

# GLOBAL ASPECTS OF BIRTH ASPHYXIA

Ola Didrik Saugstad

Department of Pediatric Research Rikshospitalet University Hospital  
University of Oslo, Norway  
oladsaugstad@hotmail.com

Global mortality of children < 5 years has recently declined, unfortunately with an unchanged neonatal mortality. This means that the proportion of neonatal deaths is increasing. 3.9 mill - 1/3 - of deaths in children < 5 years are among newborns of these 3 mill in the early newborn period. In addition, to each early neonatal death one stillbirth occur. 98% of perinatal deaths occur in low income countries. Today there are globally four main newborn killers: Infections, asphyxia, prematurity and congenital malformations. To reduce neonatal mortality and morbidity these risk factors should be reduced to the lowest level as possible.

Birth asphyxia occurs in 4-7 million births and of these approximately 1 mill die and a similar number develop sequelae. There are, however, large regional differences with neonatal deaths rate of < 5/ 1000 in Western European countries and > 40 /1000 in African countries. 70% of all neonatal deaths occur in Africa. However, also in low income countries there are wide regional differences. In for instance S. Africa D Woods found that hypoxia related deaths constituted 1/10 of neonatal deaths in metropolitan areas and 1/3 in rural areas. In a study from India by Kumar et al 2% of all births in a rural community suffered birth asphyxia with a case fatality of 74%.

Risk factors are different between industrialized and low income countries. In high income countries antepartur risk factors represent 70% and intrapartur risk factors 40%. In low income countries this is reversed with 60% intrapartur and 40% antepartur risk factors.

In a study from Nepal by Ellis et al neonatal encephalopathy was found in 6/1000 compared with 4/1000 in Australia as found by Badawi et al. Case fatality rate was 3 fold higher in Nepal than in Australia and prevalence of still births > 2 kg 10 fold higher.

Saugstad et al have identified some early prognostic factors that already the first 10 min of life may pick out those children having worse prognosis. At 5 min Apgar score < 4 or a heart rate < 60 bpm gave Odds Ratio for death in first week of 14.5 (95% CI 6.6-29.2) and 16.5 ( 95% CI 3.1-86.5) respectively. Sensitivities were 0.63 and 0.71 and specificities 0.89 and 0.87. Such prognostic factors can be used to identify children in need of special care or interventional therapy before onset of secondary energy failure.

Optimized therapy can reduce death substantially. For instance, we have calculated that substituting 100% oxygen by room air for newborn resuscitation reduces neonatal mortality 40%. If this is correct it means that more than 100, 000 newborn lives can be saved each year.

It seems that relatively simple changes of procedures and therapies significantly can reduce neonatal mortality.