THE EDITORIAL COMMITTEE welcomes original papers, which should be addressed to the Editor, Journal of Neurology, Neurosurgery, and Psychiatry, BMA House, Tavistock Square, London WC1H 9JR. Papers are accepted on the understanding that the subject matter has not been and will not be published in any other journal. Papers should deal with original matter and the discussion should be closely relevant to this. Manuscripts should be typewritten in double spacing on one side of the paper only. Two copies (including figures and tables) should be submitted of which only one need be a top copy. A summary of about 50 words should appear at the beginning of each paper. The name(s) of the hospital or laboratory should also appear. Full postal address for correspondence and reprints should be supplied. Receipt of manuscripts will be acknowledged.

The Editor will welcome Short Reports or Preliminary Communications limited to about 1000 words and with no more than one figure and one table. Also welcome are Letters to the Editor.

ETHICS Ethical considerations will be taken into account in the assessment of papers (see the Medical Research Council’s publications on the ethics of human experimentation, and the World Medical Association’s code of ethics, known as the Declaration of Helsinki (see British Medical Journal 1964;2:177)).


ILLUSTRATIONS Photographs Unmounted photographs on glossy paper should be provided together with magnification scales when appropriate. Diagrams will be reduced to 2¼ inches (68 mm) wide, occasionally to 5¼ inches (145 mm). Lettering should be in either Letraset or stencil and care should be taken that lettering and symbols are of comparable size. Illustrations should not be inserted in the text. They should be marked on the back with figure numbers, title of paper, and name of author. All photographs, graphs and diagrams should be referred to as figures and should be numbered consecutively in the text in Arabic numerals. The legends for illustrations should be typed on a separate sheet. Tables should be numbered consecutively in the text in Arabic numerals and each typed on a separate sheet. The format used in this issue of the Journal should be noted. Vertical lines will not be printed and usually there are only three horizontal lines in each table.

REFERENCES should be in the Vancouver style as in this issue. They should appear in the text by number only in the order in which they occur and should be listed on a separate sheet in the same order. Punctuation must be correct and journal titles should be in full or abbreviated in accordance with the Index Medicus. Thus:


A reference to unpublished work should not appear in the list but work “in press” may be included provided the name of the journal appears. The author is responsible for the accuracy of references.

REPRINTS Twenty-five reprints will be supplied free of charge. Additional reprints are available at cost if they are ordered when the proof is returned.

CORRECTIONS other than printer’s errors may be charged to the author.

COPYRIGHT © 1984 by JOURNAL OF NEUROLOGY, NEUROSURGERY, AND PSYCHIATRY. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the prior permission of the Journal of Neurology, Neurosurgery, and Psychiatry.

NOTICE TO ADVERTISERS Applications for advertisement space and rates should be addressed to the Advertisement Manager, JOURNAL OF NEUROLOGY, NEUROSURGERY, AND PSYCHIATRY, BMA House, Tavistock Square, London WC1H 9JR.

NOTICE TO SUBSCRIBERS The Journal is published monthly. The annual subscription rates are available on request to the Subscription Manager, Journal of Neurology, Neurosurgery & Psychiatry, BMA House, Tavistock Square, London WC1H 9JR. Orders can also be placed locally through any leading subscription agent or bookseller. (For the convenience of readers in the USA subscription orders, with or without payment, can also be sent to: British Medical Journal, Box 560B, Kennebunkport, Maine 04046, USA. All enquiries, however, must be addressed to the Publisher in London).
Glue sniffing and movement disorder

Sir: There is sketchy evidence that toluene abuse in the form of glue sniffing may cause movement disorder; in 1961, Grabski described a man who had abused toluene for six years and appeared to suffer permanent cerebellar damage. Since that time, there have been sporadic case reports of a similar nature, including a follow up in 1966 of Grabski’s original patient. While cerebellar dysfunction with its concomitant movement disorder may be a common presentation, we now describe a case in which the movement disorder is not classically cerebellar and where there may be presumptive evidence of altered dopamine activity in the area of the basal ganglia.

A 27-year-old man with a 15 year history of uninterrupted glue sniffing presented to the emergency room having suffered two witnessed grand mal seizures. During previous psychiatric hospitalizations for substance abuse, his preference had been for a plastic cement containing toluene as its only solvent. Initial investigations included a normal haemoglobin and slightly elevated white blood cell count at 12,900 mm<sup>3</sup>. His serum sodium and potassium were normal but his chloride was elevated to 110 mmol/l; he had a metabalic acidosis with a pH of 7-26, pCO<sub>2</sub>, 39 mm Hg bicarbonate 17mmol/l PO<sub>2</sub>, 96 mm Hg and O<sub>2</sub> saturation 96%. A routine screen for drugs of abuse, including alcohol, methanol, ethylene glycol and isopropanol was negative: an assay for toluene was not available. Over the next 24 hours, he remained unresponsive to any external stimuli and was noted to be opisthotonic at times. He would occasionally “wake up” spontaneously but was completely disoriented, incoherent, and extremely aggressive. Chest and skull radiographs were normal as were tests for renal and hepatic function. CT brain scan was also normal. An EEG demonstrated diffuse slow wave activity in the theta and delta range, with frequent sharp wave activity.

Over the course of the next two days, he became more responsive, though his level of consciousness continued to fluctuate and he remained disoriented for time and place. There was no evidence of cranial nerve abnormality nor nystagmus, but there was a generalised increase of muscle tone with slight rigidity, and the deep tendon reflexes were brisk but symmetrical. The most striking feature at this point was almost continual movements of the upper limbs occasionally extending to the entire trunk. These consisted of involuntary, random, smooth movements which varied in frequency, were accentuated when the patient was aroused or anxious, and disappeared when he fell asleep. He also had frequent involuntary movement of his mouth and jaw, accompanied by a mild dysarthria. The diagnosis of choreoathetotic movement of no clear aetiology was made.

For the first few days in hospital, he was given a continuous intravenous infusion of diazepam. On his third hospital day, this was discontinued and he was placed on oral phenytoin: no blood level was obtained. By the sixth day there was a modest improvement in his mental state but the movement disorder persisted. Phenytoin was then stopped and a combination of levodopa/carbipoda was started. The initial dosage was 125/12.5 mg twice daily and this was doubled to 250/25 mg two days later. Within three days of starting this medication, there was a marked reduction of the abnormal movements and he was reported to be much more cooperative and coherent. Despite this clinical improvement, a repeat EEG continued to show excess slow wave activity in all head regions. He remained on levodopa/carbidopa and recovered to the point of being discharged from hospital on the twelfth day, fully oriented and alert with no evidence of dysarthria, tremor, or other abnormal movements.

Even though an assay was not available, there seems little doubt that this man presented with acute manifestations of toluene inhalation: seizures, disorientation, fluctuations in consciousness, hyperchloraemia, and metabolic acidosis. He differed from most cases reported to date in that he had a choreo-athetotic movement disorder which might have responded to levodopa/carbidopa, although the remission could have been spontaneous. The choreoathetotic nature of the movement disorder is compatible with abnormal function of the corpus striatum, particularly within the dopamine-rich caudate nucleus. Fuxe et al. have recently reported alterations in dopamine turnover in various areas of rat caudate nucleus as a consequence of toluene inhalation. Low concentrations resulted in reduced dopamine turnover in the marginal zone, and in the medial and central parts of the anterior caudate: there was a similar reduction in the nucleus accumbens.

GIAMPIERO BARTOLUCCI,
JOHN R PELLETTIER,
McMaster University,
Psychiatric Unit,
St Joseph’s Hospital,
50 Charlton Avenue East,
Hamilton, Ontario L8N 4A6,
Canada

Accepted 11 June 1984

References


Notice

The IIIrd International Brain Heart Conference will convene in Trier on 7-9 September 1985. Further Information may be obtained from Dr T Stober, Department of Neurology, Faculty of Medicine, University of Saarland D-6650 Homburg/Saar, FRG.