not told what the ultrasound diagnoses in the other 21 was, presumably dilatation of unknown cause. Cystic renal dysplasia can be accurately diagnosed by ultrasound in most cases if the strict criteria of non-communicating cystic spaces, which vary in size and number, is adhered to. It is well recognised that in a few cases it may be difficult to differentiate from hydronephrosis but this is readily achieved either by cyst puncture or radionuclide scintigraphy. It is, however, good practice in all cases to perform a dimercaptosuccinic acid (DMSA) scintigram to confirm total absence of function.

The place of postnatal renal tract ultrasound is quite clear. It should act as a guide to the next examination, although in many cases the specific diagnosis will be apparent. Tudor and Whitaker have recently described a protocol for the detection and management of the dilated fetal urinary tract, which is to be commended.³ The ultrasound scans should be performed by individuals skilled in paediatric ultrasound. In a tertiary referral centre one would expect all the scans to be repeated by such an individual before the initiation of treatment or further investigation.

References

- Clarke NW, Gough DCS, Cohen SJ. *Arch Dis Child* 1989;**64**: 578-80.
- Arthur RJ, Irving HC, Thomas DFM, Watters JK. *Br Med J* 1989;**298**:1419-20.
- Tudor J, Whitaker RH. *Clin Radiol* 1989;**40**:229-30.

D R M LINDSELL
Radiology Department,
John Radcliffe Hospital,
Headington,
Oxford OX3 9DU

Gall stones in homozygous sickle cell disease

Sir,

We recently communicated detailed findings on the prevalence and risk factors for gall stones in children with homozygous sickle cell disease.¹ The study has been repeated to include other sickle genotypes for which there are few data,² and this has enabled comparison of gall stone prevalence between genotypes. It has also enabled us to examine the role of haemolytic rate and mean serum bilirubin concentration, which is the prime determinant of gall stone prevalence in homozygous sickle cell disease.¹

The children who participated in the Jamaican cohort study of sickle cell disease were aged between 6 and 14 years at the date of the study. Gall stone prevalence was determined by real time ultrasound in a cross sectional study with informed consent in every case. Details of the number of children with each genotype, the total examined, and the prevalence of gall stones are given in the table. The mean serum total bilirubin concentration for each genotype was calculated from steady state values obtained at each child's birthday after four years; this is because of the rapid change in haematological indices before this age.³

Table Details of children studied

Genotype	No of children in cohort study	No of children screened	No (%) with gall stones	Mean (range) serum bilirubin ($\mu\text{mol/l}$)
SS	242	218	30 (14)	35 (27-38)
SB ^o	11	9	2 (22)	27 (20-35)
SC	152	138	4 (3)	19 (16-22)
SB ⁺	33	25	0	15 (12-17)

Gall stones were more common in homozygous sickle cell (SS) than sickle cell/haemoglobin C (SC) disease ($\chi^2=9.7$, $p<0.01$), but other differences in prevalence were not significant. Gall stone prevalence was unreliably estimated in sickle cell/ β (SB) thalassaemia due to small patient numbers. Mean serum bilirubin concentrations varied by genotype in a similar manner to gall stone prevalence, and data from the cohort study have shown differences by genotype in mean haemoglobin and reticulocyte count consistent with variation in haemolytic rate.⁴ Our data indicate that haemolysis, mean bilirubin, and gall stone prevalence vary by sickle genotype, and that the risk of gall stones is low in children with SC disease and SB⁺ thalassaemia.

References

- Webb D K H, Darby J S, Dunn D T, Terry S I, Serjeant G R. Gall stones in homozygous sickle cell disease. *Arch Dis Child* 1989;**64**:693-6.
- Rennals M B, Dunne M G, Grossman N J, Schwartz A D. Cholelithiasis in patients with major sickle hemoglobinopathies. *Am J Dis Child* 1984;**138**:66-7.
- Serjeant G R, Grandison Y, Lowrie Y, Phillips J, Serjeant B E, Vaidya S. The development of haematological changes in homozygous sickle cell disease: a cohort study from birth to 6 years. *Br J Haematol* 1981;**48**:533-43.
- Stevens M C G, Maude G H, Beckford M, et al. Haematological change in sickle cell-haemoglobin C disease and sickle cell-beta thalassaemia: a cohort study from birth. *Br J Haematol* 1985;**60**:279-92.

D K WEBB, D T DUNN, and G R SERJEANT
Medical Research Council Laboratories,
University of the West Indies,
Kingston 7, Jamaica

Haemophilus influenzae type b disease in the Oxford region

Sir,

Tudor-Williams *et al* report an incidence of systemic *Haemophilus influenzae* type b disease in children less than 5 years of age of 33.4/100 000.¹ This was determined from a detailed laboratory based study in the Oxford region and they urge others to set up similar prospective studies.

I have examined Hospital Activity Analysis (HAA) data for all deaths and discharges for *H influenzae* meningitis (ICD Code 320.0) and acute epiglottitis (ICD Code 464.3) in the South Western region from 1976-86 and 1979-86 respectively. These two groups accounted for 80% of all

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*.

References

- 1 Tudor-Williams G, Frankland J, Isaacs D, *et al*. Haemophilus influenzae type b disease in the Oxford region. *Arch Dis Child* 1989;**64**:517-9.
- 2 Eskola J, Petola H, Takala AK, *et al*. Efficacy of Haemophilus influenzae type b polysaccharide—diphtheria toxoid conjugate vaccine in infancy. *N Engl J Med* 1987;**317**:717-22.

S F GRAY

Department of Community Medicine,
Frenchay Health Authority,
District Headquarters,
Beckspool Road,
Frenchay Common,
Bristol BS16 1ND

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 Immunoassay 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.

References

- 1 Pintor C, Loche S, Corda R, *et al*. Clonidine treatment for short stature. *Lancet* 1987;**i**:1226-30.
- 2 Estes KS, Simpkins JW, Kolra SP. Resumption with clonidine of pulsatile LH release following acute norepinephrin depletion in ovariectomized rats. *Neuroendocrinology* 1982;**35**:56-62.
- 3 Kinoshita F, Nakai Y, Katakami H, Kato Y, Imura H. Role of alpha-adrenergic mechanism in regulating tonic luteinizing hormone release in conscious ovariectomized rats. *Endocrinology* 1981;**104**:1272-5.
- 4 Kaufman J-M, Kesner JS, Wilson RC, Knobil E. Electrophysiological manifestation of luteinizing-hormone-releasing hormone pulse generator activity in the rhesus monkey: influence of alpha-adrenergic and dopaminergic blocking agents. *Endocrinology* 1985;**116**:1327-33.
- 5 Krulich L, Mayfield MA, Steele MK, McMillen BA, McCann SM, Koenig JI. Differential effects of pharmacological manipulations of central alpha-1 and alpha-2 adrenergic receptors on the secretion of thyrotropin and growth hormone in male rats. *Endocrinology* 1982;**110**:796-804.

F DARENDELILER, D SURI, P HINDMARSH, and
C G D BROOK
Endocrine Unit,
Middlesex Hospital,
Mortimer Street,
London W1N 8AA