



Certification Update

Information About Current Issues

By Warren S. Silberman, DO, MPH

Update on FAAMedXPress

OUR NEW FAAMedXPress computer system has been rolled out to the public with the quietest reaction I have seen yet. However, we have received phone calls from some of our aviation medical examiners who claim they know nothing about this system.

This amazes me as we mailed a letter out to all registered aviation medical examiners last winter, published several articles in the *Bulletin*, added a detailed explanation, a PowerPoint slide presentation of the screens that the airmen see, an instructional booklet provided by Northrop Grumman to the Aerospace Medical Certification Subsystem Web site, and sent postcards to all airmen announcing the system—some of them twice!

When the Aerospace Medical Certification Subsystem was activated, I asked you all to bookmark its information site and that you try to read it at least once per week. I am not going to belabor the point.

We initially rolled the system out on April 16th to Alaska and the entire western U.S. On May 16, we allowed the central USA to input examinations, and as of June 11, we permitted the remainder of the country and the rest of the world to participate. Our most recent statistics show that 10,625 airmen have completed the process to be able to electronically submit their medical history; 6,263 airmen have initiated filling out the front side of the 8500-8 (which is what the system is all about); 2,206 airmen have completed the exam history and submitted it for completion by an AME (an appointment date may be pending with an AME. The exam

will sit in the netherworld until they give their confirmation number to the AME); and 1,090 airmen went to an AME who completed the physical examination section and then transmitted it to the Aerospace Medical Certification Division.

We urge you to encourage your airmen to participate in FAAMedXPress, as it will reduce our requirement to scan the hard copy 8500-8s into the Document Imaging and Workflow system (DIWS), thus reducing our workload.

Smoking Cessation Medications

The Federal Air Surgeon, under advisement from his Pharmacy and Therapeutics committee, accepted the use of Chantix (varenicline) tablets for use in smoking cessation. Varenicline binds with alpha4beta2 neuronal nicotinic acetylcholine receptors. The efficacy of varenicline is thought to be the result of its activity at a sub-type of the nicotinic receptor where its binding produces agonist activity, while preventing nicotine binding to the alpha4beta2 receptors.

Varenicline blocks the ability of nicotine to activate alpha4beta2 receptors and thus to stimulate the central nervous system dopamine structure, which may be the mechanism in reinforcing and rewarding that smokers experience. Varenicline, being highly selective, binds more potently to the receptors than to other common nicotinic receptors. It is metabolized in the liver and excreted 92% unchanged in the urine.

The dose is to titrate the 0.5 mg daily for three days, then 0.5 mg twice daily for four days. The maximum dose is 1 mg twice daily. The overall level of adverse reactions to varenicline was nearly the same as the level of reactions to placebo. The most common adverse reaction associated with taking the medication is nausea (32.4%). The majority of the nausea was reportedly mild, and only 3.9% of patients chose to discontinue the medication due to the nausea. Insomnia is the next most common adverse reaction (19.0%) associated with varenicline. Somnolence was also found to be a side effect (9.3%).

The likelihood of side effects is reduced by titrating the medication from 0.5 mg daily to 0.5 mg twice daily to 1 mg twice daily over a seven-day period. Smokers are supposed to quit on day eight of the medication. Most patients who make it through the titration period seem to do well.

The FAA recommends that the airman not fly until at least 72 hours at the maximum planned treatment dose. In other words, we recommend that airmen wait until the treating physician gets them to their maximal dose and then wait 72 hours more. Use of varenicline will not require a special issuance. We will require a statement from the treating physician or examining AME regarding the presence or absence of side-effects. The local AME may release the airman to flight duties if no side-effects are experienced, and the presence or absence of side-effects must be reported on the next FAA physical examination.

Note, the use of **Wellbutrin®** and **Zyban®** are unacceptable for smoking cessation at this time because they are antidepressant medications. However, **Nicorette®** (gum or patches) is acceptable for use in aviation.

Cardiology Teaching Case

Here is a great case that we managed recently. I thought that it was interesting enough to present it to you now and will update you in the next edition of the *Bulletin*. A 19-year-old student pilot suffered an abrupt onset of “excruciating” anterior chest pain while exercising. He was taken to a local emergency room where his initial electrocardiogram revealed marked anterior ST segment depression. His chest pain and electrocardiograph changes persisted, despite the administration of morphine sulfate and sublingual nitroglycerin.

His physical examination showed him to be in obvious distress. He appeared weak in diaphoretic. His blood pressure was 100/80 and pulse rate was 100 with respiratory rate of 20. Breath sounds were normal. There was no chest wall tenderness. Auscultation

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of his heart showed a diffuse cardiac impulse. The first and second heart sounds were normal. There were no murmurs, rubs, or gallops. His cardiac rhythm was normal. All pulses were palpable and equal. Abdominal aortic pulsation was normal. The extremities were unremarkable, with no evidence of cyanosis.

Cardiac catheterization revealed that his ascending aorta was enlarged at 43mm, ejection fraction was 50%, a left sinus of valsalva origin of his left main coronary artery, and there was evidence of a dissection of his proximal circumflex artery! Ultimately, there was demonstrated evidence of an inferoposterior wall myocardial infarction.

He was taken to the operating room. Examination of the interior of his aorta revealed that the ascending aorta was not dilated. There was no evidence of dissection at either of the coronary cusps. The aortic valve was trileaflet and totally normal. An intraoperative cardiac catheterization was performed. The left circumflex artery showed staining of the epicardium and evidence of an acute dissection. A reversed saphenous vein bypass was performed, and a portion of the aorta was taken to look for cystic medial necrosis, a pathologic finding seen in Marfan's syndrome.

Marfan's syndrome, along with this pathologic finding, make it likely that the potential airman would be prone to dissection further down in his vascular system such as carotid arteries.

Pathologic examination did not demonstrate any cystic medial necrosis, nor did further studies demonstrate any evidence of a connective tissue disorder.

Recent Holter monitoring demonstrated over 17,000 premature ventricular contractions over the 24 hour monitoring period. There were periods of multifocal ventricular bigeminy and ventricular couplets. There was no sustained ventricular tachycardia.

Echocardiography showed moderate left ventricular enlargement with decreased left systolic function. The ejection fraction was 41%. Regional wall abnormalities were present along with moderate mitral valve regurgitation. He also had mild left atrial enlargement.

Pertinent laboratory values showed a normal complete blood count, renal and liver function. Sedimentation rate was within normal range. Cholesterol was 122, triglyceride level was 60, high-density lipoprotein was 45 and low-density was 55.

Recently, the airman experienced palpitations but claimed to have had this symptom prior to the event. His medications are aspirin, Metoprolol and Lisinopril.

As you recall, the FAA policy is that an airman must wait six months from the event to be considered for medical certification, which this applicant has done. He must as yet provide us with a maximal stress test. Our inclinations are to deny certification to this airman, but this case will likely be presented to the FAA's cardiology consultant.

Have an enjoyable summer!



Dr. Silberman manages the Civil Aerospace Medical Institute's Aerospace Medical Certification Division.

New Brochure from page 1

Fatigue in Aviation was written by Southwest Regional Flight Surgeon **Guillermo Salazar, MD**. Three copies of the 6-page informational brochure were recently sent to all aviation medical examiners to help answer questions that pilots may ask about fatigue.

Additional copies of the brochure are available from these sources:

- ▶ Download from the Federal Aviation Administration's Web site www.faa.gov/pilots/safety/pilotsafetybrochures/
- ▶ Phone: (405) 954-4831
- ▶ E-mail: Gail.Gentry@faa.gov



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to support issuance, or incomplete examination. Approximately 1.8% of the histories were found to be incomplete, and 2.5% of the certificates were inappropriately issued.

A marked improvement in the quality of histories was noted in examinations performed after the implementation of the new Aerospace Medical Certification System (AMCS) in October 2005. Only 1.3% of the certificates issued after the new system was put in operation were judged to have been inappropriately issued. This extrapolates to more than 8,000 airmen in our system flying with questionable qualifications before and over 4,200 inappropriate issuances after October 2005. Surprisingly, 44% of the inappropriate issuances involved neurology (largely unconsciousness histories), followed by vision, cardiac, and cancer cases, each with 14% of the total.

SOLUTION

The Regional Flight Surgeons have volunteered to continue the same rigorous evaluations of randomly selected examinations done by AMEs in their regions to identify AMEs whose histories are poor, so they can help them improve. A full-time physician has been contracted to continue the same effort at CAMI. The information collected will be collated for use as part of each AME's annual performance report as judgment errors. It is hoped these and similar studies will result in greatly improved medical histories and, thereby, further increase the confidence that our AMEs contribute significantly to the safety of the National Airspace System.



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