less than 32 weeks' gestation (with an out-of-phase response) were all receiving morphine, this was indeed the case: nine of the 10 infants described were receiving morphine by intravenous infusion (10 μg/kg/hour) as per unit policy. However, only one of the infants with an in-phase relation were receiving inotropic support at the start of their wave episodes. As we suggested, it would appear strange that electromechanical causes could be stopped by merely gently touching the infant.

Infants with overt seizures have been captured many times on our continuous computerised physiological monitoring system, though none have displayed a regular cyclical pattern in heart rate and blood pressure during a convulsion. Seizures were noted in four of the infants described, though only one demonstrated overt seizures during a wave episode. Since the paper was submitted, a further infant has been investigated by 24 hour EEG during a prolonged period of blood pressure waves: no evidence of seizure activity was recorded.

Adverse experiences in an Exosurf treated group

EDITOR,—The results of recent trials using artificial surfactant for premature neonates with hyaline membrane disease have yielded convincing evidence of efficacy, and are likely to lead to widespread use.[1-4] We have used Exosurf (Wellcome) in 54 babies as part of the OSIRIS multicentre trial[5] and were concerned to witness some adverse experiences in a proportion of these babies. We noted an increase in the incidence of lobar collapse and consolidation and blocked endotracheal tubes, resulting in clinical and radiological deterioration. While we would emphasise that it would not be proper to draw any conclusions from our observations, we suggest that they do give rise to some cause for further investigation.

We have seen this problem in babies of varying weights and gestation, not just very low birthweight babies. Decreasing the rate of administration of Exosurf did not seem to improve tolerance and the large volume administered, 5 ml/kg, seemed to be a factor. Because of our concern over the acute deteriorations coinciding with the administration of Exosurf we have looked more closely at the outcome in our Exosurf treated group and compared various outcome measures with a historical group, treated before we entered the OSIRIS trial, of babies matched for birth weight, gestation, and A/a ratio.

We found that the babies treated with Exosurf were ventilated for a significantly longer period of time (7 days *v* 4·5 days for the control group) and spent longer in oxygen (12 days *v* 8 days). There was a significantly greater incidence of intraventricular haemorrhage (IVH) (grade III or worse) in the treated group. There was also an increased incidence, albeit not statistically significant at the 5% level, in pneumothorax, patent ductus arteriosus (PDA), upper lobe consolidation, and pulmonary haemorrhage in the Exosurf treated group compared with the control population (table).

Our first impressions concerning numerous adverse short term experiences have been supplemented by the conduct of a case-control comparison which also showed that the Exosurf treated babies had a greater duration of ventilator treatment and a longer period in oxygen. The incidence of grade III IVH was also significantly greater in the Exosurf treated group.

Some outcome measures for the infants studied; data are medians or incidences (%)

Outcome measures	*Control group (n=50)*	*Exosurf group (n=50)*
Days in IPPV	4·5	7**
Days in oxygen	8	12*
PDA	1 (2)	2 (4)
IVH	3 (6)	9 (18)*
Pneumothorax	5 (10)	9 (18)
Consolidation	3 (6)	7 (14)
Pulmonary haemorrhage	0 (0)	3 (6)

IPPV=intermittent positive pressure ventilation. **p<0·01; *p<0·05.

It is important to bear in mind that our observations take the form of a relatively small case-control study, as compared with the finding of the large multicentre randomised trials that have reported favourably upon the properties of Exosurf. It is possible that our observations are biased because of the lack of randomisation or of exhibiting a type I statistical error on account of chance. However, it may be that the overall beneficial effect discovered in the large multicentre trials hides a group of babies susceptible to an adverse experience with this particular surfactant, although it is possible that some aspect of our management regimen rendered our patients susceptible to an adverse response to Exosurf. It is, for instance, our practice to use muscle relaxants almost routinely in ventilated preterm babies and it is possible that the absence of spontaneous respiratory efforts had an adverse effect on the distribution of surfactant within the lung. If there is a subgroup of babies, distinguished perhaps by the management protocol to which they are subjected, who actually do worse with Exosurf treatment then it is obviously very important for them to be distinguished from the majority who, according to published trials, will benefit.

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Enterococcus faecium meningitis

EDITOR,—Neonatal meningitis is a medical emergency in which prompt diagnosis and treatment are of paramount importance. Although β haemolytic streptococci of Lancefield group B and *Escherichia coli* are most commonly responsible, infection with other agents is occasionally encountered. Enterococci are reported as causing neonatal sepsis with increasing frequency,[1] and their antibiotic sensitivities differ significantly from more common neonatal pathogens. We wish to report two cases of neonatal meningitis in preterm infants caused by *Enterococcus faecium*.

Case reports

CASE 1

A previously well boy of 34 weeks' gestation presented aged 8 days with lethargy, abdominal distension, and bile stained vomiting. An infection screen was performed. Abdominal radiographs showed gaseous distension but no specific features of necrotising enterocolitis.

Enteral feeding was stopped and intravenous antibiotics commenced with flucloxacillin, netilmicin, and metronidazole. The cerebrospinal fluid contained only 4 white cells/mm^3, but *E faecium* was isolated on culture. Blood cultures were negative. Antibiotic treatment was changed to ampicillin and gentamicin as the organism demonstrated only moderate sensitivity to penicillin, and resistance to chloramphenicol. Treatment was continued for 14 days, with metronidazole for the initial seven days. Feeds were successfully reintroduced after a week and the baby subsequently made satisfactory progress, with discharge aged 4 weeks.

CASE 2

A boy was born at 33 weeks' gestation with an antenatally detected gastroschisis. After surgical repair on day 1 progress was satisfactory until day 16, when an infection screen was performed and enteral feeding stopped because of pyrexia and lethargy. Antibiotic treatment was commenced with flucloxacillin and netilmicin. *E faecium* was grown from blood cultures, but the cerebrospinal fluid contained no leucocytes and was negative on culture. Over the next three days the infant continued to have temperature instability, and the antibiotics were changed to penicillin, netilmicin, and metronidazole because of abdominal distension and the presence of dilated bowel loops on an abdominal radiograph. Repeat blood cultures 48 hours later were negative, and the baby's clinical condition improved, but he remained intermittently feverish. A further examination of his cerebrospinal fluid on day 24 revealed 803 white cells/mm^3. Direct culture yielded no bacterial growth, but on enrichment *E faecium* was isolated. Treatment with chloramphenicol was commenced as the organism demonstrated high level resistance to penicillin and gentamicin. Repeat cultures of the cerebrospinal fluid on day 28 were sterile, and chloramphenicol was continued for 14 days. The baby's condition improved steadily, though cerebral ultrasound revealed ventricular dilatation which subsequently required insertion of a ventriculoperitoneal shunt. At 9 months his development was assessed as being within normal limits.

Enterococci are part of the normal adult and neonatal gut flora, and are frequent isolates from clinical specimens. They are generally of low pathogenicity and infrequently cause infection. A 10 year study of neonatal enterococcal bacteraemia revealed only four patients with meningitis, three of whom had central venous catheters in situ.[1] Many studies of enterococcal sepsis do not differentiate between *Enterococcus* spp. Most