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Some preliminary studies on low incidence of infant botulism in the United Kingdom

Since the first recognition of infant botulism in 1976¹ over 500 cases have been reported worldwide, more than 95% of which have occurred in the United States. There has been one reported case in the United Kingdom.² About one third of all cases occurred in babies known to have eaten honey.³ Several surveys⁴⁻⁶ in the United States on the incidence of *Clostridium botulinum* in honey have shown that up to 10% of retail samples (principally American produce) were contaminated with the organism. There have also been reports^{7,8} of the presence of *C. botulinum* in post mortem faecal specimens from infants who had died suddenly and unexpectedly (sudden infant death syndrome, SIDS).

In view of these findings we felt it worth while to investigate the incidence of *C. botulinum* in honey, either produced in or imported into this country, and to determine whether any deaths in infants diagnosed as SIDS could be attributed to *C. botulinum* intoxication.

Honey samples on sale in the United Kingdom from 16 countries, excluding the United States, were examined for *C. botulinum* using a combination of dilution and centrifugation⁵ and membrane filtration.⁹ The technique was validated using a naturally contaminated honey sample provided by Dr SS Arnon, Department of Health Services, California, United States, and could detect one *C. botulinum* type B spore per 5 g honey. *C. botulinum* was not detected in a 20 g portion of 122 samples examined.

Specimens of faeces (n = 97), ileocecal contents (n = 34), and heart blood (n = 34) from 97 cases of SIDS, and specimens of faeces (n = 27) and serum (n = 7) from 27 cases of suspected infant botulism were examined by standard procedures.¹⁰ Neither *C. botulinum* toxin nor the organism were found in any of the specimens examined.

C. botulinum has been found in honey only in the United States to date, except for a single case in Canada.³ This may reflect a

more common occurrence of the organism in the American environment, although this is difficult to substantiate. Variations in the numbers of spores in the environment have been suggested as a reason why some states in America have a very low incidence of infant botulism.¹¹ It seems unlikely that increased clinical awareness of the disease in the United States would account for the difference in reported international incidence.

One of the many theories concerning some cases of SIDS proposes that the syndrome is a clinical manifestation of infant botulism in its most severe form.¹² If this were the case then it is not surprising that none of the specimens examined from the SIDS cases in this study was positive, as infant botulism in this country is extremely rare. The two conditions may not be linked, however, as Swiss workers⁸ found that 15% of SIDS cases were associated with the presence of *C. botulinum* or its toxins, yet Switzerland has a very low incidence of infant botulism. We are continuing the investigation of cases of SIDS in this country for the presence of *C. botulinum*.

Although *C. botulinum* intoxication is very rare in the United Kingdom, it would seem prudent to avoid potential risk factors, such as feeding honey to infants under 12 months of age¹³ especially as a good deal of honey is imported into this country.

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Bios = life

Alas, I had on two occasions to write to one of your predecessors to remind him that a biopsy after death is, by definition, an impossibility. I note in the paper by Cairns *et al*¹ that three references to the impossible have escaped the present editorial eye.

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Professor Slavin replies:

Dr Penman is correct—and the editor nodded. This is particularly reprehensible for he (GS) performed the necropsy.