

Side effects of L-dopa

Catecholamines (dopamine, norephrine and serotonin) serve as neurotransmitters in areas of the brain related to psychomotor and emotional functions. There is evidence that a deficiency of dopamine may result in Parkinson's disease, and therefore L-dopa (the amino acid precursor of catecholamines) is used to treat these patients.

L-dopa, however, produces psychiatric side effects in at least 20 percent of these patients. Frederick K. Goodwin of the National Institutes of Health has studied data from 21 individual studies and examined evidence of the various side effects—confusion, delirium, depression, overactivity, psychosis, paranoia and hypersexual behavior. He says in the Dec. 27 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* that side effects of L-dopa in Parkinsonian patients are quite varied among individuals and “it is clear that L-dopa does not uniformly produce a specific set of mental changes.” This may be due to a number of factors such as preexisting psychiatric state, dosage and genetic variability. Goodwin recommends that more controlled studies be conducted “not only in Parkinsonian patients but also in normal individuals and in patients with various behavioral disorders. Additional studies of this kind could provide the basis for new insights into the biochemistry of mental functioning.”

Success in preventing VD

William J. Brown, chief of the venereal disease branch of the Center for Disease Control in Atlanta, says there is a VD crisis in the United States. More than 20,000 cases of syphilis were reported last year. And, says Brown, “every 15 seconds around the clock, someone else gets a case of gonorrhea.”

In an effort to fight this epidemic, health officials in Carson City, Nev., are experimenting with a new drug to prevent VD. The drug, progonasyl, was tested by 185 women working in the various houses of prostitution in Nevada's rural counties. State health officer David Carr says about 15 percent of the prostitutes refused to participate in the experiment but those who did feel secure. Since September only two cases of gonorrhea and none of syphilis were reported among the women supposedly using the new drug. Carr feels the drug has definitely reduced VD.

Individual differences

Racial differences in mean IQ scores are hypothesized by some researchers to be genetic, by others to be environmental (SN: 9/11/71, p. 167). Conclusive evidence has not been presented for either case but the differences do exist. Sandra Scarr-Salapatek of the University of Minnesota in Minneapolis feels that genes make the difference. “Contrary to the views of many naive environmentalists,” she says in the Dec. 24 *SCIENCE*, “equality of opportunity leads to bigger and better genotype-phenotype correlations.” But she says the differences in performance can be accepted as differences, and not as deficiencies. And, she continues, “from a genetic point of view, varied adaptations are useful to the species and permit the greatest flowering of individual differences. Socially invidious comparisons, however, can destroy the usefulness of such differences.”

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Air quality forecasting

Relating ambient air quality to emissions from point and area sources is difficult because of the many meteorological and other variables involved. But the urgency of the need to do so is clear, especially for prediction of dangerous levels of pollution.

International Business Machines, Inc., reports an IBM research group led by L. J. Shieh has constructed computer models of sulfur oxide pollution in New York City that allow forecasts to within 15 percent accuracy. The system will undergo further trials in Allegheny County, Pa.

To develop the model, the researchers gathered information on topography, meteorology and emission sources. Point emission sources are distinguished from area emission sources (a group of homes or businesses emitting relatively small amounts of sulfur oxides from fuel burning, which might become significant amounts in the aggregate), and the emission data are correlated with a variety of other data such as smokestack height, wind direction, turbulence, temperature gradients and possible inversions.

Six categories of atmospheric conditions have been delineated, each one producing typical ambient levels of pollution depending on amounts of emissions.

Return to soap is feasible

Eutrophication of waterways from phosphate pollution plus an impending shortage of phosphates for agriculture make it advisable to curtail the use of phosphates for detergents (SN: 12/18/71, p. 410). But substitutes for phosphates have proved harmful, and the problem has sometimes seemed insoluble.

Now four U.S. Department of Agriculture scientists report that ordinary soap combined with chemicals called lime soap dispersing agents (l.s.d.a.) work as well as detergents, in hard or soft water.

Phosphate builders in detergents perform various functions. The most important are the sequestration of calcium ions in hard water and the creation of a colloid that allows rinse water to pass through clothing without depositing curds on clothing in the rinse cycle of modern washers. The major shortcoming of soap is that it deposits these curds, especially in hard water, which is common in large parts of the United States.

The four scientists, R. G. Bistline, W. R. Noble, J. K. Weil and W. M. Linfield did their work at a USDA laboratory in Philadelphia. They report that various l.s.d.a. compounds—including anionic fatty alcohols, fatty amides and fatty acid esters, and nonionics derived from tallow alcohols—combined with ordinary soap worked as well as phosphate detergents in water with hardness of 50, 150 and 300 parts per million. Small amounts of a detergent-type builder—which could be a polyphosphate—are added to potentiate cleansing action. The l.s.d.a.'s keep the lime soaps formed from soap and hard water finely dispersed and thus prevent curd formation.

The l.s.d.a. compounds are derived from tallow and are thus in abundant supply. They are biodegradable and nontoxic, says Linfield. He adds that various major soap companies have been using the l.s.d.a.'s in bar soaps for some years and that no major research and development would be needed to transfer the process to laundry soaps.