Coronary Artery Disease Management in Military Aircrew

Norbert Guettler; Stefan Sammito

INTRODUCTION: Coronary artery disease (CAD) is the leading cause of denial or withdrawal of flying privileges for aircrew. Screening for CAD is therefore crucial. The present study analyzed German military aircrew with diagnosed CAD and/or acute coronary syndrome despite close medical monitoring with the intention to further optimize individual outcomes and aeromedical disposition.

METHODS: The digital information systems of the German Air Force Centre of Aerospace Medicine were searched for pilots and nonpilot aircrew with CAD and/or myocardial infarction (MI). They were retrospectively analyzed for age at initial diagnosis, body mass index, cardiovascular risk factors, diagnostic procedures, treatment, and aeromedical disposition.

RESULTS: Between February 1987 and March 2023, 126 aircrew, 55% pilots and 45% nonpilot aircrew, were identified with CAD and/or MI. An accumulation of two to six risk factors was found in 77% of both groups. Most pilots (54%) received conservative treatment, 44% underwent percutaneous coronary intervention, and 3% coronary artery bypass grafting. In the group of nonpilot aircrew, conservative treatment was performed in 47%, coronary intervention in 37%, and bypass grafting in 16%. A total of 45 pilots (65%) returned to flying duties, albeit 39 (57%) with restrictions. In the group of nonpilot aircrew, 31 (54%) returned to flying duties.

DISCUSSION: A small group of aircrew developed CAD over the years, some with severe coronary artery stenoses and MI. Further optimization of individual prognosis and aeromedical disposition should aim at appropriate CAD screening and risk factor elimination. CAD management needs a comprehensive approach regarding military aviation requirements and clinical guidance.

KEYWORDS: coronary artery disease, myocardial infarction, cardiovascular risk, military aircrew.

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Cardiovascular disease (CVD) remains the most common cause of death in western countries, with coronary artery disease (CAD) accounting for the highest proportion. In the United States, 10.9% of adults 45 yr or older are estimated to have CAD, and approximately 800,000 U.S.-Americans suffer a myocardial infarction (MI) each year.[23] In the European Society of Cardiology (ESC) member countries, the incidence of ischemic heart disease was reported as 3.6 million new cases in 2017, with a prevalence of 34.9 million.[20]

Aircrew, and particularly pilots, are subject to a unique and exacting working environment, especially in high-performance military flying.[15] In addition to the inherent cognitive demands placed on aircrew, additional factors, including hypoxia, acceleration forces in high-performance aircraft, operational pressure, enemy action, and circadian disruption, must be taken into consideration. Most fixed-wing commercial pilots work in a dry, contained environment, pressurized at 6000–8000 ft (1829–2438 m). Military high-performance aircraft are far less pressurized to reduce stress on the air frame and to provide for an unplanned decompression. Pilots have to breathe supplemental oxygen through oxygen masks, sometimes with an increased pressure. Such positive pressure breathing is also used as a countermeasure against high gravitational forces in

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maneuvers such as pulling out of a dive or into an inside loop.[9,15] To perform competently in this demanding environment requires high cardiac output and optimal coronary flow. Aeromedical concerns of CAD are myocardial ischemia presenting as sudden cardiac death, acute myocardial infarction, stable or unstable angina, or ischemic dysrhythmias, any of which could cause sudden incapacitation or significantly impair flying performance.[21]

Despite the great progress accomplished in the field of CAD screening and management, and the close medical monitoring of aircrew, acute coronary syndromes have still been the cause of commercial pilot incapacitation, resulting in aircraft accidents and fatalities. Therefore, CAD is the leading cause of denial or withdrawal of flying privileges in both civilian and military aircrew.[3,17] Few, if any, aircrew involved in accidents or incidents suffer from antecedent symptomatic CAD. Most coronary events in younger individuals occur because of the rupture of non-flow-limiting atherosclerotic plaques, or superficial erosion of remodeled plaque. This triggers an intravascular coagulation cascade, leading to acute thrombus formation and obstruction of the coronary lumen.[19]

The presence of CAD in aircrew and young military personnel has originally been known from autopsy studies demonstrating atherosclerosis as a common finding, including cases of severe disease and aeromedically disqualifying findings.[5,6,25] Appropriate screening and cardiological evaluation of aircrew at risk of or with established CAD is therefore crucial during periodic medical examinations (PME).

Primary and secondary CVD prevention as outlined in current guidelines is another important aspect of risk mitigation.[1,24] In 2020, an analysis of cardiovascular (CV) risk profiles in German military pilots was published.[16] The cross-sectional analysis during two 3-yr periods revealed that the average age of pilots increased along with most CV risk factors (CVRF). Risk calculator results, however, remained quite stable over time, as the number of active smokers and the number of those on antihypertensive medication declined significantly, which was explained by the high health awareness among military pilots.

This study analyzes pilots and nonpilot aircrew who developed CAD, some of them with severe stenoses and/or myocardial infarction, over the years despite their close medical monitoring and all efforts in disease prevention, disease management, and health education. Some of them were eventually not allowed to return to flying duties. In this study, important measures to prevent such unfavorable outcomes are, therefore, identified and discussed to further optimize individual prognosis, aeromedical disposition, and flight safety.

METHODS

The digital information systems (DIL2006, Noris Ingenieurbüro GmbH, Nürnberg, Germany, until October 2020, and sOne, SAmAs GmbH, Paderborn, Germany, from November 2020 on) of the German Air Force Centre of Aerospace Medicine (GAFCAM) were searched for aircrew (pilot and nonpilot aircrew from the German Air Force, Army, and Navy) with the diagnosis of CAD and/or MI in a 36-yr period between February 1987 and March 2023. Search criteria were International Classification of Disease 10 codes I20 (Angina pectoris), I21 (acute MI), I22 (subsequent ST elevation and non-ST elevation MI), I24 (other acute ischemic heart disease), and I25 (chronic ischemic heart disease). In addition, paper records were searched for relevant information, including medical reports by the treating physicians. Cases with CAD and/or MI were retrospectively analyzed for age at initial diagnosis, height, weight, body mass index, CVRF, diagnostic procedures, treatment, course of disease, aeromedical disposition, and follow-up duration.

All active-duty German Air Force, Army, and Navy pilots undergo PME at the GAFCAM every 3 yr up to 40 yr of age, with annual examinations by the local flight surgeons in the intervening years. Pilots above 40 yr of age are examined annually at the GAFCAM. Licensed nonpilot aircrew are examined annually by the local flight surgeon regardless of their age. In case of health problems requiring a waiver according to the German waiver system, the PME has to have been performed annually at the GAFCAM for both groups. Until now, electrocardiogram (ECG) and exercise ECG have been part of every PME.

Individuals with acute myocardial infarction received appropriate emergency treatment in a nearby hospital and were examined by invasive coronary angiography (ICA). Stable CAD was diagnosed by computed tomography coronary angiography (CTCA), usually in combination with coronary artery calcium scoring (CACS) or ICA. Stenosis severity was retrospectively graded according to a recent expert consensus document by the Society of Cardiovascular Computed Tomography, the American College of Cardiology, the American College of Radiology, and the North America Society of Cardiovascular Imaging into no visible stenosis (0%), minimal stenosis (1–24%), mild stenosis (25–49%), moderate stenosis (50–69%), severe stenosis (70–99%), and occlusion (100%).[2] Further diagnostic workup included functional testing and myocardial perfusion analysis for stress-induced ischemia by stress echocardiography, cardiac magnetic resonance imaging, or nuclear imaging, if indicated. ECG, exercise ECG, transthoracic echocardiography, and Holter monitoring were performed in all individuals with diagnosed CAD. Laboratory testing and ambulatory blood pressure monitoring were added for the evaluation of CV risk factors. Follow-up examinations were scheduled as appropriate, at least annually.

Statistical analyses were conducted using IBM SPSS Statistics for Windows 24 (IBM Corp. Released 2016, Armonk, NY, United States). Data analysis was primarily descriptive. Because the Kolmogorov-Smirnov test showed that none of the nominal scale parameters were normally distributed, median and interquartile range were calculated.

According to the regulations of the North Rhine Medical Association, the responsible authority for this study, a vote of the ethics committee was not necessary for this retrospective analysis.

RESULTS

During the study period of 36 yr, 126 aircrew were identified with CAD and/or MI; 125 (99%) of them were men. Of these aircrew, 69 (55%) were pilots and 57 (45%) nonpilot aircrew. One weapon systems officer on a high-performance jet was added to the pilot group, as he is working in the same environment and is assessed according to the same criteria. Basic characteristics of pilots and nonpilot aircrew are shown in **Table I**.

Diagnoses and diagnostic imaging of pilots and nonpilot aircrew with CAD and/or MI are outlined in **Table II**. There were 10 pilots and 18 nonpilot aircrew who had acute or subacute myocardial infarction and were examined by ICA. In two nonpilot aircrew with non-ST-elevation myocardial infarction ICA did not reveal obstructive CAD. In one of these cases a plaque with a 30% stenosis was found, the other individual did not have coronary artery stenoses at all. Of those without MI, 44 pilots (64%) and 19 nonpilot aircrew (33%) were primarily examined with CTCA; in 12 pilots (17%) and 7 nonpilots (12%) this had to be followed by ICA because of significant coronary artery stenosis. CTCA was usually combined with CACS. Indications for the anatomical evaluation of coronary arteries were an accumulation of CVRF, unclear thoracic and epigastric symptoms, or abnormal findings in other noninvasive tests, including ST-segment depression, arrhythmia, and bundle branch blocks during exercise ECG. In 32 pilots (46%) and 35 nonpilot aircrew (61%), severe coronary artery stenosis or coronary artery occlusion was detected.

CVRF and concomitant diseases are listed in **Table III**. Nearly half of the pilots (30, 43%) had a combination of 3–5 CVRF and 28 nonpilot aircrew (49%) had 3–6 CVRF in combination. According to recommendations from the current ESC guidelines of CV disease prevention, obesity was regarded as one of the main risk factors for CAD.[24] Systemic atherosclerosis with plaques in the carotid arteries and/or the abdominal aorta diagnosed by ultrasound was the most frequent concomitant disease.

Treatment and aeromedical disposition of pilots and nonpilot aircrew with CAD and/or MI are shown in **Table IV**. Most pilots (37, 54%) received conservative treatment of their CAD, while 44% underwent percutaneous coronary intervention (PCI), and 2 pilots (3%) received a coronary artery bypass graft (CABG). In the group of nonpilot aircrew, conservative treatment was performed in 47%, PCI in 37%, and CABG in 16% of all cases.

After CAD diagnosis, most individuals were treated with antiplatelet drugs and statins, many of them also with beta blockers and/or angiotensin converting enzyme inhibitors. Antiplatelet treatment was mostly done with acetyl salicylic acid. Dual antiplatelet therapy was used after coronary artery stenting for mostly up to 1 yr with clopidogrel, prasugrel, or ticagrelor in accordance with the current ESC guidelines.[22]

Most pilots and nonpilot aircrew were assessed as unfit for flying after CAD/MI diagnosis. With a waiver according to the German waiver system, 45 pilots (65%) returned to flying duties, albeit 39 (57%) with restrictions. In the group of nonpilot aircrew, 31 (54%) returned to flying duties, most of them without restriction. Criteria for a return to flying duties were complete revascularization if required, the absence of ischemia, normal left ventricular ejection fraction without significant wall motion abnormalities, the absence of relevant arrhythmia, and an effective secondary prevention.

Table I. Basic Characteristics of Included Pilots and Nonpilot Aircrew.

CHARACTERISTIC	PILOTS	NONPILOT AIRCREW
Number	69	57
Age at initial diagnosis (yr)	51.3 (7.3)	50.2 (8.8)
Duration of follow-up (yr)	4.0 (5.2)	2.1 (5.1)
Sex		
Male (*N*)	69 (100%)	56 (98%)
Female (*N*)	0 (0%)	1 (2%)
BMI ($kg \cdot cm^{-2}$)	26.6 (4.0)	26.9 (4.8)
Aircraft flown		
Jet (high-performance) (*N*)	13 (19%)	-
Fixed wing (*N*)	15 (22%)	-
Rotary wing (*N*)	41 (59%)	-

N = number; BMI = body mass index. Age at initial diagnosis, duration of follow-up, and BMI are all given as median [interquartile range (IQR); 25–75%].

Table II. Diagnoses and Diagnostic Imaging of Pilots and Nonpilot Aircrew with Coronary Artery Disease and/or Myocardial Infarction [*N* (%)].

DIAGNOSIS/IMAGING	PILOTS *N* = 69	NONPILOT AIRCREW *N* = 57
Maximum grade of coronary artery stenoses		
no stenosis	0 (0%)	1 (2%)
minimal	5 (7%)	7 (12%)
mild	15 (22%)	7 (12%)
moderate	17 (25%)	7 (12%)
severe	22 (32%)	15 (26%)
occlusion	10 (15%)	20 (35%)
Myocardial infarction with obstructive coronary arteries		
STEMI	8 (12%)	13 (23%)
NSTEMI	2 (3%)	3 (5%)
Myocardial infarction with nonobstructive coronary arteries (MINOCA)	0 (0%)	2 (4%)
Diagnostic imaging for initial CAD diagnosis		
CTCA	32 (46%)	12 (21%)
ICA	25 (36%)	38 (67%)
CTCA + ICA	12 (17%)	7 (12%)

STEMI = ST-elevation myocardial infarction; NSTEMI = non-ST-elevation myocardial infarction; CAD = coronary artery disease; CTCA = computed tomography coronary angiography; ICA = invasive coronary angiography.

DISCUSSION

We found that over a 36-yr period 69 pilots with CAD and/or MI and 57 nonpilot aircrew with a median age at initial diagnosis of 51.3 and 50.2 yr, respectively, were identified in the specific occupational group of military aircrews. Nearly half of these persons had a severe coronary artery stenosis or coronary

Table III. Cardiovascular Risk Factors and Concomitant Diseases of Pilots and Nonpilot Aircrew with Coronary Artery Disease and/or Myocardial Infarction [*N* (%)].

RISK FACTOR/DISEASE	PILOTS *N* = 69	NONPILOT AIRCREW *N* = 57
Cardiovascular risk factors (CVRF)		
Dyslipidemia	58 (84%)	44 (77%)
Hypertension	31 (45%)	29 (51%)
Diabetes mellitus	5 (7%)	6 (11%)
(Ex-) Smoking	36 (52%)	36 (63%)
Family history	29 (42%)	20 (35%)
Obesity (BMI > 30 kg · m^{-2})	4 (6%)	10 (18%)
Number of CVRF		
0	2 (3%)	3 (5%)
1	14 (20%)	7 (12%)
2	24 (35%)	16 (28%)
3	18 (26%)	15 (26%)
4	9 (13%)	10 (18%)
5	1 (1%)	1 (2%)
6	1 (1%)	2 (4%)
No data	0 (0%)	3 (5%)
Relevant comcomitant diseases		
Atherosclerosis (plaques in the carotid arteries and/or abdominal aorta)	41 (59%)	19 (33%)
Left ventricular hypertrophy	3 (4%)	6 (11%)
Aortic valve disease (1 pilot with biological prothesis)	4 (6%)	2 (4%)
Ectasia of thoracic aorta	2 (3%)	0 (0%)
Atrial fibrillation / atrial flutter	3 (4%)	1 (2%)
Supraventricular tachycardia	2 (3%)	0 (0%)
Second degree AV block, Mobitz II	0 (0%)	1 (2%)
Syncope with asystole (pacemaker)	1 (1%)	0 (0%)
Obstructive lung disease	2 (3%)	2 (4%)
Obstructive sleep apnea	1 (1%)	2 (4%)
Steatosis hepatis	5 (7%)	7 (12%)
Hodgkin lymphoma	1 (1%)	0 (0%)
Mild renal failure	1 (1%)	0 (0%)
Gastresophageal reflux/gastritis	2 (3%)	3 (5%)
Gout	1 (1%)	0 (0%)

BMI = body mass index; AV = atrioventricular.

Table IV. Treatment and Aeromedical Disposition of Pilots and Nonpilot Aircrew with Coronary Artery Disease and/or Myocardial Infarction [*N* (%)].

TREATMENT/AEROMEDICAL DISPOSITION	PILOTS *N* = 69	NONPILOT AIRCREW *N* = 57
Treatment of CAD		
PCI	30 (44%)	21 (37%)
CABG	2 (3%)	9 (16%)
Conservative	37 (54%)	27 (47%)
Medication after CAD/MI diagnosis		
Antiplatelet therapy	57 (83%)	46 (81%)
Anticoagulation	1 (1%)	2 (4%)
Statin	62 (90%)	46 (81%)
Ezetimibe	12 (17%)	11 (19%)
Beta blocker	27 (39%)	33 (58%)
ACE inhibitor	29 (42%)	29 (51%)
Angiotensin receptor blocker	9 (13%)	12 (21%)
Calcium channel blocker	7 (10%)	7 (12%)
Diuretic	7 (10%)	5 (9%)
Allopurinol	4 (6%)	4 (7%)
Oral antidiabetic treatment	2 (3%)	4 (7%)
Spironolactone / eplerenone	2 (3%)	2 (4%)
Valsartan/sacubitril	0 (0%)	1 (2%)
Proton pump inhibitor	6 (9%)	3 (5%)
Flecainide	0 (0%)	1 (2%)
Aeromedical disposition		
fit	10 (15%)	10 (18%)
temporarily unfit	3 (4%)	0 (0%)
restrictions	1 (1%)	0 (0%)
unfit	56 (81%)	47 (83%)
fit with waiver	45 (65%)	31 (54%)
without restrictions	6 (9%)	29 (51%)
with restrictions	39 (57%)	2 (4%)
OML	39 (57%)	0 (0%)
no high-performance	4 (6%)	1 (2%)
other restrictions	12 (17%)	1 (2%)
unfit until end of follow-up	12 (17%)	14 (25%)
waiver possible, but not yet granted	0 (0%)	2 (4%)

CAD = coronary artery disease; PCI = percutaneous coronary intervention; CABG = coronary artery bypass graft; MI = myocardial infarction; ACE = angiotensin converting enzyme; OML = operational multipilot limitation.

artery occlusion. MI was experienced by 10 pilots and 18 nonpilot aircrew; in 2 nonpilot aircrew this was MI with nonobstructive coronary arteries. Although these numbers are very low in relation to the long observation period in this medically monitored cohort, we found that there were typical characteristics regarding CVRF and concomitant diseases in this group, and about 77% had an accumulation of two or more CVRF. These findings underline the importance of a strict primary and secondary cardiovascular disease prevention as outlined in current guidelines,[11,24] along with an extensive health education in briefings and other instructions.

To the best of our knowledge, this is the largest study on this specific occupational group. Most other recent publications on CAD in aircrew have been reviews or consensus recommendations. CVD is an important reason for the grounding of pilots and the major reason among older age groups of 50 yr and up.[17]

Recommendations for CAD screening in aircrew, including computed tomography (CT) for enhanced screening, were published by the North Atlantic Treaty Organization Human Factors and Medicine Research Task Group 251, Occupational Cardiology in Military Aircrew Working Group.[8] According to these recommendations, initial screening should include the use of population-appropriate risk estimators for periodically screened aircrew, especially those over the age of 40 yr, in addition to a resting ECG. For apparently healthy people, the Systematic Coronary Risk Estimation (SCORE2) risk estimator has recently been recommended.[24] It can be used to estimate fatal plus nonfatal cardiovascular risk within the next decade. Aircrew identified as being at increased cardiovascular risk should undergo enhanced screening, including CACS alone or combined with CTCA.[8] These recommendations for CT screening in asymptomatic individuals may be beyond current clinical guidelines for the general population. According to the 2019 ESC guidelines for the diagnosis and management of chronic coronary syndromes, CACS may be considered as a risk modifier in asymptomatic patients, which is a IIb indication. CTCA may only be considered in high-risk asymptomatic adults (IIb indication). But it is mentioned that for persons whose occupations involve public safety, including airline pilots, the threshold for performing an imaging test may be lower than for the average patient.[11] Within the last two decades, the quality of CT scanners has rapidly increased, along with a decrease of radiation exposure. CTCA has the potential to evaluate plaque anatomy even in no flow-limiting lesions and contribute to the identification of individuals with future coronary events. Its advantages are summarized in a recent expert consensus document.[13]

In our cohort, nearly half of the pilots diagnosed with CAD needed revascularization as well as more than half of the nonpilot aircrew. Of the pilots, 30 (44%) were revascularized by PCI and 2 (3%) by CABG. Out of the group of nonpilot aircrew, 21 (37%) needed revascularization by PCI and 9 (16%) by CABG. Today, PCI mostly includes stenting with a drug eluting stent. Delayed endothelialization and increased platelet aggregation with increased risk of in-stent thrombosis is minimized with dual antiplatelet therapy. PCI trials report annual major adverse event rates of 1–2% per year for successful and uncomplicated single or two-vessel disease, although importantly most stent failures occur in the first 6 mo.[4,10,12] Return to flying duties for aircrew is often possible after drug eluting stenting depending on their specific role: for pilots, mostly with restrictions to operational multipilot limitation (OML), requiring a second licensed pilot qualified for the specific type of aircraft, and/or non-high-performance flying. If CABG is indicated, aircrew with proven significant CAD require complete revascularization with no stenosis >70% left untreated and >50% for left main stem to ensure that, after intervention, those without symptoms have reduced any vascular risk to within the 1% rule (annual risk of incapacitating medical events not more than 1%).[19] If possible, arterial grafts should be used because of their high patency rate. In the context of aviation, a very low post-revascularization major adverse cardiac event rate is needed before certification and licensing can be considered. This requires a different approach to standard CABG or PCI in that even moderate bystander disease may require intervention to ensure relicensing is possible.[18] No surgical evidence supports revascularization of stenosis <70% [<50% for left main stem and proximal left anterior descending artery (LAD)] in any vessel including graft; neither does it apply to PCI.[14] This contrasts with current European Union Aviation Safety Agency regulations allowing no stenosis of more than 50% in any major untreated vessel or more than 30% in the left main stem or the proximal LAD.[7]

In our cohort, 45 out of 56 pilots primarily unfit for flying returned to flying duties, 39 of them with restriction. The latter were all restricted to OML, which in Germany includes no high-performance aircraft, as the German Armed Forces do not fly high-performance aircraft with two pilots. OML means that a pilot is only allowed to fly with a second qualified pilot who is certified for the specific type of aircraft. This is a way of reducing risk in case of a medical impairment and is also common for civilian professional pilots in case of significant CAD. Other possible limitations are "no high-performance flying" or G limitations to reduce the impact of acceleration forces on the cardiovascular system. A total of 12 pilots were unfit for flying until the end of their career. Reasons were an imminent retirement, severe CAD without complete revascularization, an impaired left ventricular ejection fraction (<50%), significant left ventricular wall motion abnormalities, or an unsatisfactory secondary prevention. Eight of the pilots who returned to flying would probably have not been allowed to fly according to current European Union Aviation Safety Agency regulations.[7] Three of them had proximal LAD stenosis of more than 30%, two had stenoses of other parts of the LAD of more than 50%, and three had moderate or severe stenoses of side branches without symptoms or evidence of ischemia. All these pilots remained stable over time. In the whole cohort, there was not a single report of acute coronary syndrome in flight or an incident or accident related to CAD.

Nearly all individuals in our cohort received secondary prevention in accordance with the effective guidelines at the time of treatment. To establish and reevaluate an effective secondary prevention is an important part of PME. An effective secondary prevention reduces the risk of progression of CAD and a second MI significantly.[4,11,24]

There are some strengths and limitations of our study that must be mentioned in this manuscript. One of the strengths is the comprehensive analysis of many aircrew over a long duration. In addition to the very long observation time, it is also a strength that there is only one center in the German Armed Forces for aeromedical assessment of military aircrew of all services (Air Force, Army, and Navy). So the analysis included every aircrew with CAD and/or MI within the last 36 yr. On the other hand, it is a limitation that the total number of aircrew examined in the 36-yr period is not exactly known. The article also misses aircrew with sudden cardiac death or death of unknown cause, as it focuses on CAD management in aircrew, including diagnostic procedures, treatment, and aeromedical disposition. In Germany, an autopsy is only mandatory if a natural cause of death is questioned. If a natural cause of death was assumed and aircrew were not involved in fatal aircraft accidents, an autopsy was probably not performed in most cases. Sometimes, aircrew deaths and their causes might not even have been reported to the GAFCAM. Therefore, the incidence cannot be calculated, but it is certainly much lower than in the general population. It is also a limitation that the individual observation period is limited to duty in the military. We have no information if some of the persons got an MI after retirement. Because the aim of the study was to examine the impact of CAD and/or MI on flying duties as pilot or nonpilot aircrew, this limitation can be ignored from our perspective.

In conclusion, screening for CAD in aircrew is crucial even in this comparatively young and medically monitored population to prevent coronary events with potentially catastrophic consequences for flight safety. For enhanced screening in individuals at risk or with abnormal findings in other noninvasive testings, CACS alone or in combination with CTCA is increasingly important. Mitigation of cardiovascular risk by strict primary and secondary prevention should aim at the elimination of modifiable risk factors. This interplay of screening, risk mitigation, and appropriate disease management will have a positive impact on individual prognosis and aeromedical disposition of aircrew, which should consider aeromedical regulations, individual clinical findings, and specific occupational demands in this challenging field of work.

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