

Hypertension amongst defense service aircrew: A follow-up

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ABSTRACT

Uncontrolled hypertension renders an aircrew unfit for flying duties. Adequate control by both non-pharmacological and/or pharmacological method can ensure that the pilot returns to the cockpit. This study was conducted to study the defense service aircrew reporting to Institute of Aerospace Medicine (IAM), Bangalore for evaluation/disposal of hypertension. In this study 25 aircrew with primary hypertension were followed up till finality was reached in their disposal. Out of these 25 cases, 20 were asymptomatic and 5 were symptomatic. Out of these cases, 5 were managed solely with dietary restriction, exercise and weight reduction, 10 required only either diuretic (Indi amide, Chlorthiazide), BI blocker (Atenolol) or ACE inhibitor, 5 required BI blocker + ACE inhibitor and 5 required diuretic + BI blocker along with non pharmacological measures. All cases returned to restricted or full flying category after a period of observation/stabilization.

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KEY WORDS: Hypertensive heart disease; Systemic hypertension; Hypertensive vascular disease

Hypertensive heart disease is known to be more prevalent amongst affluent group of society including aircrew. [1, 2, 3, 8, 9] It is one of the important disabilities leading to temporary or permanent grounding of aircrew decreasing overall productivity. Hypertension (HTN) is a disorder of variable severity ranging from just mild hypertension to severe hypertension with or without its complications. [1, 2, 3, 8, 9] It can be brought back to normal and complications can be prevented, if detected early and necessary measures taken in time. [1, 2, 3, 8] Flying

involves man-machine complex and it requires an aircrew to be in his complete health to avoid any compromise with flight safety. Keeping in view above facts, this study was undertaken.

Materials and Method

Defense service aircrew with hypertension, reporting to IAM Bangalore for their medical evaluation, were evaluated and followed up. All

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such cases were thoroughly evaluated including history, clinical examination and investigations such as urinalysis, urea, creatinine, uric acid, and lipid profile, blood sugar, ECG, X-ray chest, eye fungus, USG - KUB, etc. Effects of dietary restriction, exercise, weight reduction and anti-hypertensive agents were noticed. Period of non-effective and restricted flying was noticed before final disposal.

Observations and Discussion

Age distribution of cases of hypertension amongst aircrew is shown in Table 1. Age ranged from 25 to 55 years. Majority of the cases (60%) were in the age group between 41 to 50 years. Incidence of hypertension increase with advancing age [1, 2, 3, 8] however, in this study, majority of cases belonged to the age group 41 to 50 years instead of 51 to 55 years.

Table 1. Age group wise distribution of cases of hypertension

Age Groups	No	Percentage
25 - 30	2	8
31 - 40	3	12
41 - 50	15	60
51 - 55	5	20
Total	25	100

Various Diseases or conditions which lead to detection of hypertension in asymptomatic cases during routine medical check up and medical review are shown in Table 2. Out of 25 cases, 5 presented with symptomatology of hypertension and 20 were detected to have hypertension while being evaluated for other diseases or during routine medical check-up. Uncomplicated hypertension is almost always asymptomatic; a person may be unaware of consequent cardiovascular damage for as long as 10 to 20

years. Only if blood pressure is measured frequently and aircrew are made aware that hypertension is harmful even if asymptomatic, will hypertension be managed effectively. Out of 25 aircrew, 10 (40%) were cases of obesity, 4 (16%) of impaired GTT, 8 (32%) of ECG abnormality and 3 (12%) cases were diagnosed during routine medical check-up. Association of hypertension with obesity, impaired GTT and ECG abnormality and IHD is a known fact. [1, 2, 3, 8, 9]

Table 2. Reasons for diagnosis of hypertension in asymptomatic cases

Disability	No	%
Obesity	10	40
Impaired GTT	4	16
ECG abnormality	8	32
Routine medical check-up	3	12
Total	25	100

Various modalities of treatment required for control of hypertension are shown in Table 3. Out of 25 cases, 5 (20%) had control of hypertension by diet restriction, exercise and weight reduction only, 10 (40%) required either diuretic, B1 blocker or ACE inhibitor, 5 (20%) required B1 blocker + ACE inhibitor and 5 (20%) diuretic + B1 blocker along with nonpharmacological measures. Adequate reductions of body weight, diet restriction and exercise have been reported to control hypertension, reduce its severity and requirement of antihypertensive drugs. [3, 4, 5, 6, 8]

Table 3. Modalities of treatment of hypertension

Treatment	No	%
Non pharmacological measures	5	20
Diuretic, B1 blocker or ACE inhibitor	10	40
B 1 blocker + ACE inhibitor	5	20
Diuretic + B1 blocker	5	20
Total	25	100

All the cases were initially grounded and followed up every three to six months. Non-pharmacological measures in the form of diet control, exercise, weight reduction, relaxation techniques, proper sleep etc were advised. The associated disabilities were also addressed to. Obesity and IGT improved with the change in life style and were therefore, of no consequence. The ECG abnormal cases were also evaluated and found to have non-specific changes, therefore, not requiring any medication. In all these 25 cases the blood pressure stabilized within 2 years. Wherever required the pharmacological management was instituted and the drugs used in them were found to be compatible with flying. These cases required either a diuretic, B1 Blocker, ACE inhibitor or a combination of above three groups (not exceeding two drug regimes in any case). 5 cases could regain full flying category without any restrictions whereas the remaining 20 could get restricted flying category only (Table 4). Over a period of two years all the cases could be upgraded to flying category. This conforms to the policy of Indian Air Force (IAF) to award a final category for hypertension within two years from the time of its detection.

This follow up analysis highlights the fact that aircrew with hypertension can return to either full or restricted flying. It also supports the view that early detection, institution of management with full motivation and compliance from the patient can prevent wastage of trained manpower. (IAF)

Hypertensive heart disease is of significance in

Table 4. Disposal of aircrew

Category	No.	
Full flying	5	20
Restricted flying	20	80
Total	25	100

flying which involves man machine complex and lapse of split second on behalf of man may be disastrous. It is a well known fact that hypertension and anti-hypertensive drugs may affect the performance of an aircrew. In view of above, all aircrew with hypertension must be thoroughly evaluated and treated before they are considered fit for flying.

Conclusion

This study was carried out to assess the outcome of hypertension detected amongst trained aircrew. Institution of both pharmacological and non-pharmacological measures could effectively control the blood pressure and the aircrew could return to flying. There was no case which was grounded permanently. This study also validated the existing policy of IAF on management and disposal of cases of hypertension.

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