LETTERS TO THE EDITOR

Effect of ethnic origin of mother on fetal outcome

EDITOR,—The recent paper by Lyon and colleagues¹ concerning the effect of ethnic origin on fetal outcome illustrates some of the pitfalls of research involving the categorisation of ethnic groups.^{2,3}

Race, ethnicity, and nationality are different concepts and it is difficult to produce categories that represent them accurately.⁴ In this study, the authors do not describe how their racial or ethnic categories are either defined or assigned to the women, and this also makes it difficult to compare the findings with other research.

It is not always appropriate to combine African and West Indian groups as these are not genetically or culturally homogenous categories. There is a large population of African refugees in Croydon who will be very different from British born black women in many ways. While the authors recognise the diversity of the Asian women in their discussion, the fact that the comments are equally applicable to the black women is not acknowledged.

In pursuing their argument, the authors refer to studies from the USA, but do not acknowledge the difficulties involved in generalising from American studies, because of differences in characteristics, distribution and definitions of race and ethnic groups, and of social class and deprivation. Speculation about the role of sexual activity in chorioamnionitis cannot be justified by reference to a study that compares sexual behaviour in 'black' women in the USA with native Americans, particularly in the absence of any information about the sexual behaviour of women in Croydon or the UK. Furthermore, the comment that race may be an independent variable betrays a lack of understanding of the limits of race as a biological entity.⁵

Because social class, a major confounder, is not measured or controlled for in the analysis, it becomes difficult to comment on the possible cause of the observed difference between ethnic groups. Socioeconomic factors are referred to but not discussed adequately in comparison with the space devoted to possible biological differences between the babies of black women and those of other groups.

The high rate of intrauterine death in the babies of black women between 28 and 36 weeks' gestation is based on only eight deaths in total. If three babies had not died, the rate would have been similar to that in the white mothers. Likewise, the comments on the gestation specific neonatal mortality rates refer to four deaths among the Asian women and one death among the babies born to black women. With such small numbers, the influence of chance becomes important, and correct categorisation and controlling for confounders becomes vital. Furthermore, no mention is made of any allowance for the multiple tests of significance which were performed, such as a Bonferroni correction, given the high probability of a type 1 statistical error.

In their discussion, the authors do not appear to recognise either the limits of their data or the problems involved in categorising black or ethnic minority groups, resulting in conclusions that cannot be justified by their findings.

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Dr Lyon and colleagues comment:

Crowcroft and McKenzie quite correctly highlight problems in the analysis of our data but we would not agree that our conclusions cannot be justified. Looked at independently the West Indian and African groups still had significantly more deaths. In particular there was a strikingly high rate of late fetal deaths (20–23 weeks) in the West Indian group which persists whatever statistical manipulation is done (13/1000 compared with 3/1000 total deliveries in the white mothers). This was an important finding as this would not have been reflected in standard perinatal mortality statistics and it also confirmed observations made by the obstetricians in Croydon – these observations being the initial reason for the study. There are no comparable studies in UK and comparisons with the American literature were to highlight that in other countries racial differences in fetal outcome have been found. Even when allowance is made for socioeconomic status and deprivation, large differences persist between black and white in the USA – and hence the observation that ethnicity itself may be an independent variable.¹ We accept that we cannot make direct comparisons of sexual behaviour between the USA and UK but this was merely a speculation on possible reasons for higher infection rates in the black groups. Again there are no comparable data in Europe and we doubt we will ever be allowed to ask the sort of questions needed to obtain it!

This study was a retrospective audit of data and we stressed that care must be taken in its interpretation. Routinely collected data such as this can, at best, point to possible trends but is never complete enough for proof. The results, however, confirm a clinical impression and show a definite and significant tendency of increased fetal loss among black mothers, particularly the West Indian group. A prospective study is needed to determine if ethnic origin is a major factor in fetal outcome and, as this has important implications in targeting health care, we hope that South West Thames Regional Health Authority will maybe take up this challenge and hopefully not hide behind arguments over statistical significance.

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Immunohistochemical localisation of epidermal growth factor and its receptor in the developing human stomach

EDITOR,—Epidermal growth factor (EGF) is a 53 amino acid polypeptide present in many mammalian species and produced in the human by salivary glands, the pancreas, Brunner's glands in the duodenum and in the stomach after gastric ulceration where it has a role in repairing mucosal damage.¹ In an *in vitro* study Britton *et al* clearly showed that EGF was not denatured by gastric acid allowing it to pass into the small intestine or to bind to receptors within the stomach.²

In vivo work on neonatal rats has demonstrated that EGF leads to increased growth of the gastric mucosa but not to functional maturation³ and that anti-EGF antiserum given to newborn mice leads to retardation of gastric ontogeny.⁴ EGF has a clearly documented role in many other species and it seems likely that EGF may have a role during the period of rapid gastrointestinal growth and maturation in fetal and early infant life.

In humans, EGF is also found in large concentrations in breast milk⁵ and in amniotic fluid from the second half of gestation,⁶ with levels increasing to term, a time when the developing fetus has been shown to swallow large volumes of liquor.

We have, therefore, looked for EGF and its receptor in the fetus and newborn infant. Thin sections (8 micron) from 15 fetal (13 to 26 weeks' gestation) and five infant (2 to 21 weeks' postnatal age) stomachs were stained using antibodies to EGF and its receptor (Sigma, Poole). Fetal specimens were obtained from therapeutic terminations and spontaneous abortions in pregnancies with no evidence of congenital abnormality. Infants who died suddenly and unexpectedly after a full term pregnancy were the source of the other specimens. Consent was obtained by the district ethics committee.

EGF activity was not detected in any of the fetal or infant stomachs examined. However, EGF receptors were detected in all fetal and infant stomachs studied from 18 weeks' gestation, a time when cellular differentiation in the stomach is complete. In addition, in all cases, we noted that the EGF receptors were localised to the luminal aspect of the gastric mucosa in both the body and antrum.

The demonstration of EGF receptors on the luminal aspect of the gastric mucosa in the fetus who is swallowing large volumes of liquor containing EGF provides further circumstantial evidence for an important ontogenic role for EGF, acting as a lumone, in the developing human stomach.

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Antiseptic cord care reduces bacterial colonisation but delays cord detachment

EDITOR,—We read with interest the article by Verber and Pagan on umbilical cord care.¹ As stated by the authors, although doubts have been cast on the need for antiseptic treatment of the cord,² the use of dry cord care alone leads to an unacceptably high colonisation rate of the umbilicus and exposes the neonate to the risk of infection.^{1,3} On the other hand, antiseptic treatment may delay cord separation, and no single agent has proved superior in preventing colonisation and disease.

We have recently conducted a prospective and controlled clinical study on 76 vaginally born healthy term neonates. Four different regimens for umbilical cord care were tested: ethanol 70% (n=19), chlorhexidine 0.5% in ethanol 70% (n=20), eosin 2% in ethanol 70% (n=18), and povidone-iodine 10% (n=19). The sample size for the study subgroups was established to detect a 50% difference in effectiveness between any two cord treatments, with $\alpha=0.05$, $\beta=0.20$. While in the maternity unit, the antiseptic agent was applied twice daily by a nurse; after discharge from the hospital, the same antiseptic preparation was applied 2-3 times daily by the parents, until cord detachment. An umbilical swab was taken from the base of the umbilicus on the first hour and the third day of life. All newborn infants were followed up for a one month period.

As shown in the figure, the percentage of positive cultures on the third day of life and the time to cord separation show statistically significant differences ($p<0.0001$) for the antiseptic agent applied. These results confirm that different antiseptic cord care regimens affect both bacterial colonisation rates and time to cord detachment, in an inverse relation. Chlorhexidine 0.5% showed the highest antimicrobial activity, with no colonisation by coagulase positive staphylococci nor group B streptococci; however, it was associated with

delayed cord separation. Ethanol 70% failed to prevent omphalitis, as all four cases detected during the study period occurred in newborn infants treated with this antiseptic agent. Eosin 2% and povidone-iodine 10% seem interesting alternatives; although these agents did not markedly reduce cord colonisation, both produced adequate detachment times, and no omphalitis occurred in these two groups. When pooled together, colonised cords detached earlier than those not colonised (mean (SEM) 8 (0.5) days *v* 14 (1) days; $p<0.0001$), irrespective of the antiseptic regimen. These data support the hypothesis that the use of antiseptic agents for umbilical cord care reduces bacterial colonisation and may inhibit leucocyte infiltration, thus delaying the separation of the cord stump.⁴

In our opinion, dry cord care is unacceptable, and the use of effective agents in cord care policies is highly desirable, if not mandatory. However, we are aware that it prolongs the interval between birth and umbilical cord separation. This fact may produce parental concern, increase the workload of community midwives, and prolong exposure to the risk of infection. Therefore, further research to shorten the time of cord separation, while applying appropriate antiseptic care, is needed.

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Selective intubation in a case of cystic adenomatoid malformation

EDITOR,—Although some cases of cystic adenomatoid malformation (CAM) may present in infancy or even later, the onset of clinical symptoms may occur in the neonatal period with signs of progressive respiratory distress related to the degree of insufflation of the cysts and the pressure exerted by the affected lung on healthy ipsilateral lobes and the contralateral lung.^{1,2} In this situation, reduction of cystic insufflation and stabilisation of the patient may be of great value before surgery.²

A case of CAM in which this was successfully accomplished by selective intubation of the contralateral main bronchus is presented.

Case report

A 21 day old infant was admitted because of respiratory difficulty of 24 hours' duration. On physical examination the patient was afebrile, with cyanosis and tachypnoea (100 breaths/min); there was hypoventilation of both hemithoraces with displacement of cardiac tones to the right. Chest radiography showed a huge air filled cystic mass with multiple septa in the left hemithorax displacing the mediastinal structures to the right and causing partial collapse of the right lung (fig 1). Arterial oxygen tension was 3.3 kPa, carbon dioxide tension 12.9 kPa, pH 7.07, and base

Figure 1 Initial chest radiograph.

Figure 2 Chest radiograph after selective intubation of the right bronchus.

excess 2 mmol/l, and failed to improve after conventional intubation and mechanical ventilation. In view of the patient's clinical status, selective intubation of the right bronchus was done, with clinical and gasometric improvement. On repeated chest radiographs the right lung appeared normal, the mediastinal structures had returned to the midline and the degree of insufflation of the left pulmonary cystic lesion had become strikingly smaller (fig 2). Computed tomography of the chest revealed images suggestive of CAM involving the left lower lobe. The patient underwent left lower lobectomy. The postoperative course was uneventful and assisted ventilation was withdrawn 72 hours after surgery. Pathological study confirmed CAM type I. Twenty days after admission, physical examination was normal and the patient was discharged.

The clinical pathogenesis of CAM derives from the progressive distension of the cysts that may lead to increased intrathoracic tension, compression of the healthy ipsilateral lung and the diaphragm, displacement of the mediastinum, and atelectasis of the contralateral lung.^{2,3} In cases in which this situation provokes severe respiratory embarrassment, decompression of the cysts before surgery may help to improve ventilation.

We have successfully used selective intubation of the contralateral bronchus in cases of acquired bronchopleural fistula. This procedure is generally well tolerated.⁴

In the present case using selective bronchial intubation, we reduced the degree of insufflation of the cystic malformation and in consequence improved ventilation of the contralateral lung. With this manoeuvre, the patient remained clinically stable for the 24 hours before surgery with stable blood gases.

A review of the literature yielded no other case of selective intubation of the healthy lung in patients with CAM. We therefore consider our case to be of interest as this procedure may be effective in improving the condition of the patient before surgery.

Time to cord separation and number of positive and negative swabs on the four regimens. A=ethanol 70%, B=chlorhexidine 0.5%, C=eosin 2%, and D=povidone-iodine 10%.