Correspondence

Contents ■ Pituitary in psychosis ■ CBT for psychosis ■ Depression interventions in resource-poor regions ■ ADHD in developing countries

Pituitary in psychosis

Pariante et al (2004) conclude that patients with first-episode psychosis have a larger pituitary volume and those with chronic schizophrenia a smaller pituitary volume in comparison with the controls. However, there are a number of factors that limit this conclusion.

First, normal variation in pituitary volume: a large degree of variation is observed in the morphology of anterior and posterior pituitary in healthy individuals (Fujisawa et al, 1987). Moreover, the variations may occur in the same individual if the measurements are repeated after an interval (Brooks et al, 1989). Therefore, conclusions based on a single measurement may be unreliable and at least two or three measurements should have been performed for better accuracy.

Second, effect of gender and age: men tend to have smaller pituitaries, as mentioned by Pariante et al, and the pituitary size decreases with age (Brooks et al, 1989). In the study by Pariante et al the schizophrenia group contained a significantly larger number of men and significantly older people compared with the control group. These differences could be partially responsible for the smaller pituitary size observed in chronic schizophrenia.

Third, failure to demonstrate the hyperactivity of hypothalamic–pituitary–adrenal (HPA) axis: the correlation between HPA axis and pituitary volume is purely speculative and Pariante et al did not discuss the negative studies on the subject. Katona & Roth (1985) reported an abnormal dexamethasone suppression response in only 33% of patients (10 out of 30) with schizo-affective depression.

Fourth, failure to measure the adrenal gland size: adrenal gland hypertrophy has been shown to correlate with hyperactivity of the HPA axis in depression (Nemeroff et al, 1992). Pariante et al did not measure the adrenal gland size, probably as the study was not pre-planned and magnetic resonance imaging data obtained for another study were utilised. Measurement of adrenal gland size would have added more weight to the study findings.

Another comment worth mentioning is that hyperactivity of the HPA axis does not point to a specific diagnosis and occurs in a large number of conditions associated with stress. Therefore, this finding alone has a limited role in diagnosis of a particular condition.


S. Kumar Department of Neurological Sciences, Christian Medical College, Vellore, India 632 004. E-mail: drsudhirkumar@yahoo.com

Author’s reply: We welcome Dr Kumar’s comments, drawing attention to some of the limitations of our study (Pariante et al, 2004). Even though some of these points had already been discussed in the paper, we think it is helpful to reply to all comments.

We agree that there is a large degree of variation in the morphology of the pituitary. For example, in our sample approximately half the subjects had a ‘concave’ pituitary, and a third had a ‘flat’ pituitary. However, we have minimised the influence of morphology on the volume measurement by tracing all coronal slices where the pituitary was visualised. Dr Kumar also refers to the paper by Brooks et al (1989) showing intra-individual changes in the brightness of the posterior bright signal, representing vasopressin released in the posterior lobe for fluids control. We did not analyse the brightness of the posterior bright signal, as we were not interested in the regulation of fluids control in our sample.

In our study there were significant differences in age and gender between the groups. By definition, it was impossible to have one single control that was comparable to the young first-episode participants as well as to the older individuals with established schizophrenia, for both age and gender distribution. However, we used two strategies to control for these confounders: first, gender and age (and whole-brain volume) were included as covariates in the analysis; second, the results obtained from this analysis were further corroborated by conducting separate tests comparing the clinical groups (first-episode and established) with selected control groups that had similar age and gender distribution. Both strategies led to the same results, thus demonstrating that the smaller pituitary volume in patients with established schizophrenia is not due to differences in age and gender distribution.

We agree that the association between increased pituitary volume and HPA axis hyperactivity is speculative, and we clearly stated this in our paper (see Limitations, p.10). Nevertheless, over 30 years ago Sachar et al (1970) found that patients experiencing a first-episode psychosis were more likely to present with HPA abnormalities, because of the distress associated with the ‘dramatic and ego-dystonic’ nature of this experience. Several studies have confirmed that patients who are in the acute phase of a psychotic disorder, with florid symptoms, newly hospitalised or unmedicated, have elevated HPA axis activity as shown by raised cortisol levels (Sachar et al, 1970), non-suppression of cortisol secretion by dexamethasone in dexamethasone suppression test and in the dexamethasone/corticotropin-releasing factor (CRF) test (Herz et al, 1985; Lammers et al, 1995), and elevated levels of CRF in the cerebrospinal fluid (Banki et al, 1987). Only patients who are clinically stable and receiving treatment tend to have a normal HPA axis (Ismail et al, 1998). Indeed,
the study by Katona & Roth (1985), cited by Dr Kumar, also reports, in the authors’ own words, ‘an increased frequency of HPA axis abnormality’ in schizoaffective depression.

We agree that our study would have been more complete if we had measured the adrenal gland size. Indeed, measuring hormonal levels would have been an important addition to the study. We will take this advice into consideration in our future studies.

Finally, we support Dr Kumar’s view that hyperactivity of the HPA axis occurs in a large number of conditions associated with stress. Indeed, we suggested in our paper that glucocorticoid resistance could be the molecular mechanism by which stress induces HPA axis hyperactivity in patients with different mental disorders (see Discussion, p. 8). We never suggested that this biological abnormality could have any diagnostic value. However, we believe that measuring specific biological markers can give us further insight into the pathological mechanisms affecting the brains (and the bodies) of our patients.


C. M. Pariente Division of Psychological Medicine, Box POSI, Institute of Psychiatry, King’s College London, 1 Windsor Walk, Denmark Hill, London SE5 8AF, UK. E-mail: spjcmp@kcl.ac.uk

CBT for psychosis

Although the study by Tarrier et al. (2004) appears to be methodologically more rigorous than the similar study of cognitive–behavioural therapy (CBT) in post-acute schizophrenia by Turkington et al. (2002), I am a little confused by the authors’ conclusions. After clearly demonstrating no superior effect for CBT over supportive counselling on measures of symptom reduction and relapse rates, the authors conclude their paper by stating that they ‘suggest that the optimum psychosocial management of early schizophrenia would include a combination of CBT and family intervention’. Would it be rude to suggest that the authors take into account their own findings before making such a statement? It is also more than a little irritating that the authors refer to their sample as being diagnosed with ‘early schizophrenia’ throughout the paper. Examining the inclusion criteria for this study shows that patients were included who had schizophreniform disorders, delusional disorders and unspecified psychoses.

Regarding the criterion for ‘early’, most clinicians would define the duration of schizophrenia from symptom onset to commencement of treatment (hence the concept of the duration of untreated psychosis). Unless the authors specify illness duration, the criterion of ‘early’ cannot be asserted. Thus, this appears to be a study of patients within 2 years of their first episode of non-affective psychoses and not those with early schizophrenia per se.


A. J. Mitchell Brandon Mental Health Unit, Gwendolen Road, Leicester LE5 4PW, UK. E-mail: alex.mitchell@leicspart.nhs.uk

Authors’ reply: Dr Mitchell professes both confusion and irritation at our report of the follow-up results of the SoCRATES study. I will attempt to clarify. When implemented with standard care, CBT has consistently been found to result in clinical benefits in terms of symptom relief compared with standard care alone. This has been found in post-acute illness, as with the reported study, and chronic phases (Pilling et al., 2002). Cognitive–behavioural therapy is a structured psychological treatment usually implemented from a manual, which makes it relatively amenable to ‘roll-out’. CBT has less impact on relapse rates. Family interventions have been shown to have the benefit of significantly reducing relapse rates (Pilling et al., 2002). Thus, combining both CBT and family interventions would appear to be the most parsimonious way of capitalising on these developments to improve patient care by reducing symptoms of psychosis and reducing risk of subsequent relapse. In addition, both service users and carers have been increasingly vocal in wishing a greater range of interventions to be made available, including both psychological treatments and assistance for families. It is regrettable that Dr Mitchell’s comments implicitly appear to wish to deny them these further options. With respect to his comment on our inclusion criteria for the trial, a first episode of psychosis resulting in treatment by mental health services is an event that can be identified with reasonable accuracy (at least, much more accurately than emergence of symptoms prior to this). As 80% of study participants had first episode illness using this criterion, the use of the term ‘recent onset’ is not unreasonable.

The inclusion of those suffering from schizophreniform psychosis, delusional disorders and unspecified psychoses reflects clinical practice and conforms to convention on large pragmatic clinical trials in having broad inclusion criteria to aid generalisation (see Johnson, 1998).


N. Tarrier, G. Haddock, S. Lewis School of Psychiatry and Behavioural Sciences, Education and Research Centre (2nd floor), Wythenshawe Hospital, Southmoor Road, Manchester M23 9LT, UK. E-mail: nicholas.tarrier@man.ac.uk

Depression intervention in resource-poor regions

Depression is recognised as a common problem in developing countries and it is one of the most important causes of morbidity and mortality ( Patel et al., 2001). Lack of
trained personnel and the scarcity of newer antidepressants in the public sector makes the use of evidence-based treatment methods impractical in developing countries. However, as Dr Crawford (2004) points out, this does not mean that the likelihood of recovery from depression is worse than in resource-rich regions.

Even though there is limited access to specialised mental health services and newer antidepressant medication, many developing countries have evolved innovative techniques to overcome these apparent hurdles (Swartz & Rollman, 2003). The majority of patients are treated effectively using older and cheaper antidepressants. Electroconvulsive therapy is used widely in a more liberal manner than in the West.

Inadequate resources. One such example is the Chinese model of village health care facilities are used in an effective way. Cognitive–behavioural therapy is an affordable form of psychotherapy that is used. Even in the absence of formal psychological interventions, the closely knit extended families and networks of friends provide supportive therapy in an informal manner.

In addition, the available primary health care facilities are used in an effective manner to combat the difficulties created by inadequate resources. One such example is the Chinese model of village health workers functioning at a local level to identify patients in need and referring to medical personnel in local clinics (Swartz & Rollman, 2003).

In Iran the concept of health houses has been reported, where local inhabitants are screened for mental and physical illnesses by health workers, and patients presenting with more complex problems are referred on for more intensive care (Swartz & Rollman, 2003).

These models employed in some developing countries in response to the scarcity of resources should be commended. Instead of letting what we do not have incapacitate us, it is time we made use of our existing resources to provide better care for people with mental illnesses.


K. A. L. A. Kuruppuwarachchi, L. T. Wijeratne Department of Psychiatry, Faculty of Medicine, University of Kelaniya, Ragama, Sri Lanka.

E-mail: lalithkusurupe@lycos.com

ADHD in developing countries

It is with much interest that we read the editorial on attention-deficit hyperactivity disorder (ADHD) by Paul McArdle (2004). The argument regarding culture and ADHD was of particular interest to us.

ADHD is a condition that was unheard of in developing countries a few decades ago. However, clinicians now see it in increasing numbers. It was assumed that the extended families seen in developing countries act as a protective factor against psychiatric illness in childhood (Nikapotha, 1991). The low prevalence of ADHD in developing countries was attributed to this. Many hypotheses that the increase in ADHD seen now is caused by the breakdown of the family network resulting from Western influences and urbanisation.

However, it is debatable whether this is a genuine increase in prevalence or merely a perceived increase as more cases of ADHD are detected than before. We suggest that the breakdown of the family network may be one of the causative factors for this perceived increase. In developing countries with extended and closely knit families the burden of childcare was shared among many family members. With the breakdown of this structure the responsibility of childcare falls solely on the parents. This situation is made worse by both parents having to work to meet the financial demands of a family. All these factors may contribute to a low level of tolerance. Parents who are unable to tolerate difficult behaviour may seek help from medical professionals.

A decade ago difficult behaviour was not perceived as requiring help or treatment from medical professionals but rather as a situation requiring advice or discipline from family elders and community leaders (Nikapotha, 1991). This too has now changed because of increased awareness that difficult behaviour can be caused by psychiatric conditions.


K. A. L. A. Kuruppuwarachchi, L. T. Wijeratne Department of Psychiatry, Faculty of Medicine, University of Kelaniya, Ragama, Sri Lanka.

E-mail: lalithkusurupe@lycos.com

One hundred years ago

Clinical notes and cases

Clinical and Pathological Notes. – II. By Dr. M. J. Nolan, Resident Medical Superintendent, Down District Asylum, Downpatrick.

Case 5. Microcephalic idiocy; epilepsy; cerebral asymmetry; microgryia; ulegyria; scalp suggestive of atavism. – H. C. –, art. 41 years, admitted to asylum from a workhouse August 4th 1902; died of epilepsy December 22nd, 1902. No previous history obtained.

His physical appearance would have rejoiced the heart of an evolutionist, as prima facie he was a perfect specimen of the Simian type. His dwarfed figure was bent forwards; his coarse grinning face seemed to protrude from between the misshapen spreading ears. The small receding skull was encased in an ill-fitting scalp, on which the rough black hair grew in ridges. He progressed by means of a side shuffle, preserving his equilibrium by spreading out
his elongated forearms. He gave vent to meaningless spasmodic grunting sounds. In personal habits he was most depraved, showing an absolute disregard of the calls of nature. His voracious appetite was apparently gratified by the ingestion of any material. There was nothing calling for special comment in the nature of his epileptic seizures, which were frequent and severe. He was deaf and dumb. Beyond grabbing clumsily in the neighbourhood of his genitalia, he gave no indication of sexual feeling. An examination as to his mental faculties had an almost negative result. He could not be said to possess any one of the intellectual faculties except in the most rudimentary degrees. Hence in describing his appearance it was stated he was prima facie of Simian type, but his intelligence was infinitely below that possessed by the ordinary anthropoid ape. He proved clearly the force of Dr. Ireland’s contention that the intelligence of a monkey is very different from that of an idiot – the gauge of the Simian intellect cannot be reached by merely deducting so much from the human. H. C – was as far below the intellectual level of the average ape as the latter is inferior to the highly developed specimen at present the delight and wonder of a London music hall, where, in spotless regulation garb, he discusses with evident appreciation and discrimination the elaborate menu set before him. H. C – , if placed before such a meal would have brought his voracious appetite to play not alone on the viands, but on the napery, glass, and cutlery, and by preference would probably try the latter as a hors d’œuvre. During his period of residence here it required the undivided attention of the attendants to prevent him from eating filth and garbage and otherwise unwittingly endangering his life by senseless acts.

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Journal of Mental Science, 1904, 69–70.
Researched by Henry Rollin, Emeritus Consultant
Psychiatrist, Horton Hospital, Epsom, Surrey

Corrigenda

Components of a modern mental health service: a pragmatic balance of community and hospital care. Overview of systematic evidence. BJP, 185, 283–290. The second sentence of the second paragraph in the Results (p. 284, col. 2) should read: In Europe, for example, there are 5.5–20.0 psychiatrists per 100,000 population, whereas the figure is 0.05 per 100,000 in African countries (Njenga, 2002); the average number of psychiatric beds is 87 per 100,000 in the European region and 3.4 per 100,000 in Africa (Alem, 2002).

Cost-effectiveness of computerised cognitive–behavioural therapy for anxiety and depression in primary care: randomised controlled trial. BJP, 185, 55–62. Table 3 (p. 60), footnote 2 should read: 90% CI of difference, £28 to £148.
ADHD in developing countries
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