EDITORIAL

Treatment of Jaundice in the Newborn Infant - "Many Roads to Rome"

THOR WILLY RUUD HANSEN

Department of Neonatology, Women's & Children's Clinic, Oslo University Hospital HC - Rikshospitalet; and Institute of Clinical Medicine, Faculty of Medicine, University of Oslo, Norway.

Correspondence to: Thor Willy Ruud Hansen, Nyfodtavdelingen, Kvinne - & Barneklinikkn, HF - Rikshospitalet, N-0027 Oslo, Norway. t.w.r.hansen@medisin.uio.no

Jaundice is the most common reason, aside from screening and prophylaxis, for testing and treatment of newborn infants. Thus, considerable health care resources are invested in this phenomenon world wide. Although treatment in the form of phototherapy is simple, the necessary equipment may not be available in settings where health care resources are scarce. In the current issue of *Indian Pediatrics*, Chawla and Parmar(1) present a meta-analysis of the use of phenobarbital for the management of jaundice in preterm infants, a group where the incidence of neonatal jaundice is distinctly higher than in infants born at term. They conclude that phenobarbital reduces both peak serum bilirubin, need for as well as duration of phototherapy, and finally the need for exchange transfusion in preterm very low birthweight infants. Wisely, the authors strike a note of caution when they suggest that further studies are warranted to evaluate adverse effects and neurodevelopmental outcome.

While the authors' findings are intriguing, readers should note the fact that the authors found only three studies which satisfied the entrance criteria for the Cochrane-type analysis they performed. Although the number of patients studied was almost 500, two of the three studies were more than twenty years old. This is a problem because phototherapy today is likely to be - indeed *should* be - much more effective than in the 1980s. Also, intravenous immune globulin is available to treat severe jaundice due to ABO and Rhesus incompatibility. Using these tools, exchange transfusion has become a rare event in many nurseries, and close to a "never-event" in premature infants(2). This greatly reduces the generalizability of the authors' conclusions as far as exchange transfusion.

The meta-analysis showed that using phenobarbital as suggested did not obviate the need for phototherapy. This to some extent weakens the argument as far as the usefulness of this drug in settings where phototherapy equipment is not available. However, we must concede the point that the need for transfer to another unit which possesses such equipment is reduced, which may be highly relevant for families who cannot afford such treatment. Also, if each baby spends less time in phototherapy, it means that more babies may be treated with the same unit. However, practitioners should also note that time in phototherapy may be reduced significantly without drug therapy by simple efforts to increase spectral power, as shown by studies both from Brazil and Malaysia(3,4).

Drawbacks of phenobarbital treatment in newborns include somnolence. There are studies which appear to show negative long-term effects on cognition in children receiving phenobarbital for febrile seizures, and these observations are of concern(5). However, the implications, if any, for short-term treatment of neonatal jaundice are unknown. We have recently documented the potential reversibility of acute intermediate stage bilirubin encephalopathy (kernicterus) and suggested that there may potentially be a role for

phenobarbital in the management of some such infants(6).

In the end, the decision of whether to use phenobarbital in the routine treatment of neonatal jaundice must depend on a careful evaluation of local circumstances. I am open to the possibility that there may be settings where the benefits of phenobarbital treatment as outlined by Chawla and Parmar(1) may outweigh the possible risks. However, I find myself agreeing with these authors that further studies are warranted and, indeed, highly desirable.

Funding: None.

Competing interests: None stated.

REFERENCES

1. Chawla D, Parmar V. Phenobarbitone for prevention and treatment of unconjugated hyperbilirubinemia in preterm neonates: a systematic review and meta-analysis. Indian Pediatr 2010; 47: 401-407.
2. Huizing KMN, Røislien J, Hansen TWR. Intravenous immune globulin significantly reduces the need for exchange transfusions in infants with Rhesus and ABO incompatibility. Acta Paediatr 2008; 97: 1362-1365.
3. De Carvalho M, De Carvalho D, Trzmielina S, Lopes JMA, Hansen TWR. Intensified phototherapy using daylight fluorescent lamps. Acta Paediatr 1999; 88: 768-771.
4. Djokomuljanto S, Quah BS, Surini Y, Noraida R, Ismail NZN, Hansen TWR, *et al*. Efficacy of phototherapy for neonatal jaundice is increased by the use of low-cost white reflecting curtains. Arch Dis Child 2006; 91: F439-442.
5. Farwell JR, Lee YJ, Hirtz DG, Sulzbacher SI, Ellenberg JH, Nelson KB. Phenobarbital for febrile seizures—effects on intelligence and on seizure recurrence. N Engl J Med 1990; 322: 364-369.
6. Hansen TWR, Nietsch L, Norman E, Bjerre JV, Hascoet JM, Mreihil K, *et al.* Apparent reversibility of acute intermediate phase bilirubin encephalopathy. Acta Paediatr 2009; 98: 1689-1694.