

normally appear in the substantia nigra dopamine neurons until 18 months of age.⁴ The “premature” appearance of neuromelanin in the implanted fetal cells may be indicative of metabolic overactivity and premature ageing.⁴ Alternatively, its presence may reflect cellular damage by quinones and oxygen radicals generated by auto-oxidation of dopamine,⁵ although the significance of neuromelanin in dopamine cells as either a pathological marker of Parkinson’s disease or a possible cause of Parkinson’s disease is dubious.⁶

Redmond’s report reinforces the worrying possibility that the grafts may have been subjected to similar process(es) to those that caused parkinsonism in the first place. The effect of the degree of severity of the disease is important. The patient had end-stage parkinsonism. Did any of the fetal dopamine cells in the grafts or in the host substantia nigra described by Redmond et al contain anything resembling Lewy bodies?⁷

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Effect of mite allergen on permeability of bronchial mucosa

SIR,—The allergen Der pI from the house dust mite *Dermatophagoides pteronyssinus* is a cysteine proteinase in which the antigenic epitopes are distinct from the catalytic site.^{1–3} As a development of our studies suggesting that proteinases disrupt the bronchial epithelium to augment transmucosal macromolecule movement we postulated that the enzymatic activity of Der pI might enhance the access of antigens to immunocompetent cells in the asthmatic airway by a similar mechanism. We have tested this hypothesis with an in vitro model in which sheets of bovine bronchial mucosa are mounted between two heated half-chambers^{4,5} which permit defined 0.2 cm² areas of tissue to be exposed to bathing solutions on either side. The apical sides of the tissues were exposed for 3 h to the various treatments (table). The net apical-basolateral flux of ¹²⁵I-labelled bovine serum albumin was then measured after replacement of the medium with fresh proteinase-free buffer.

EFFECT OF SPENT GROWTH MEDIUM AND DER pI ON APICAL-BASOLATERAL FLUX OF ALBUMIN IN BOVINE BRONCHIAL MUCOSA

—	Net flux*	Proteinase activity†	No
Control	2.43 (0.13)	..	9
Control + DTT	2.38 (0.12)	..	9
SGM	2.76 (0.30) (NS)	88	6
SGM + DTT	5.35 (0.40) (p < 0.0001)	239	6
Der pI	2.17 (0.03) (NS)	0	3
Der pI + DTT	4.70 (0.30) (p < 0.0001)	233	3

*In fmol cm⁻² min⁻¹, as mean (SEM), p values refer to appropriate controls
†Units/ml with azocoll substrate
SGM = spent growth medium DTT = dithiothreitol

Experiments were done with enriched extracts of *D pteronyssinus* spent growth medium (20 mg/ml) and with purified Der pI (0.3 mg/ml). Both agents were added to the apical side of the epithelium. The proteinase activities of the two preparations were first assayed by ‘Azocoll’ degradation and then matched for use in the chamber studies. Incubations were also done in the presence of 1.5 mmol/l dithiothreitol to render the cysteine proteinase catalytically competent.

The results demonstrate that Der pI can increase bronchial permeability to serum albumin (and presumably other macromolecules). Further experiments are required to investigate the time and concentration-dependency of these effects and whether inert Der pI can be activated by reducing agents in the airways.⁶ However, these preliminary results reinforce the hypothesis that allergens may enhance airways disease by means other than their antigenic activity.

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Extracorporeal membrane oxygenation

SIR,—Dr Greenough and Dr Emery (Sept 22, p 760) suggest that at King’s College Hospital there would be a likely requirement for extracorporeal membrane oxygenation (ECMO) in 1/5000 births if predicted mortality rates of 80% were applied. They go on to say that of the 5 infants who seemed to be suitable, 3 survived without problems and the remaining 2 died following rapid collapse. Bartlett et al¹ in Michigan estimated 1 infant per 1000 livebirths would be saved by ECMO each year according to these same criteria. With colleagues I wished to validate a projected figure of 20 infants a year in South Australia, having studied ECMO use.

The medical records of infants between 34 weeks’ gestation and 12 months of age and between 2 and 10 kg in weight who died in Adelaide paediatric intensive care units between July, 1981, and June, 1986, were reviewed to see how many might have been considered for ECMO had it been available as a clinical service. Criteria for such consideration included reversible disease, artificial ventilation for less than seven days, and no intracranial haemorrhage. An additional criterion was that 90 min could have elapsed for an ECMO circuit to be established.

In this five years there were 126 deaths of which 40 might have been considered for ECMO had it been available. Deaths were classified according to the system affected and whether the disease was acquired or congenital. In the largest group (acquired pulmonary disease), 25 of 33 would certainly have been considered for ECMO whereas in only 1 of 15 congenital pulmonary deaths might this have been beneficial. Nearly all these deaths were due to pulmonary hypoplasia. All 4 infants dying from acquired cardiac disease could have benefited from the use of ECMO whereas in only 3 of 21 infants dying from congenital heart disease would ECMO have been considered. There were no ECMO appropriate deaths involving other systems; and most (75%) were in the neonatal period.