

## Intractable Cases of Airsickness amongst Ab Initio Flying Cadets

Sir,

Airsickness continues to be a problem associated specially with ab initio flying training. The main treatment is still based on the use of antimotion sickness drugs<sup>1,2</sup>. Although a variety of such drugs are available, none of them are ideally suited to the flying task. Also, a considerable amount of work has been done on vestibular habituation in the treatment of airsickness<sup>3,4</sup>, but airsickness continues to defy.

The present study was conducted at an air force flying training establishment of a middle east country. Six ab initio flying cadets who were established cases of airsickness were subjects of this study.

A detailed clinical examination was carried out including the vestibular system and relevant laboratory investigations with a view to detect any underlying pathological causes contributing towards airsickness. Also, they were interviewed in depth to assess their motivation.

First day these cadets were subjected to slow motion rotatory movements as a part of the indoctrination plan and to get the base line stimulus which induced sickness in the cadets. The rotation was given in horizontal plane in a simulator, a rotating turn table with provision to tilt the chair electrically upto max 45° along axis of roll and pitch. The magnitude of rotation varied from 10° to 30° per second. On subsequent days, the cadet was given 25 mg of Cinnarizine one hour before he was subjected to similar rotatory movements. The schedule was repeated on each day till it was felt that there was no more chance of achieving any benefit.

On a subsequent day, each cadet was taken for a sortie in the trainer aircraft with a qualified instructor pilot about an hour after he was given Cinnarizine (Stugeron 25 mg), a well known prophylactic drug against motion sickness<sup>5,6</sup>. Three of the cadets under study were given another sortie the next day with change of drug to Avomine (Promethazine Theoclate, 25 mg). The

type of flying advised was straight and level without any aerobatics and harsh manoeuvres.

Finally, the cadets were again subjected to detailed interview along with their instructors to decide about the final disposal.

Relevant details about flying experience and airsickness incidences of the subjects are given in Table I.

Table-I Flying Experience and History of Airsickness of the Cases

Case No.	Age (Yrs)	History of motion sickness	No of sorties		Flying Experience (hours)	Type of aircraft
			flown	In which felt air sickness		
1	21	Nil	9	6	7:20	Bravo
2	22	Nil	8	7	6:25	Bravo
3	21	Nil	10	8	4:30	L-29& Bravo
4	21	Nil	7	7	5:30	L-29
5	22	Nil	6	5	5:30	L-29
6	22	Nil	8	6	6:20	L-29

The subjects were young cadets, age varying from 21 to 22 years. None of the cadets gave any history of airsickness or motion sickness in the past. Three cadets had flown Bravo aircraft and the other three had flown in L-29 which is a basic jet trainer aircraft. They had flown 6-10 sorties each. These were familiarisation sorties and did not involve any aerobatics. All the cadets felt airsick in majority of their sorties.

During the interview, it was found that 5 cadets had borderline motivation and were indecisive whether to continue with flying training or not. One had no motivation to flying and had decided to withdraw from the flying. The flying instructors were found to be considerate and sympathetic towards the cadets.

Table II shows the effects of Cinnarizine and Avomine on sickness in simulator and in actual flying.

On simulator trials with Cinnarizine, two cases showed improvement in terms of reduction

**Table-II Effects of Cinnarizine and Avomine on Sickness in Simulator and Flight Trials**

Case No	Effect of Cinnarizine on motion sickness in simulator	Effect of Cinnarizine in actual flying	Effect of Avomine in actual flying	Disposal
1.	Severity reduced	No effect	No effect	Removed from flying
2.	No effect	-	-	-
3.	-	-	-	-
4.	-	-	-	-
5.	Severity reduced	-	-	-
6.	No effect	-	No effect	-

in the severity of motion sickness. However, during the actual flight trial with Cinnarizine, none of the six subjects had any reduction in the severity of airsickness. Three of them were given another sortie each on the next day with Avomine, which also did not show any effects on the severity of airsickness. One of the cadets who had shown some improvement with Cinnarizine in the simulator was also tried with a change of instructor, but that too did not prove to be of any benefit. These cases had also been subjected to vestibular desensitization programme on the same rotating turn table simulator under a separate study<sup>7</sup> and none of them showed any improvement in their sickness.

In majority of the cases of air sickness, the greater emphasis is laid on the vestibular system. In various rehabilitation programmes, importance is given to indoctrination about the role of vestibular apparatus in airsickness, vestibular habituation and use of vestibular sedatives.

However, there are many factors like apprehension, anxiety, fear, lack of motivation, frustration, maladjustment or failure of an inadequate or premorbid personality structure which play important role in causing airsickness. Latent reactions of fear of flying are known to manifest in student pilots with the predominant symptom of airsickness.

In the present study, the vestibular inhibitors or the vestibular habituation provided no benefit in the management of the cases of airsickness possibly due to the fact that psychological factors were dominating in these subjects. They were poorly motivated and definitely felt relieved and happy after they were taken off flying training and changed over to Air Traffic Controllers course at the same base. The airsickness in these cases did not appear to be of vestibular origin. On the basis of the present study we conclude that in the airsickness cases, it is very essential to evaluate and assess the dominating factors. An appropriate rehabilitation programme should then be undertaken for its desired success.

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