FEBRUARY 1990

Recurrent sinus barotrauma (Wilford Hall USAF Medical Center, Lackland AFB and USAF School of Aerospace Medicine, Brooks AFB): "Recurrent sinus barotrauma in an aviator is difficult to treat successfully. Exacerbations frequently result in marked aviator discomfort, cycles of temporary restriction from aviation duties, or even permanent disqualification for flying duties. Medical management and standard sinus operations are often ineffective, seldom curative, and have a disappointing record in returning the aviator to flying duties. Detailed computerized tomographic scanning of the paranasal sinuses coupled with the functional endoscopic sinus surgery approach directs treatment at the causative pathology. Sinus ventilation is improved while making possible a return to active flight status without recurrence of sinus barotrauma…

"Controversy exists in today's literature regarding the role of endoscopic techniques for the treatment of sinusitis. Contentions have been made that endoscopic techniques offer no advantage to the classic sinus surgeries when performed by experienced operators for chronic sinus disease… [W]e believe a functional endoscopic sinus surgery approach offers distinct advantages in the treatment of the aviator with recurrent barotrauma.

"[T]he predisposing factor for recurrent sinus barotrauma is ostial insufficiency, an abnormality in the functioning of the sinus ostia. Redirecting the treatment to the relief of such ostial insufficiency, while preserving normal structures and the much-needed ciliated sinus mucosa, as is performed in the functional endoscopic sinus surgery approach would appear to be a logical treatment.

"Functional endoscopic sinus surgery significantly enlarges the maxillary sinus ostia and the drainage pathway from the frontal sinus and removes obstructive or diseased ethmoid cells. The sphenoid sinus can also be approached and its natural ostia enlarged via this technique…".[1]

FEBRUARY 1965

Physiologic deconditioning in space (USAF School of Aerospace Medicine, Brooks Air Force Base, TX): "A problem area in manned space flight is deconditioning, caused by physical confinement and the decreased workload secondary to the absence of body weight. The syndrome of deconditioning results in a clinical picture of decreased biological activity manifested by numerous well documented physiological adjustments. A large number of the physiological alterations noted in deconditioning are exactly the opposite of those induced by hypoxia...

"Physiological deconditioning results in a clinical picture of decreased biological activity, manifested by decreased plasma volume, decreased red blood cell mass, decreased red blood cell production with inactive bone marrows, increased resting heart rate, decreased exercise tolerance, decreased orthostatic tolerance, decreased coronary blood flow, increased storage of catecholamine products in the myocardium, decreased muscle mass and muscle tone with resultant increased nitrogen excretion and increased calcium mobilization with increased calcium excretion. Acclimatization produces clinical features which are exactly opposite of those noted in deconditioning. Acclimatization results in increased organ activity with increased bone marrow activity and erythropoiesis with increased red blood cell mass and increased blood volume. With acclimatization there is a tendency toward vagotonia with decreased heart rate. There is an increased exercise tolerance and an increased coronary blood flow. These observations suggest that prolonged hypoxia of a sufficient degree to produce suitable acclimatization is a useful agent in preventing deconditioning during manned space flight and in those situations on earth that result in deconditioning".[2]

FEBRUARY 1940

Importance of the airline flight surgeon (President-Elect, Aero Medical Association): "The air transportation industry has become a giant very rapidly. It had its growing pains, but it seems to have developed into a fairly handsome entity without particularly noticeable bow-legs nor especially offensive halitosis. Whatever its faults, it has been the most aggressive and progressive industry that has ever existed in the history of mankind. Its pilots early developed the ability to fly airplanes in and above clouds. At this same time the United States Army Air Corps was personally explaining to me the utter folly of such an idea. It was further demonstrated by insisting that I take a training plane into a large cloud and when I spun out I was told to never forget that it is impossible to fly without seeing the ground…

"I would like to stress the importance of a Flight Surgeon's services in an operating airline. In a rapidly growing industry, he has an unusual opportunity for service not only as a physician but also in selecting new personnel, in the promotion of safety and passenger comfort, and in coöperating with the operating officials in ways too numerous to mention here. They should be constantly alert to the subtler problems affecting the health and well-being of the flight personnel and the passengers. Many problems remain to be solved such as the improvement of the medical examinations, and the reliability of the various tests, the administration of oxygen aloft, the effects of rapid descents on the inner ear, air sickness, pilot fatigue, and the so-called 'aeroneurosis,' to mention only a few. Satisfactory answers to these problems can be obtained only by years of careful study".[3]

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