



Proof of Therapeutical Effectiveness of Nootropic and Vasoactive Drugs

Advances in Clinical and Experimental
Nicergoline Research

Edited by H. Heidrich

With 81 Figures

Springer-Verlag Berlin Heidelberg New York Tokyo

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Translator: DORA WIRTH Ltd.
85 Campden Street
Kensington, London W8 7EN, Great Britain

Translation of the German Edition:
Therapeutische Wirksamkeitsnachweise bei nootropen und vasoaktiven Substanzen
© Springer-Verlag Berlin Heidelberg 1985

ISBN-13:978-3-540-15901-8 e-ISBN-13:978-3-642-70786-5
DOI: 10.1007/978-3-642-70786-5

Library of Congress Cataloging-in-Publication Data. *Therapeutische Wirksamkeitsnachweise bei nootropen und vasoaktiven Substanzen*. English. Proof of therapeutical effectiveness of nootropic and vasoactive drugs. Translation of: *Therapeutische Wirksamkeitsnachweise bei nootropen und vasoaktiven Substanzen*. Includes bibliographies and index. 1. Cerebrovascular disease—Chemotherapy. 2. Nicergoline. 3. Vasodilators. 4. Neuropsychopharmacology. 5. Pharmacology, Experimental. I. Heidrich, Heinz. II. Title. [DNLM: 1. Ergolines—therapeutic use. 2. Vasodilator Agents—therapeutic use. QV 174 T398] RC388.5.T47 1986 616.1'061 85-26157 ISBN-13:978-3-540-15901-8 (U.S.)

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2127/3130-543210

Problems of the Therapeutic Evaluation of Vaso-active and Nootropic Substances in Cerebral and Peripheral Arterial Obstructive Disease

Although vasodilators and nootropic agents have long been used in the management of cerebrovascular diseases, it remains extraordinarily difficult at the present time to assess their values factually, i.e. objectively and unemotionally. The principal reasons for this are as follows:

1. The efficacy or inefficacy of vasodilator or nootropic agents is often assessed in short-term tests on the basis of the cerebral blood flow. However, for methodological reasons, such results provide data merely on the mode of action and not the therapeutic response,

2. Haemodynamic investigations, even if they include longitudinal measurements and are performed under controlled study conditions, cannot detect intellectual or affective disorders which are often the primary symptoms as well as the therapeutic targets in cerebrovascular insufficiency,

3. The therapeutic efficacy of nootropic agents and vasodilators is sometimes postulated only on the basis of animal studies or in-vitro experiments but such a construct is not usually justified,

4. Many therapeutic trials in the last twenty years were not carried out as controlled – that is randomised and doubleblind – studies so that placebo effects and spontaneous improvements could not be excluded. Furthermore, in the majority of studies, the samples were not homogeneous and not broken down according to age, sex, aetiology and severity of the disease; the trial objectives were frequently not defined, there were often no indications of concomitant disorders and their treatments and the trial parameters were often not standardised and consist chiefly of subjective criteria which could not be quantified,

5. Too few controlled studies are as yet available and the validity of study parameters is always being called into question when a clinical, or therapeutic, response is demonstrated for vaso-active or nootropic agents.

Nevertheless, an objective analysis of the clinical experience and the first controlled therapeutic trials leaves no doubt that at least some vasodilators or nootropic agents induce clinically relevant improvements in cerebrovascular disorders which represent statistically significant differences from placebo. Therapeutic efficacy should, however, only be assumed if it is unequivocally documented in controlled therapeutic studies against placebo or by a mental training treatment. It will therefore have to be an objective of the next few years.

1. To increase the number of stringently controlled studies with primarily clinical target parameters in order to demonstrate the efficacy or inefficacy of this group of drugs, and

2. To learn by stratification, under which conditions an individual patient is likely to respond with a therapeutically relevant improvement.

From these aspects, the objectives to be attempted with the following contributions and discussions are:

1. To discuss the principles, possibilities and limitations of methods to demonstrate the therapeutic efficacy of vasoactive or nootropic agents in cerebrovascular disease,

2. To discuss the value of results from animal experiments and haemorrhological investigations for the treatment of impaired cerebral function of vascular origin, and

3. To outline the practicability of the demonstration of therapeutic efficacy and the therapeutic relevance of vasodilators and nootropic drugs in the cerebral field with the aid of nicergoline*.

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