

Letters to the Editor

Corrected calcium conflict continues

Walker and Payne¹ recently reported no significant interindividual differences between factors used to correct calcium for abnormal albumin concentrations in 15 patients with myocardial infarction. These data have further confused the corrected calcium conflict. Our data on interindividual variation in correction factors is based on 25 patients with a wide variety of diseases^{2,3} as well as on 17 healthy subjects undergoing a tourniquet test.⁴ Both groups showed clinically and statistically significant ($p < 0.001$ and < 0.05 , respectively) interindividual differences. Because we have noted a high prevalence of hypercalcaemia in patients with a myocardial infarction (11 of 100 consecutive cases) we wondered if the different results of Walker and Payne had occurred because they had studied a special patient group. We therefore reviewed 22 patients who presented with myocardial infarction at the same time as our original study. Calcium and albumin measurements had been performed by dye-binding methods on the Technicon SMA 12/60 with typical between-batch coefficients of variation of 1.8% and 2% respectively. The mean spontaneous change in albumin concentration was 5.8 ± 0.52 (SEM) g/l. Interestingly, there was no significant interindividual variation in correction factors in these patients ($p > 0.35$).⁵

We believe that myocardial infarction may affect calcium metabolism, and this deserves further study. However, in patients with other diseases, calcium correction factors vary. The conflict continues!

R W PAIN

P J PHILLIPS

B MCL DUNCAN

Division of Clinical Chemistry,
Institute of Medical and Veterinary
Science,
Adelaide, South Australia

³ Phillips PJ, Pain RW, Duncan BMcL. Serum calcium (Letter). *Lancet* 1979; 2:156.

⁴ Phillips PJ, Pain RW, Hartley TF, Duncan BMcL, Atkinson MJ. Current 'corrected' calcium concept rechallenged (Letter). *Clin Chem* 1977;23:1938-9.

⁵ Williams EJ. *Regression Analysis*. New York: John Wiley, 1959: Ch 8.

⁴ Hodkinson HM. 'Corrected' calcium concept (Letter). *Br Med J* 1976;1:219-20.

⁵ Payne RB, Little AJ, Williams RB, Milner JR. 'Corrected' calcium concept (Letter). *Br Med J* 1976;1:153-4.

⁶ Ramsay LE, Shelton JR. 'Corrected' calcium concept (Letter). *Br Med J* 1976;1:219.

The authors have commented as follows:

We have confirmed the observations of Phillips *et al.*¹ that normal individuals differ significantly in the relations between the increases in total calcium and albumin after application of a tourniquet.² We are pleased that they now confirm our recent observations that individual patients do *not* differ significantly in the relations between the slow falls in total calcium and albumin which take place during the days after a myocardial infarction.²

Apart from some early data,³ the significance of which has been disputed elsewhere,⁴⁻⁶ the only difficulty remaining is their claim that patients with myocardial infarction have a surprisingly high incidence of hypercalcaemia and therefore differ from other patients in whom calcium might be adjusted for a low albumin. This claim is without precedent in the literature and is outside our experience, provided specimens are obtained without venous stasis. We await the publication of detailed confirmation with interest.

B E WALKER

Chapel Allerton Hospital, Leeds

R B PAYNE

St James's University
Hospital, Leeds

References

¹ Phillips PJ, Pain RW, Hartley TF, Duncan BMcL, Atkinson MJ. Current 'corrected' calcium concept rechallenged (Letter). *Clin Chem* 1977;23:1938-9.

² Walker BE, Payne RB. Adjusted calcium conflict resolved? *J Clin Pathol* 1979;32:488-91.

³ Pain RW, Rowland KM, Phillips PJ, Duncan BMcL. Current 'corrected' calcium concept challenged. *Br Med J* 1975; 4:617-9.

Comparison of electron microscopy and immunofluorescence in cell culture for rotavirus detection

Recently, Birch *et al.*¹ reported in these columns that immunofluorescence (IF) in LLC-MK2 cells was less sensitive than electron microscopy (EM) for the detection of rotaviruses in faeces. My results suggest that the reverse is probably correct.

During the year August 1978 to July 1979, rotaviruses were detected in 112 specimens of faeces submitted to this laboratory for routine viral examination. They were examined by immunofluorescence² and EM,³ as published without modification. Of the 112 specimens, 76 (68%) were positive by both IF and EM, 23 (21%) by IF alone, and 13 (12%) by EM alone. An analysis by age of patient was made of the two groups positive by only one of the methods. It was found that IF was probably superior in diagnosing rotavirus infection in children under 1 year but EM was possibly superior when the child was more than 3 years of age (Table 1). With these older children, it may be that they were suffering from a second or subsequent rotavirus infection, and previously existing antibody in the gut, albeit to a different serotype, was interfering with the IF test but not conferring any protection on the patient. In the same two groups, when the interval between onset of symptoms and collection of specimen was considered (Table 2), IF appears to be superior to EM when the specimen was collected within seven days of onset although EM may well be better for testing samples taken later than this.

Further support for the belief that IF is superior to EM for diagnosing rotavirus infection comes from a study of babies in special care at Sorrento Maternity Hospital, Birmingham in 1977 (to be

References

Walker BE, Payne RB. Adjusted calcium conflict resolved? *J Clin Pathol* 1979; 32:488-91.

Pain RW, Rowland KM, Phillips PJ, Duncan BMcL. Current 'corrected' calcium concept challenged. *Br Med J* 1975;4:617-9.