DIAZEPAM IN THE TREATMENT OF STRYCHNINE POISONING

Case Report

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SUMMARY

A 20-month-old girl who accidentally ingested a large amount of laxative tablets containing strychnine, was successfully treated with diazepam. Diazepam seems to be the drug of choice in strychnine poisoning, because of its excellent anticonvulsant properties combined with its wide margin of safety.

Although it has been stated that “strychnine is not a drug of demonstrated therapeutic value” (Esplin and Zablocka-Esplin, 1970), it is still a component of several widely used medications, such as cathartics.

This paper presents the case history of a young child who suffered from strychnine poisoning after accidental ingestion of a large number of cathartic tablets containing strychnine, and was successfully treated with diazepam.

CASE REPORT

A 20-month-old girl was admitted because of an acute state of confusion after ingesting 22 tablets of Laxative Comp. (Each tablet contains: strychnine nitr. 0.00095 g, extr. beladonnae sicca 0.0027 g, ipecac, pulv. 0.004 g, aldinum 0.016 mg, and phenolphthalein 0.032 g).

The child was previously in excellent health. Her past medical history and the family history were unremarkable.

On admission, the physical examination revealed a well-developed child, restless, excited and confused, together with muscular incoordination. Her face and neck were hot, dry and flushed. Later on, a rash appeared over the face, neck and the upper part of the trunk associated with generalized itching. The mucous membranes were dry. Her rectal temperature was 38°C, the pulse was very rapid and weak. The pupils were widely dilated and unresponsive. On neurological examination slight generalized hypertonicity and hyper-reflexia were found. Most of the clinical signs described above were those of belladonna intoxication.

Half an hour later depression followed the excitation whilst heightened reflex excitability became evident. Any sensory stimulus such as noise produced by walking or a light touch, induced a violent motor response manifested by a coordinated thrust and shortly afterwards, by tonic and clonic contractions in all limbs, without loss of consciousness. The clinical picture was now that of strychnine poisoning. A gastric lavage with strong tea was performed immediately after admission and some remnants of the tablets were found. Diazepam 3 mg. (0.3 mg/kg) diluted with 5% glucose solution was administered during 5 hours. Seven hours after admission, profuse diarrhoea developed and fluids, without diazepam, were continuously given intravenously. Twelve hours after the ingestion of the laxative tablets the child was in good general condition. An e.e.g. recording was made and was found to be within normal limits. The child was discharged three days later.

DISCUSSION

The pharmacological action of strychnine is very well known as an enhancer of the neuronal excitability by selectively blocking postsynaptic inhibition (Bradley, Easton and Eccles, 1953). After its administration, applied sensory stimuli of any type, auditory, tactile or visual, produce exaggerated reflex effects and convulsions, without loss of consciousness.

Our patient showed effects of poisoning by at least two drugs—belladonna and strychnine—and in spite of gastric lavage she exhibited spontaneous tonic-clonic contractions as well as extensor thrust provoked by external stimuli. Diazepam readily stopped the contractions and subsequently under diazepam infusion they almost disappeared.

The previously accepted treatment for strychnine poisoning was the administration of barbiturates and tubocurarine in association with gastric lavage and endotracheal intubation. Many patients died in respiratory failure attributable to anoxia after the convulsions, and the barbiturates increased the risk of this complication.

Diazepam has been used in tetanus with very good results and, in spite of the large doses administered, no respiratory depression was seen (Femiparke, 1966). In 1969, diazepam was used first in...
strychnine poisoning in the case of an 18-year-old girl (Heidrich, Ibe and Klinge, 1969), and recently by Jackson, et al. (1971) in the case of a 13-month-old child. Administration of this drug by intravenous administration induces muscle relaxation within 2 minutes and has a long-lasting effect on the contractions. These qualities, and its large safety margin and lack of any respiratory or circulatory depression even after very large doses, recommend its use as a drug of choice in strychnine poisoning.

REFERENCES


BOOK REVIEWS


As always this volume covers all the aspects of anaesthesia. The editors are however particularly to be commended on the very widely ranging selection they have chosen for abstract. For example subjects like acute medical care, inhalation therapy are dealt with at some length. A section on trauma is separate from that on shock. One particularly interesting section is entitled "The Informed Anesthesiologist". It deals with subjects as diverse as brain metabolism in experimental uraemia, beta-adrenergic receptor hyper-responsiveness, implantable nuclear powered pacemakers and electrical hazards in the operating room. Nearly all the summaries of articles are followed by pithy comments, though the editor has allowed his colleagues to extend their activities in this direction beyond the single sentence or so which used to be found in previous volumes. The pithiness, however, remains.

The team from the Northwestern University of Chicago who have produced this volume under the able editorship of Dr Eckenhoff has, as previously, done an excellent job and this Year Book like its predecessors is heartily commended to all anaesthetists who wish to be up to date.

A. R. Hunter

DIAZEPAM DANS LE TRATEMENT DE L'EMPOISONNEMENT PAR STRYCHNINE

SOMMAIRE

Une petite fille de 20 mois, ayant accidentellement avalé une grande quantité de comprimés laxatifs contenant de la strychnine, a été traitée avec succès à l'aide de diazépam. Diazépam semble être le médicament de choix pour l'empoisonnement par strychnine en raison de ses excellentes propriétés anticonvulsives et sa large marge de sécurité.

DIAZEPAM BEI DER BEHANDLUNG DER STRYCHNINVERGIFTUNG

ZUSAMMENFASSUNG


DIAZEPAM PARA EL TRATAMIENTO DEL ENVENENAMIENTO POR ESTRICNICA

RESUMEN

Una niña de 20 meses quien ingirió accidentalmente una gran cantidad de tabletas laxantes que contenían estricnina fue tratada con éxito con diazepam. El diazepam parece ser el medicamento de elección para el envenenamiento por estricnina a causa de sus excelentes propiedades anticonvulsivas combinadas con su amplio margen de seguridad.

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