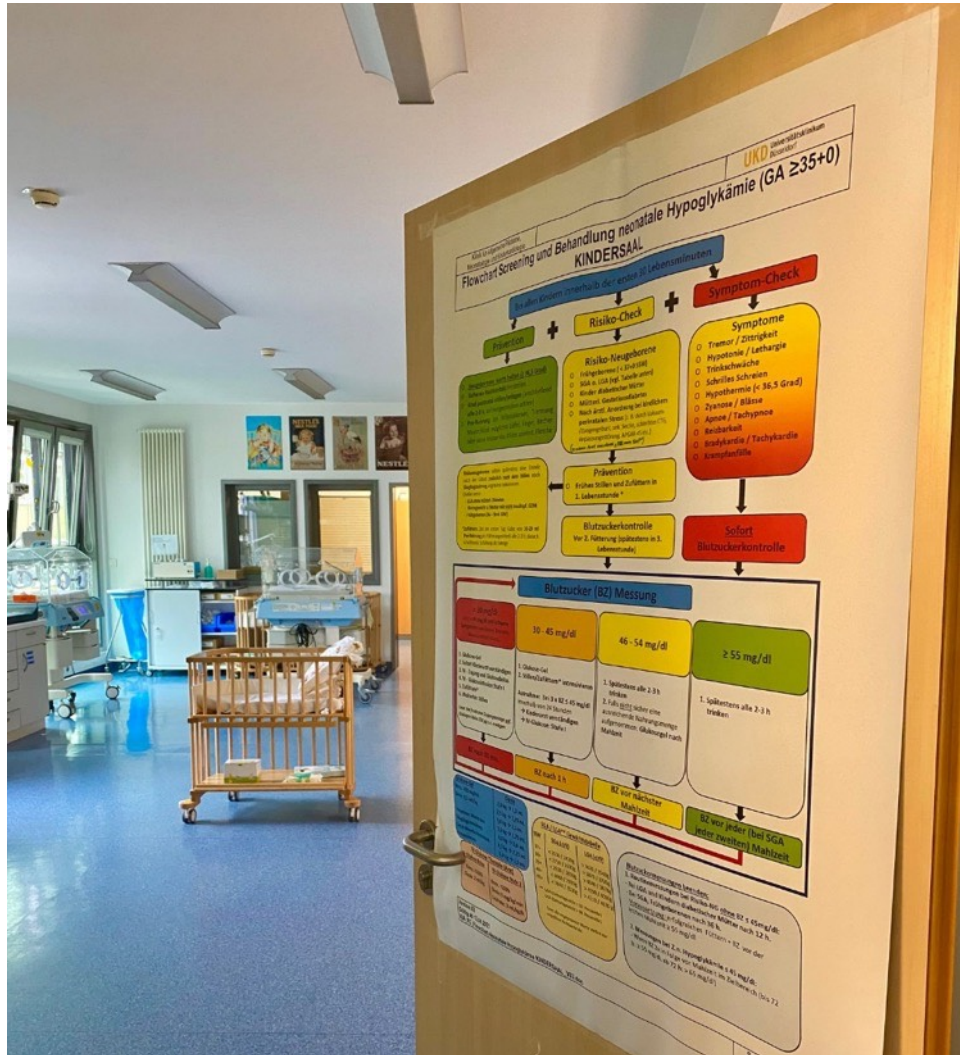
*Hyperinsulinism: Novel Genes, Drugs and Guidelines Conference, Philadelphia*  
April 14, 2023

**Dr. Henrike Hoermann**

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Funding: Junior clinician scientist  
program, Medical Faculty






Open access

Protocol

## BMJ Open Protecting against brain damage by improving treatment in neonates with hypoglycaemia: ProBrain-D – a study protocol of a prospective longitudinal study

Henrike Hoermann , Marcia Roeper, Roschan Salimi Dafsari, Felix Koestner, Dominik Schneble, Dunja von Zezschwitz, Ertan Mayatepek, Sebastian Kummer, Thomas Meissner



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# Perspective?

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None of these projects will finally solve the questions of how to reliably prevent hypoglycemia from doing harm and at the same time prevent “healthy” children from being overdiagnosed/treated

However, if we all strive to do our best to continuously learn from what we are doing every day anyways, we will at least come closer 😊

→ Thanks for continuous support and appreciation of our work from CHI International!

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