This Month in Aerospace Medicine History

FEBRUARY 1996

Cancer in aircrew (Armstrong Laboratory, Brooks AFB, TX): "We compared the cancer incidence of male United States Air Force (USAF) aircrew (342 cancers, 532,980.97 man-years) with nonflying Air Force officers (827 cancers, 1,084,370.08 man-years) between 1975–89… Incident cancer cases for both aviators and nonflying officers were obtained from USAF hospitalization records. Age-adjusted standardized incidence ratios (SIR's) were calculated for aircrew using data from the National Cancer Institute's Surveillance Epidemiology and End Results (SEER) program. Aviator age-adjusted cancer rate ratios were also obtained using non-flying officers as an internal comparison group… We observed statistically significant excesses of aircrew cancers for all sites, testis, and urinary bladder. All other aviator cancer classifications were not significantly different from the comparison cohort; most notably, cancers of the colon and rectum, skin (both malignant melanoma and non-epithelial), brain and nervous system, Hodgkin's Disease and leukemias… Previous studies of commercial pilots that demonstrated excesses of these cancers may have been biased by the use of external comparison groups. We used an internal comparison population to reduce selection bias, information bias and confounding."[1]

FEBRUARY 1971

In-flight physiological monitoring (The EEG Research Institute, Gaustad Sykehus, Oslo, Norway): "Inflight biomedical monitoring has improved our knowledge and understanding of the pilots, his limitations and capabilities, as well as demonstrated the great variability in the human stress tolerance.

"Today it is possible to monitor pilots during operational missions, without interfering with the mission or the pilot's performance or comfort.

"Physiological monitoring during operational flights should therefore vigorously be pursued to substantiate and expand our knowledge in our steady on-going stride to improve effectiveness and reduce accidents.

"In case of sudden incapacitation, heart failures, etc., a dangerous signature in the data monitored may on line be used to trigger automatic warning devices. A 'Dead Man's Button' is currently under development as a one or two step alarm system."[4]

Space station success (Russian-American author notes): "In June 1970, the Soviet Union launched an orbital mission with two men on board, for the primary purpose of determining the effect of an 18-day exposure to spaceflight factors on human physiology and work capacity… [There were] daily work and exercise programs designed as prophylactic measures. Critical monitoring of the cabin atmosphere and physiological parameters suggests that new life support systems may have been tested. Preliminary findings indicate that despite some difficulties in readaptation to gravity, man can live and work in weightlessness for at least one month. Soviet authorities regard the Soyuz-9 flight as a major step towards the creation of long-term orbital stations with rotating spacecrews."[2]

FEBRUARY 1946

The bends on descent? (Troop Carrier Command, Stout Field, Indianapolis, IN): "While the symptoms of decompression sickness usually occur during a stay at altitudes above 30,000 feet, it is of interest to note that occasionally chokes and neurologic disturbances may occur during or after descent, at altitudes at which bends and chokes ordinarily disappear…

"Fourteen cases of such unusual reactions were observed during routine chamber flights at the Fifth Altitude Training Unit, Davis Monthan Field, Tucson, Arizona…

"Decompression sickness at altitude is believed by some workers to be due to the formation and growth of bubbles in the body during the stay at high altitudes. This interpretation may also be used to explain the paradoxical occurrence of decompression sickness during descent…

"It would appear, then, that the symptoms of paradoxical chokes and neurologic disturbances may frequently be more properly ascribed to recompression rather than to decompression."[3]

The politics of aviation medicine…again (Ohio State University, Columbus, OH): "[A]ir traffic is radically different from auto traffic, as it travels in defiance of a fundamental law that is subject neither to legislative nor advertising control—the law of gravity.

"Really successful aviation is a composite of engineering skill, pilot skill, and medical skill, while from the legal viewpoint flight is a very hazardous activity and the airplane is in the same legal class as a loaded gun—inherently dangerous…

"The Army and Navy took the cream of our younger physicians and then specially trained them before they were allowed to become responsible for pilot selection and maintenance. The results of our air war are conclusive proof of the efficiency with which they performed that task. Now the Civil Aeronautics Board defies Congress and rewards the labors of the Army and Navy flight surgeons and those of the older Civil Aeronautics Administration examiners by saying that anyone who calls himself a physician is suitable to examine and certify pilots.

"With Mr. Moron, that too-well-known Sunday auto driver, thus given the freedom of the air—May God save America!"[5]

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DOI: https://doi.org/10.3357/AMHP.5817.2021