

A third hormone that can induce mating

A few years ago, endocrinologists isolated and synthesized a little-known hormone found in the brain's hypothalamus that controls the release of luteinizing hormone (LH), hence its name luteinizing release factor (LRF). LH causes the secretion of estrogen and progesterone and the onset of ovulation. It has been shown that the combination of estrogen and progesterone affects sexual behavior in subprimate female mammals.

Now scientists in Dallas have made a further step forward in understanding the many roles hormones play in sexual behavior. They have found that if LRF replaces progesterone, in the estrogen-progesterone combination, mating behavior is induced in female rats whose ovaries have been removed.

Physiologists S. M. (Don) McCann and Robert L. Moss of the University of Texas' Southwestern Medical School performed experiments on ovariectomized female rats to determine whether the preovulatory discharges, LRF, FSH (follicle-stimulating) and LH might also be involved in the induction of mating behavior.

Eighteen such rats were injected with low dosages of estrogen and placed in one of six experimental groups. Groups consisted of rats with estrogen only, rats with estrogen and progesterone and rats with estrogen and one of

four other hormones: LRF, LH, FSH and TRF (thyrotropin-releasing factor).

Those injected with estrogen alone, estrogen and FSH, estrogen and LH and estrogen and TRF showed little response to the presence of a male. As expected, all animals treated with estrogen and progesterone displayed sexual behavior 48 hours after injection.

The most dramatic results were obtained in the females treated with estrogen and LRF. Two hours after injection, signs of female sexual behavior began. Male rats could induce coitus behavior in females for at least six hours.

"The results are of extreme interest," says Moss in the July 13 *SCIENCE*, "since they indicate that another hormone in addition to estrogen and progesterone can induce mating behavior in the female rat. Particularly intriguing is the fact that this hormone is normally found in that area of the nervous system which is involved in mediating mating. It will be of extreme interest to determine if LRF can enhance mating behavior in males as well as in females. . . ."

The results of the experiments may prove to be even more important if further experimentation shows LRF can affect copulation in humans. LRF may be helpful in the treatment of impotence in males where no organic defect can be found. It may also become useful as a cure for frigidity and infertility in women. LRF is non-toxic in humans and has already been used to increase LH production. □



U.S. Geological Survey

Eruption of Nicaragua's Cerro Negro.

Volcano forecasting: Imprecise but improving

The awesome forces of nature are dramatically expressed by volcanoes. Active volcanoes in Mexico and Central America are major geologic features in those regions, and their eruptions tend to be highly explosive. What are the chances of forecasting the eruptions?

"The state of the art of volcano forecasting is far from precise," Robert

United States: A study of 140,000 births emphasizes prenatal care

children already, being unwed or without male support. Medical risks include diabetes, high blood pressure or toxemia of pregnancy.

If women were at neither social nor medical risk and received adequate care during pregnancy, deaths among their newborns, the study found, were 13 per thousand. This rate approaches that of the Scandinavian countries, which is among the lowest in the world. If women received adequate care but were at either medical or social risk, deaths among their babies were 24 per thousand, about twice as high. If women received adequate care but were at both medical and social risk, deaths among their offspring were 36 per thousand, or three times as high. If women were at no risk but received poor care, deaths were 30 per thousand. If women were at social risk and received poor care, deaths were 46.4 per thousand. And if women were at both social and medical risk and received poor care, deaths were

55.1 per thousand.

Seventy percent of the women with risks received poor care. Sixty percent of the women without risks received adequate care.

Most of the women at risk and getting bad care were black and Puerto Rican. Of some 22,000 black and Puerto Rican mothers at social risk, 98 percent received inadequate care. By contrast, white mothers were generally without risk and received adequate care. White women with no risks and good care had death rates of nine per thousand.

The most surprising result of the study, in Kessner's view, is the impact of prenatal care on infant survival. Because infant deaths were highest among blacks, Puerto Ricans and other people in the inner city, the report addresses its recommendations largely to health care centers in the inner city. These include some 75 neighborhood health centers, formerly under the Office of Economic Opportunity and now under Health, Education and Welfare, plus family

health centers at teaching hospitals in various cities.

The prime recommendation is that women be screened for social and medical risks on their first visit to a center. Says Kessner, "Ninety-five percent of all the women we studied had risks that could have been identified at the first prenatal visit." Then those women with identified risks should receive special attention throughout their pregnancies. Their newborns should also be put in neonatal intensive care units.

The report also recommends that the American College of Obstetricians and Gynecologists establish guidelines for maternal health care appropriate to risk categories, and that minimum-care standards be incorporated in existing Federal, state and local programs for maternal health care.

If all the women in the New York City study had received adequate care, infant deaths could have been reduced a third—from 21.9 per thousand to 14.7.