BANON

Validation of biomarkers of adverse neurologic outcome in newborns who required resuscitation or are suspected to be at risk for perinatal brain injury and long-term adverse neurological outcome

A prospective multicenter observational study for development of a diagnostic test

Study Title	Validation of biomarkers of adverse neurologic outcome in newborns who required resuscitation or are suspected to be at risk for perinatal brain injury and long-term adverse neurological outcome. A prospective multicenter observational study for development of a diagnostic test
Short Title of Clinical Study	**Biomarkers And Neurological Outcome in Neonates**
Study Code	BANON
Study Co-Ordinator /Coordinating Investigator	Prof. Dr. med. Axel Franz Center for Pediatric Clinical Studies (CPCS) University Children's Hospital Tübingen Calwerstr. 7 - 72076 Tübingen
EudraCT-number / Eudamed-Number	Not applicable
Study design	Prospective multicenter observational study
Planed participating countries	Germany
Planned Number of Investigational Sites	10
Target Number of Patients	500 infants
Total study duration	16 months
Scheduled start date	April 2016 First patient in: July 2016 Last patient out: June 2017
Study duration/patient	From birth to hospital discharge (about 2-14 days), recall of consent to participate or death
Target population / Indication	Newborns, suspected to be at risk for perinatal brain

	injury (hypoxic-ischemic encephalopathy, HIE) and evaluated for hypothermia therapy. In total 500 infants, of whom approximately 50 will have HIE or an abnormal brain scan on MRI
Primary Objective	Validation of biomarkers linked to neonatal asphyxia previously identified in animal studies now in a human population
Reference /Endpoint-Parameter	Biomarker analysis at LSI-InfanDx's central lab will be statistically referenced to clinical data defining hypoxia including MRI, long-term aEEG and clinical examination at discharge
Inclusion Criteria	Infants at risk for perinatal hypoxic-ischemic brain injury defined as one of the following: • Need for resuscitation after birth: For >1 min. after birth, positive pressure respiratory support with face mask or endotracheal tube, or cardiac compressions • 5 min APGAR-score ≤ 5. • Perinatal hypoxia-ischemia defined as a perinatal acidosis indicated by a pH≤7.1 in arterial umbilical cord blood or early postnatal blood collected at <30min of age • Perinatal hypoxia-ischemia indicated by a base deficit ≥ 12mmol/l in umbilical cord blood or early postnatal blood collected at <30min of age.
Exclusion Criteria	• Age >1.5h • gestational age < 36 weeks • congenital malformation • missing valid written informed parental consent • unsuccessful resuscitation • infant considered not-viable • decision for palliative care only
Methodology	1. clinical assessment of APGAR score, Thompson score, neurological status 2. collection of 10 ml blood from umbilical cord 3. collection of 2 ml (each) peripheral blood from the neonate at 2 and 6 hours after birth 4. cerebral ultrasound examinations (Doppler US resistance Index, day 2) 5. brain scan by Magnetic Resonance Imaging (MRI) on day 3-5 (non-cooled patients) or day 5-10 (cooled patients) 6. amplitude integrated EEG examination (aEEG) at 6-12h and, in cooled infants, also at 48-84 hours

	Important notice: all treatment decisions and procurements shall strictly follow the applicable standard of medical care
Statistical hypothesis	NA