ROENTGENOLOGY

Heart X-Rays Improved

X-RAY photographs of the heart and great blood vessels can now be taken at the fantastic rate of 50 frames a second.

This increase over the standard six to 12 frames a second is due largely to what Dr. Tsung O. Cheng of the Brooklyn Hospital calls a cine attachment.

The process of taking X-ray photographs of the heart and major blood vessels after injection of a radio-opaque dye is called angiocardiography. It is an exacting procedure which has had a number of drawbacks.

For instance, angiocardiography was formerly performed by injecting dye into a vein and waiting for it to reach the heart. However, by that time, it was diluted to such an extent that it gave only a hazy image.

The next method tried was to inject dye through a catheter (narrow tube) lying in a chamber of the heart. Even then, as the dye flowed out of the catheter rather slowly, it was diluted by the blood and diffused so rapidly throughout the heart that again a clear picture was extremely difficult to obtain.

With a mechanical rapid dye injector, the full charge of concentrated dye is shot out of the catheter within one to two seconds, giving a sharp contrast which is photographed as it courses through the heart.

The cine attachment itself is a conventional X-ray tube and fluoroscopic screen, placed below and above the patient on the treatment table. It has, in addition, a five-inch image-intensifier tube above the screen. This greatly strengthens the image, and permits motion pictures to be taken with only a fraction of the amount of X-rays ordinarily required. A motion-picture camera is located at the top of the tube and its shutter operates only when the X-ray current is on.

The heart action of very young cardiac patients can exceed 150 beats per minute. Thus the dye may outline a defect during the fraction of a second which falls between the six to 12 frames, and be missed. With the cine attachment, as many as 50 frames a second can be taken and defects missed on the conventional angiocardiogram have been picked up with this method.

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PUBLIC HEALTH

Talk About Birth Control

SOME OF THE SAME wives who will freely discuss their own use of birth control methods regard questions about income as "too personal."

During a study of family growth, only 10 women out of 2,713 would not answer questions about their attempts to avoid conception. Others gave the trained women interviewers complete information on pregnancy histories, family limitation practices and future plans.

"For many of these women," said population expert Pascal K. Whelpton of Miami University, Oxford, Ohio, "this was the first time that a respectable person had made sex a decent topic of conversation."

The study showed that 79% of the couples had already used or intended to use contraception. The investigators defined contraception as any method to avoid conception, except sterilization and celibacy. Rhythm was the third most frequently used method, preceded in popularity by two artificial devices used by husband or by wife.

The investigators said that "most of the couples were neither very careless nor very strict in their family planning practices."

The majority (68%) had not planned all of their pregnancies, but wanted all they had, and expected that nature or contraception would keep them from having too many in all.

At the extremes were those who had completely planned the number and spacing of children (19%), and those who had "planned so poorly" that they had more children than they wanted (13%).

Of all Catholic wives interviewed, including those who could not have children, 70% conformed to church doctrine by using no method at all (43%) or by using only church-approved rhythm or abstinence methods (27%).

Eighty percent of the Catholic couples who could have children used or intended to use contraception. Comparable figures were 94% for Protestants and 96% for members of the Jewish faith.

Among the couples who would never use contraception, nearly three-fourths showed some evidence of impairments to the reproductive system. These "fecundity impairments," rather than choice, are the major cause of childlessness.

The study also showed that ten percent of the couples were sterile. In most of these cases either husband or wife had had an operation that made childbearing impossible.

Usually the operation was for the removal of a tumor or other health reasons, but sometimes it was because of excessive childbearing in past years.

Another 24% of the couples had impairments that greatly reduced the probability of conception.

Nearly 13 out of every 100 pregnancies resulted in fetal death by stillbirth or miscarriage, and one wife in every five could expect such an occurrence cometime during her childbearing history.

The women interviewed were white, American wives from all economic and social groups between 18 and 39 years of age.

Findings of the study are contained in "Family Planning, Sterility, and Population Growth," by Dr. Ronald Freedman of the Survey Research Center, University of Michigan, Prof. Arthur A. Campbell of the Scripps Foundation for Research in Population Problems, Miami University, and Prof. Whelpton.

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BIOLOGY

Spontaneous Life Theory Advanced by Biologist

THE THEORY that new life may originate spontaneously from organic matter, popularly believed to have been disproved 100 years ago, has been advanced by a biologist at Rutgers University.

He claims that the chemical basis for the establishment of life in the first place continues to exist, making possible the origin of similar but not necessarily identical primitive organisms throughout biological time.

This theory disputes the current theory of evolution that holds that life originated from only one case of spontaneous generation and that all subsequent forms of living things have evolved from that single case.

Dr. John Keosian, director of natural sciences, Newark Colleges of Rutgers University, reports in Science, 131:479, 1960, that it would be more plausible to accept present-day viruses as units of recent and present origin than to suppose they have descended through some two billion years relatively unchanged.

"Throughout time," he reports, "viruses either evolved into higher organisms or were eliminated in the process of evolution, being ever re-established through neobiogenesis."

Opponents of recurring biogenesis argue that it would take too long a time and that new forms of life would be unable to compete with existing organisms.

Dr. Keosian claims biogenesis need not take more than a "relatively short time" because there is now an even more complex organic mileau than was present in the sterile environment that existed before the origin of organisms.

He also asserts that it should not be assumed that an organism, simply because it is newly arisen, would have no adaptive features to cope with competition. Also, organisms with incomplete metabolisms may arise and survive by becoming parasites on existing organisms having complementing metabolisms.

Suggestions that neobiogenesis "may be expected to establish exotic forms of life different from the form of life as we know it may have a place only in science fiction," he states.

Louis Pasteur successfully demolished the contention of those who claimed to have demonstrated "spontaneous generation," Dr. Keosian says, but did not disprove the possibility of neobiogenesis of the most primitive microorganisms.

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