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LETTERS

Is current management of neonatal jaundice evidence based?

Jaundice is the most common medical problem affecting babies in the first week of life. Phototherapy was introduced as a treatment for jaundice in 1958,¹ and its widespread use has reduced the need for exchange transfusion. Bilirubin charts or mathematical formulae based on gestation may be used to guide treatment decisions for hyperbilirubinaemia. We were interested in current practices and recently surveyed the management of jaundice in our region.

The North of England has 64 medical neonatal intensive and special care units. In October 2003, we posted a questionnaire to a lead paediatrician at each unit to enquire about local guidelines and evidence for their management of jaundice. We sent a further questionnaire by electronic mail to 36 units that did not initially respond. A total of 40 responses (65%) were received. Table 1 summarises the results.

Of units that responded, we found that 90% (36/40) used bilirubin charts to guide management. Only four (11%) were able to offer evidence to support the use of their charts, and 20 (55%) did not know the origin of their charts. Thirty eight units (95%) had specific treatment considerations for preterm or low birthweight infants using formulae or special charts. Fifteen different bilirubin charts were submitted to the survey. Of these, only three have been published.²⁻⁴ The remaining 12 were self derived or of unknown origin.

Our survey shows considerable variation in local protocols and a lack of consensus in the current management of jaundice. Apart from the epidemiological decline in the incidence of kernicterus, there is little evidence to support current treatment regimens. It is conceivable that many infants are being overtreated. With the current drive towards evidence based practice, we recommend further analysis of the optimal management of neonatal jaundice and a move towards standardised guidelines.

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Table 1 Methods used in hyperbilirubinaemia management decisions

Criterion	Number of neonatal units
Formulae exclusively	4 (10%)
Bilirubin charts exclusively	30 (75%)
Both formulae and bilirubin charts	6 (15%)
Gestation specific charts	23 (64%)
Birthweight specific charts	8 (22%)

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Are endocannabinoids the basis for neonatal analgesia through non-nutritive sucking?

The use of oral sucrose solution with and without non-nutritive sucking (NNS) has been shown to reduce the physiological and behavioural responses to procedural pain in neonates.¹

The analgesic effects of sucrose are mediated by endogenous opioid pathways.¹ In contrast, the analgesic effects of NNS are unknown but hypothesised to be through non-opioid pathways by stimulation of orotactile and mechanoreceptor mechanisms. We would like to propose that the mechanism underlying NNS is the endocannabinoid system.

Endocannabinoids are involved in pain modulation.² Anandamide (ananda is the Sanskrit word for "bliss") is an endogenous cannabinoid which binds to the cannabinoid CB1 receptor.³ Anandamides have a rapid onset but short duration of action.³ Cannabinoid CB1 receptors are present in pain processing areas of the brain and spinal cord. Their presence at nerve endings suggests they act as presynaptic modulators of neurotransmission.² Endocannabinoids are believed to produce analgesia by descending modulation, by a direct spinal action, and by an action on the peripheral nerve.²

Endocannabinoids from the brain are required to initiate the suckling response.³ A newborn's instinctive suckling behaviour seems to be dependent on the presence of anandamide. During a procedure, pain itself will also stimulate the release of anandamide, which may then act on cannabinoid receptors to attenuate nociception.²

It has been shown that the combination of sucrose and NNS appears to be more effective than sucrose or NNS alone.¹ The proposed involvement of anandamides in NNS suggests that the calming combination of sucrose and NNS, utilising both the opioid and cannabinoid pathways, may be synergistic. This synergistic interaction is supported by evidence in the literature.⁴

Endogenous cannabinoids are involved in both pain modulation and the newborn's suckling response. Further research is needed to clarify the role of endocannabinoids in neonatal procedural pain management through non-nutritive sucking.

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BOOK REVIEW

Neonatal formulary, 4th edition. Drug use in pregnancy and the first year of life: a pharmacopoeia

Edited by Edmund Hey. Published by Blackwell, BMJ Books, London, 2003, £27.50, pp 320. ISBN 0-7279-1738-2.

From the start, the latest edition of the *Neonatal formulary* is a mine of useful information and commonsense, practical advice for safe neonatal prescribing. It will, I am sure, prove to be a valuable resource in any neonatal unit.

Initial chapters offer essential background reading for anyone prescribing or administering drugs to neonates. Common scenarios including suspected bacterial infection, neonatal pain, seizures, and maternal drug abuse are dealt with concisely and an approach to pharmacological management is suggested for each. Topics such as the use of intravenous lines, adverse reactions, drug licensing, and storage are also discussed.

The drug monographs provide an invaluable reference tool, giving easy to follow guidance on the use, dosage, administration, and important adverse effects of over 200 drugs commonly used in labour and the neonatal period. All entries are referenced and include blood products, vaccines, oxygen, and formula milk. Succinct summaries of the effects on the foetus and newborn of many other drugs that may be taken during pregnancy and lactation are provided.

Regular updates, commentaries, and access to abstracts of relevant Cochrane reviews can be found on the book website, www.neonatalformulary.com. Also, if you buy the book, you are entitled to access the PDA or e-book version at a 50% discount bargain!

C L Smith