invasive *H influenzae* type b disease in those under 5 in the Oxford study. A total of 268 cases of meningitis and 118 cases of epiglottitis were identified. The annual incidence rate for *H influenzae* meningitis in children less than 5 years of age was 14.1/100 000 (compared with 23.6/100 000 in Oxford) and 8.6/100 000 for epiglottitis, similar to that found in Oxford. Over the last four years, however, the incidence rate for *H influenzae* has been 18.1/100 000, which may represent an improvement in data collection. If immunisation will prevent 85% of systemic *H influenzae* type b disease² the impact of such a programme will be detectable by monitoring HAA data. The Communicable Disease Centre at Colindale already collect details of invasive *H influenzae* disease. Local surveillance could also include scrutiny of statutory notifications and death registrations. It would seem that information systems already in place should be able to monitor the effectiveness of introducing immunisation for *H influenzae*.

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Effect of clonidine on serum gonadotrophin concentrations

Sir,

Clonidine, an α_2 adrenergic agonist and a potent stimulator of pituitary growth hormone release, is being used in the treatment of short children in some centres.¹ Clonidine also causes release of luteinising hormone in rats, however, and restoration of suppressed luteinising hormone pulsatility.^{2,3} This observation could have important implications for the treatment of short children because clonidine might induce puberty. We report the effects of clonidine on serum gonadotrophins in normal subjects.

Clonidine (0.15 mg/m² orally) was given at 09.00 (time 0) to eight healthy adult men volunteers and placebo to one subject. Twelve blood samples to measure luteinising hormone and follicle stimulating hormone were drawn at 15 minute intervals between -45 and 120 minutes through an indwelling venous cannula. Blood pressure was determined every 15 minutes throughout the test. The blood samples were centrifuged and the serum stored at -20°C until assay. Luteinising hormone and follicle stimulating hormone assays were performed by immunoradiometric assay kits from the North East Thames Regional Immuno-assay Scheme in duplicates and the concentrations were measured as IU/l.

Table Effects of clonidine on serum luteinising hormone and follicle stimulating hormone. Values are mean (SD)

	Luteinising hormone (IU/l)	Follicle stimulating hormone (IU/l)
Study group (n=8)		
Basal	4.2 (1.1)	4.4 (1.7)
Peak after clonidine	5.1 (1.5)	4.3 (1.7)
Control (n=1)		
Basal	2.6 (0.7)	2.5 (0.6)
Peak after clonidine	2.4 (0.5)	2.6 (0.5)

No significant decrease in blood pressure was observed. The results shown in the table clearly show that clonidine does not have any effect on gonadotrophin concentrations.

Alpha₁ adrenergic blockers reduce the frequency of luteinising hormone pulses and suppress pulsatile release of luteinising hormone in animals, implying that the major effect of the alpha adrenergic system is to stimulate gonadotrophin releasing hormone release.⁴ When clonidine was administered to rats with abolished luteinising hormone pulsatility, it re-established luteinising hormone pulsatility and increased the secretion of luteinising hormone.^{2,3} The affinity of clonidine for the alpha₁ receptor is 70-500 times weaker than its affinity for alpha₂ receptor but it shows an effect on alpha₁ receptors when given in large doses.⁵

The reason why clonidine affected luteinising hormone pulsatility in the rats was that it was given in large doses. The small doses used in this study were effective on the alpha₂ receptors with no apparent effect on luteinising hormone pulsatility.

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