

those with low glycaemic index on HDL-cholesterol. Until those data are available, the effect of low-glycaemic-index foods on blood lipids remains unproven.

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Elective caesarean section for prevention of vertical transmission of HIV-1 infection

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Obstetricians uniquely have professional responsibility for two patients in one. Very occasionally, there is a conflict of interest between mother and unborn child, and few people would doubt that the obstetrician's prime duty is then towards the pregnant woman in his or her care. Nevertheless, invasive procedures carrying some maternal risk have long been voluntarily accepted by women solely in the interests of the fetus, the prime example being caesarean section for prolapsed umbilical cord. The obstetrician, without having personal expertise in all aspects, has to balance pressure to intervene on behalf of the unborn child against received wisdom on maternal risk. The ultimate decision will lie with the woman, who can be very vulnerable to all sorts of pressures applied on behalf of her unborn child. If she trusts her obstetrician, she will rely heavily on his or her balanced advice.

In few such situations is the decision more difficult than over the possibility of vertical transmission of serious infection from mother to child. Prophylactic elective caesarean section was proposed against intrapartum infection from active genital herpes. This policy, however, took little account of the difference between primary and secondary infection and the role of passive immunity. Recognition of these issues has led to a striking reduction in the indications for elective caesarean section when the mother has genital herpes.¹

There is now the broadly similar situation of HIV-1 infection in pregnancy. The issue is more complex, not least because of the aura and stigma that surround HIV-1 infection. Fetal infection can occur at various stages of pregnancy. There is anecdotal evidence of viral colonisation of the fetus in the mid trimester, although the evidence suggests that the risk of transmission then is small compared with that during labour and delivery.² The relative importance of labour and vaginal delivery is not clear, but a study on twins born vaginally to HIV-1-seropositive women suggested that the time of exposure to the genital tract after rupture of the membranes is likely to be significant.³ The risk of vertical transmission clearly persists postnatally if the woman breastfeeds.⁴ Nevertheless, there are now other interventions (some more or less in the experimental phase) that may reduce the risk of vertical transmission. These include elective caesarean section, prophylactic antiretroviral therapy for

mother and neonate,⁵⁻⁸ and the use of topical vaginal virucide preparations that are still in the developmental phase. There is, moreover, some concern over the effects on the mother of caesarean section done for HIV-1 positivity. One report has suggested a slightly increased risk of infection,⁹ but certain other potentially adverse consequences are less easily quantified. In some cultures labour is seen as the fitting outcome to pregnancy. Caesarean section may then be accepted on medical grounds if a woman has given labour a "fair trial", but an elective operation to prevent labour may be much less acceptable. The need to explain to others why she is having an elective caesarean section for which there is no obvious reason may be a strong disincentive, especially if the woman's HIV-1 status is not known to her partner.

Important evidence on the efficacy of elective caesarean section in the reduction of vertical transmission of HIV-1 infection is now available. In today's *Lancet* a European collaborative group report on their randomised clinical trial of elective caesarean section in 436 HIV-1-positive women who were generally given antiretroviral therapy prophylactically according to the ACTG076 regimen and who did not breastfeed. In addition, an important meta-analysis of 15 prospective cohort studies by the International Perinatal HIV Group that is due to be published in the *New England Journal of Medicine* on April 1 has been posted on the internet (<http://www.nejm.org/content/embargo/HIV.asp>; accessed on Mar 23, 1999). In this meta-analysis, primary analysis covered data on 8533 mother/child pairs. Multivariate logistic regression was used for other factors besides caesarean section known to be associated with vertical transmission. After adjustment, the analysis showed that elective caesarean section reduced the likelihood of vertical transmission by some 50%.

The results of both of these studies indicate that elective caesarean section reduces the risk of mother-to-child transmission of HIV-1 independently of the effects of treatment with zidovudine, but not sufficiently to obviate the need for antiretroviral therapy. The randomised controlled trial did not disclose any apparent increase in serious maternal complications.

Elective caesarean section is part of a package, and if breastfeeding is not to be avoided or antiretroviral therapy is not given prophylactically, the risk ratio for caesarean section may not be appropriate. In situations of social and economic deprivation, avoidance of breastfeeding may not be justified, since there may be no safe alternative. Furthermore, caesarean section may carry long-term risks for the mother that are not apparent in a community where medical services are readily available. However, on an individual basis, elective caesarean section should now be seen as part of a package to be put as an option to HIV-1-positive pregnant women where related circumstances are favourable.

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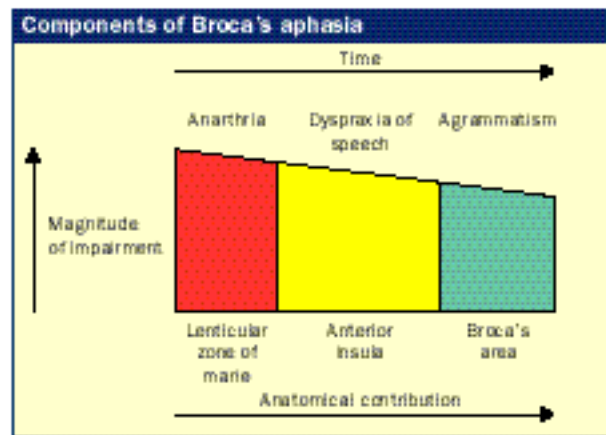
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More (or less) on Broca

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The functions of Broca's area (pars opercularis of the third frontal convolution) have always been controversial, but clinicopathological studies have never convincingly linked this area with disturbances in articulation.¹ Indeed, the historical record contains an interesting attempt to place some distance between Broca's area and the mechanisms of expressive speech. In 1906, Pierre Marie produced a triad of papers, which, in the words of Henry Head (1926), "startled" the medical world.² One of these bore the visionary title "The third frontal convolution does not play any special role in the function of language". According to Marie there was only one true aphasia, that of Wernicke; when anarthria, or inability to articulate, was present as well, the clinical picture became that of Broca's aphasia.² Of particular interest here, however, are Marie's views on the localisation of anarthria.² He was adamant that disorders of articulation do not arise from the third frontal convolution.² Rather, he believed that anarthria was caused by lesions in what he called the "lenticular zone", which included the insula. Marie could never have anticipated the eventual confirmation of his hypothesis by means of functional neuroimaging.

In their study reported in this issue of *The Lancet*, Richard Wise and colleagues used positron-emission tomography (PET) to identify the region of the brain subserving articulation. This work follows on from our earlier commentary³ and the work of Dronkers and colleagues, in which lesion studies (pathological) in human beings were used to localise the coordination of speech articulation to the left insula region.⁴ Wise and colleagues used an activation method based on single-word repetition and showed that regional cerebral blood flow (imaged by PET) was also increased in this brain region, particularly the left anterior insula. This is clearly important information and supports the work of Dronkers, but caution is needed in concluding that Broca's area is not implicated in articulation. First, the activation paradigm described is highly specific and may represent only a part of the complex mechanism of articulation. Second, the study design, particularly the grouping of varying rates of presentation of stimulus, may underestimate the involvement of Broca's area. Indeed, in a related study,⁵ Wise and colleagues suggested that activation of Broca's area is "more subtle and complex" and depends on rate of presentation of the stimulus. Finally, given other evidence of substantial variation in areas of activation and anatomy across individuals, the data presented do not preclude individual involvement of Broca's area per se.



If articulation is represented predominantly in the insula, what are the functions of Broca's area as originally defined? An example is provided by the work of Petersen and colleagues, whose PET-based studies indicated that verb generation (in response to a given noun) increased perfusion in Broca's area.⁶ Linking of nouns and verbs lies at the heart of sentence production, and involves mechanisms that lie well beyond the articulatory level. Ultimately, articulation is the physical medium through which spoken sentences are communicated, and it now seems more than likely that Broca's area and the "lenticular zone" of Marie are part and parcel of the same distributed system that serves the ends of expressive language.

The main disorder of expressive language is Broca's aphasia.¹ Modern concepts of this disorder do include the evolution of apraxia of speech from initial anarthria.^{1,4} Apraxia was linked functionally to the insula by Dronkers and supported by the activation study reported today. It is important, therefore, to appreciate that Broca's aphasia is a syndrome, elements of which range from initial mutism, to speech apraxia and the classic pattern of agrammatism (figure).

Hence, the story concerning Broca's aphasia and Broca's area is still evolving.^{1,7} Wise and colleagues have made an excellent contribution, and their findings support the notion that at least the articulation component could be most heavily represented in the left insula. Other interdependent areas are undoubtedly involved in the modern concept of Broca's aphasia. The research and discussion of the subject has been hampered rather than helped by its historical origins. Attention now needs to be directed towards the underlying theories of expressive speech, and its multicentred, but predominantly left cortical and sub-cortical, origins. Perhaps it is not by chance alone that such an important function as speech expression is not localised in one discrete area but probably more widely spread over several interdependent locations. Where and what these are should continue to challenge investigators.

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