



1979
YEAR BOOK OF
**PSYCHIATRY AND
APPLIED
MENTAL HEALTH**

ROMANO / FREEDMAN
FRIEDHOFF / KOLB
LOURIE / NEMIAH

The YEAR BOOK of

Psychiatry and Applied Mental Health

1979

Editors

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THE 1979 YEAR BOOKS

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Current Literature Quiz

The significant advances described in this YEAR BOOK introduce new diagnostic and therapeutic procedures useful for treating conditions seen frequently in your practice. The following questionnaire will test your familiarity with the current literature. References to the articles on which the questions are based are given in the back of the book.

1. What is believed to motivate an animal to self-stimulate its brain when electrodes are placed in certain areas? What is the neurotransmitter that has been implicated?
2. Describe several kinds of functional localization found in the human brain. What may be one basis for right-left differences?
3. What is tardive dyskinesia? What are factors in its appearance? What has been found as a correlate?
4. What is one important effect of early sound deprivation? Does this have implications of a more general nature?
5. There are new reports of electric correlates of learning disability. What is their nature?
6. The pineal is of interest in the investigation of several disorders. Among them are schizophrenia and affective and sleep disorders. What are the properties of pineal function that make this organ of interest in these disorders?
7. What has been suggested as a possible marker for supersensitivity in tardive dyskinesia?
8. Receptor sensitivity modification appears to occur at least partly in response to the availability of the specific neurotransmitter. What would be the effect of a decreased supply of transmitter on striatal dopamine receptors? What would be the effect of an increased supply? How might one achieve an increase or decrease in transmitter supply?
9. Is there evidence that schizophrenia is a genetic disease or has a genetic component? If so, what has been proposed as one mode of genetic transmission?
10. What role might γ -aminobutyric acid have in the modulation of dopamine receptor sensitivity?
11. What are the two principal hypotheses by which some of the manifestations of affective disorders are presumed to occur? In regard to each of these, describe means for correcting the presumed problem in brain function and describe the mechanism by which the treatments work.
12. Why might there be an abnormality in catecholamine function in Gilles de la Tourette's syndrome without there being an obvious abnormality in the metabolism of catecholamines?

13. What are the differences in the behavioral manifestations of serotonin depletion as compared with norepinephrine depletion?
14. What brain enzyme has been shown to be affected by early maternal deprivation?
15. Corticotropin₄₋₁₀, a corticotropin fragment, has an effect that is of interest in memory problems. What is it? Explain.
16. What hormone is related to aggression in subhuman species? Has this been found to be true in man?
17. Amphetamine has specific effects independent of the subject treated. True or false? Discuss the implications.
18. What is a common functional defect found in many schizophrenics? Has this been shown to be the core of all schizophrenic pathology?
19. Describe the medical versus the public health approaches to the prevention of mental retardation.
20. What factors are involved in the behavior and adjustment of retarded persons in institutions?
21. Name the major prerequisites for language development.
22. What is the evidence for the theoretical cholinergic system involvement in memory and cognitive functions?
23. Which mentally depleting diseases have in common the instability of microtubular organization that predisposes to rearrangement of chromosomes?
24. What are the inheritable neurobiologic patterns that predispose to childhood schizophrenia?
25. Name the types of childhood conditions that are chiefly related to social and ecological pathology.
26. Describe the important factors to be aware of in the psychologic aspects of the treatment of childhood diabetes.
27. Outline the significant areas to be monitored to promote good mother-infant adjustment.
28. What criteria are to be considered in making treatment choices in therapeutic approaches in childhood disorders?
29. What safeguards should be kept in mind in prescribing psychotropic drugs for children?
30. How significant are childhood accidents and how are they related to family functioning?
31. Describe some of the important ethical considerations in the treatment of adolescents.
32. What are the types of psychologic reactions of adolescents to physical illness and hospitalization and what are some of the underlying determinants?
33. Discuss two important areas of neurochemical research that bear on childhood psychiatric disorders.
34. What are the hazards to adequate patient care resulting from reform of involuntary commitment?
35. What are the three key personal problems for today's physicians?
36. Are women more likely than men to recognize psychiatric problems and to seek relief from their distress?
37. What are the indications for physical restraint in the treatment of psychiatric illness?

38. How specific is the symptom of anhedonia to the schizophrenic patient?
39. What are the possible determinants of changes in the frequency of schizophrenia over the past 40 years?
40. How effective is long-term analytically oriented psychiatric hospitalization?
41. Do additional studies of schizophrenics' adopting parents confirm or challenge the role of genetic factors in the etiology of schizophrenia?
42. Has the relationship between schizophrenia and celiac disease been confirmed by immunologic and morphological examinations of schizophrenic patients?
43. Why do most psychiatrists omit the physical examination of their patients?
44. Are there differences between anorexia nervosa in men and the disorder in women?
45. Which condition is the most common sleep disorder?
46. How valid is the folklore belief that health, wealth and love are the basis of happiness for older Americans?
47. What are the possible applications of planned intermittent hospital readmission policies for the aged and for nonaged psychotic adults and psychotic children?
48. How vigilant must one be to avoid indiscriminate medication in prescribing for elderly persons?
49. What are the differentiating characteristics of dynamic, behavioral and experiential psychotherapies?
50. In what way can the therapist's attitudes hamper the termination of psychotherapy?
51. How does "ego splitting" affect the transference of borderline patients?
52. In what way is the self-perception of patients with anorexia nervosa disturbed?
53. What are the differences between individual and group therapy?
54. How do family interactions play a role in the production of psychosomatic disorders?
55. Is psychoanalysis a science?
56. How frequently is a primal scene experience reported by normal persons?
57. What characteristics differentiate primary and secondary alcoholism?
58. What is the effect on the offspring of maternal alcohol abuse during pregnancy?
59. What is the effect of heroin addiction on catecholamine metabolism?
60. What place do narcotic antagonists have in the treatment of addiction?
61. What is the potential for drug abuse by psychiatric patients?
62. What are the clinical findings in patients with Jimson seed poisoning?
63. How does the reliability of nurses' rating of patients' behavior compare with that of psychiatrists?

Neurophysiology

Brain Self-stimulation: Direct Evidence for Involvement of Dopamine in the Prefrontal Cortex. Recently, dopamine release has been implicated in the effects of brain self-stimulation. F. Mora and R. D. Myers¹ (Purdue Univ.) present direct physiologic evidence that dopamine activity increases in vivo in the cortex during electric self-stimulation behavior. An electrode was implanted stereotactically in the medial prefrontal cortex of adult male Sprague-Dawley rats, with a cannula assembly close by. The rats were trained to depress a lever to obtain electric pulses to the cortex. The region adjacent to the electrode was labeled with ¹⁴C-dopamine and perfused with artificial cerebrospinal fluid.

In 9 of 16 experiments with 6 rats, electric self-stimulation significantly enhanced local release of ¹⁴C-dopamine. Chromatographic analyses of samples from the medial prefrontal cortex showed a greater than 100% increase in dopamine activity during self-stimulation and an elevation of over 75% despite termination of stimulation.

The findings provide direct in vivo evidence for the involvement of dopamine in self-stimulation of the prefrontal cortex. They support the earlier suggestion that this putative neurotransmitter is a mediator of self-stimulation in this frontal area. Dopamine in this brain area has been implicated not only in reward and motivation generally, but also in the manifestation of emotional states. Dysfunction of the cortical dopaminergic mechanism may cause impairment in emotional and goal-directed behavior, as is frequently observed in schizophrenics.

Right-Left Asymmetries in the Brain: Structural Differences between the Hemispheres May Underlie Cerebral Dominance. Albert M. Galaburda, Majorie LeMay, Thomas L. Kemper and Norman Geschwind² (Harvard Med. School) point out that language, handedness, musical talents, visuospatial abilities, attention and emotion all appear to be activities in which dominance effects are prominent. It is now well accepted that the human brain contains regions that are typically different in size, often to some degree, on the two sides. The best-defined asymmetries in the gross configuration of the human cerebral cortex occur on the upper surface of the temporal lobe. Cytoarchitectonic studies have shown a greater extent of the temporoparietal cortex on the left side. Asymmetries in the patterns of decussation of the pyramids in the medulla have been observed. Asymmetries are demonstrable radiologically and also in fossil records and in nonhuman species. Findings of pharmacologic asymmetries may help uncover the functional correlates of some structural asymmetries.

(1) Science 197:1387-1389, Sept. 30, 1977.

(2) Ibid., 199:852-856, Feb. 24, 1978.

Asymmetries seem to be distributed along a continuum, the region that is larger on one side varying from being only slightly larger to being many times larger. Asymmetries appear to be inborn. There may be sex differences in their distribution and extent. It is unlikely that striking asymmetries are of no functional importance. Homologous areas may have similar functions, a larger area on one side indicating that that side is dominant for a given function. The pattern of asymmetry might help account for some childhood learning disorders. Pick's disease involves asymmetric changes, and cytoarchitectonic areas that are larger on one side may be the same areas that are vulnerable to the etiologic agent that causes this disease. Possible chemical differences on the two sides might account for the lateralized vulnerability.

► [Localization of function in the brain is complex. Some functions, such as voluntary motor functions, appear to be highly localized. Other functions appear to be distributed throughout the brain, having somewhat the characteristics of a holographic photograph. Other functions may be localized but can be assumed by other areas in the event of trauma to the specific area. Right-left differences in brain function have also been observed, with a differentiation between logical language operations and those involving emotional responses. — A.J.F.] ◀

Electrophysiologic (H Reflex) Studies of Patients with Tardive Dyskinesia. John W. Crayton, Robert C. Smith, David Klass, Sidney Chang and Stephen E. Ericksen³ assessed excitability of the spinal alpha motoneuron pool to determine whether patients with chronic schizophrenia and tardive dyskinesia can be distinguished from those without dyskinesia and from normal subjects. Thirty-one chronic schizophrenics with tardive dyskinesia were compared with schizophrenics lacking dyskinesia and with healthy volunteers. Spinal monosynaptic reflex testing was carried out by administration of paired stimuli at the popliteal fossa, at delays of 50 msec to 5 seconds and a stimulus intensity giving a near-maximal H response, and recording reflex activity over the soleus.

Nine patients showed no H reflex activity. Absence of H reflex activity was highly correlated with tardive dyskinesia scores; 8 of the 9 patients who lacked an H reflex had high scores. The findings did not reflect the effect of dyskinetic movements at the time of the study. The patients with tardive dyskinesia showed greatly increased run-to-run and test-retest variability, compared with schizophrenics without dyskinesia or healthy controls. The recovery curve and the presence or absence of an H reflex in the study group were not significantly related to current medication or total phenothiazine equivalents in the patient's lifetime. Dopamine receptor stimulation induced florid signs of tardive dyskinesia and reduced motoneuron excitability as measured by the H reflex. Deanol administration caused little change in the recovery cycle or in dyskinesia scores.

There is considerable heterogeneity clinically and neurophysiologically in tardive dyskinesia. Probably a number of different abnormalities of neurotransmitter systems are involved in its development. No simple view of dopamine activity in tardive dyskinesia is compatible with current findings. Further studies may aid early identification of

(3) Am. J. Psychiatry 134:775-781, July, 1977.