Biomedicine

The pill the morning after

The British medical journal THE LANCET ran two reports last fall linking oral contraceptive use to breast and cervical cancer (SN: 10/29/83, p. 279). Response has been swift and sometimes vehement.

The first evaluation came from the British Council on the Safety of Medicine. A letter to physicians noted that the council was not convinced that the progestogen component of the pill was the sole agent responsible for the increased breast cancer risk, as originally suggested by Malcolm Pike of the University of Southern California and colleagues. And the lack of a specific agent that might cause cervical cancer gave the council pause. But while recommending women complete the course of the pill they're on, the council agreed with both studies' conclusions: Women on the pill should use a formulation with the lowest estrogen and progestogen content possible.

The cervical cancer study was criticized in letters to the journal for overexaggerating the problem. The breast cancer study came under fire from some readers for the method used to determine progestogen activity, and the researchers noted in a reply that this was an as-yet-unsolved problem. Other criticisms included the reliance on patient recall of pill type and dose, and the failure to consider family history as a confounding variable. According to letter writers from Denmark and England, mortality statistics don't show the expected rise in breast cancer deaths. But an Oxford group that had initially reported no link between breast cancer and pill use and has now found a positive association noted that there may be a changing pattern, since prolonged use of the pill did not become common until the 1970s.

"What we all need," summarized one letter writer, "is an informed epidemiological assessment of the total effects of 'the pill' on neoplasia [cancer]."

Surgery with ions: The clot thickens

Beams of high-speed ions that knife through parts of the brain where no surgeon's blade can safely reach have found preliminary success in the treatment of some tumors (SN: 9/24/83, p. 204). Now neurosurgeons in Berkeley, Calif., report focusing the beam on fragile, tangled blood vessels in the brain with "qualified success" to repair lesions in patients whose only previous alternative was a high risk of brain damage or even death.

Jacob I. Fabrikant, of the Lawrence Berkeley Laboratory (LBL) at the University of California, has treated more than 55 patients since 1980 with high-speed beams of helium ions accelerated with LBL's 184-inch synchrocyclotron. All the patients suffered from "arteriovenous malformations," small abnormal webs of vessels that repeatedly rupture and bleed, often damaging the surrounding brain tissue. Though years of follow-up will be needed to fully evaluate the ion treatment, "so far there has been no evidence of any new bleeding episodes or progressive neurological defects in any patients tested," says Fabrikant.

About one in 40,000 persons suffers from the congenital tangles and one-third of those have tangles too deep within vital portions of the brain to be excised with surgery. Unlike conventional X-rays, which lose energy as they pass through tissue to reach a target in the body, heavy-ion beams deposit nearly all of their energy at a target shaped by the speed of the particles and density of the tissue. The researchers use cerebral angiography and CAT scans to focus the precise beam on a malformation often as small as the face on a Lincoln penny.

Exactly how the beam shrinks the lesion is unclear, Fabrikant says, though scientists researching the treatment in Berkeley, Boston and Uppsala, Sweden, theorize from animal studies that the ions damage cells lining the abnormal blood vessels. Slowly —usually within eight to ten months—the vessel wall thickens and a tiny clot becomes enmeshed in glistening protein to form a patch.

Science & Society

A defeat for Darwin in Texas

The Texas Board of Education declined last week to pass a motion that would have effectively required discussion of Darwin and evolution in biology textbooks. Publishers are currently bound by a 1974 state law to present evolution as "only one of several explanations of the origins of humankind" and in a way "not detrimental to other theories of origin."

Board member Virginia Mae Currey proposed the recent motion in order to send a clear message to publishers who, she feels, have been increasingly pressured by creationist groups into "chickening-out on being brave enough to present good strong science books." The failure of her motion means that publishers are neither required nor prohibited from including evolution in their texts. Currey believes that the 14 to 7 defeat came from uncertainty about the status of the 1974 state law. The Attorney General has been asked to rule on the law's constitutionality with respect to First Amendment guarantees of separation of church and state. A similar law was recently struck down in Arkansas (SN: 1/9/82, p. 20) and another case is pending in Louisiana (SN: 10/22/83, p. 262).

Texas, which plans to spend over $64 million on textbooks next year, is considered an influential buyer for publishers who, nationwide, have been reducing coverage of evolution in their books over the past two decades. According to Texas Tech professor of education Gerald Skoog, practically every biology text has been touched by the creationism movement. He notes that Laidlaw Brothers' high school text "Experiences in Biology" does not contain the word "evolution." The creationists, he says, exert "an influence that has been persuasive and, in some cases, dramatic. Their presence has been felt."

Action and inaction at EPA

Three leading environmental scientists have joined the Environmental Protection Agency (EPA) as part of a new program to improve the quality of EPA research. Each scientist will hold a temporary position at an EPA laboratory and will work with staff scientists in designing and supervising research studies. David V. Bates of the University of British Columbia in Vancouver will focus on the effects of ozone on human health; Raymond C. Loehr of Cornell University in Ithaca, N.Y., will study chemicals in land-based hazardous waste dumps; and John M. Neuhold of Utah State University in Logan will help EPA establish water quality standards. In future years, EPA will give a list of its research needs to the National Academy of Sciences, and the academy will recruit scientists for the program.

• With no word yet on how the Reagan administration intends to tackle the problem of acid rain, five states and three environmental groups have notified EPA that they intend to sue the agency because it failed to order reductions in sulfur emissions, which are linked to acid rain (SN: 7/30/83, p. 72; 10/22/83, p. 261). According to the Clean Air Act, the EPA administrator has the authority to order reductions in emissions from a state's power plants and factories if the emissions cause harm in another state. New York State, in particular, has complained that acid rain has damaged water quality, killed fish and eroded stone and steel.

Reacting to a nuclear-fuel glut

Because of a growing worldwide surplus of enriched uranium, the Department of Energy (DOE) announced last week that in order to stay competitive it would offer lower prices and easier terms to nuclear-fuel customers. Numerous plant cancellations have meant the loss of potential customers, and DOE's market share has fallen to only 35 percent in the face of competition from suppliers like France and the Soviet Union. Although DOE's sales amount to about $2 billion per year, its uranium-enrichment plants are now operating at well below capacity.