

Aeromedical aspects of long duration flying: Ex Co-operative Cope thunder-2004

Wg Cdr MS Nataraja*

IJASM 2008; 52 (1) : 34-38

Key Words: long duration flying, aeromedical issues

Indian Air Force (IAF) participated in the multilateral exercise cooperative cope thunder conducted at an Air Force Base in Alaska, USA in 2004 (1). This exercise was significant since the fighter jets and tankers of the IAF were deployed for the first time overseas. This was also the first time, an Indian AF contingent involved with USAF and other countries outside home soil. The Indian contingent for the exercise consisted two parts: (a) the advanced party which reached the exercise location through civil airline ahead to receive the deployment team and (b) the trial party consisting of low level deep penetrating fighters, tankers for mid air refueling and transport aircraft carrying the support staff and other equipment for the exercise.

The whole team was assembled at a forward AF base located in the western sector two months prior to departure for preparation and training of all the personnel involved. The aeromedical issues related to the exercise are discussed under the following heads:

- (a) Preparatory Phase
- (b) Trial (Out bound)
- (c) Ex- Cope Thunder
- (d) Trial (In bound)

Preparatory Phase

A medical team consisting of an MO and two medical Assistants were selected for providing the medical cover for the detachment squadron for the exercise. The preparation for Ex Cope Thunder stated with the of the author reporting to Air HQ

for discussions on the medical issues for the Initial Planning Conference (IPC) to be conducted Eielson AF Base in Feb 2004. A check list covering the various medical, aeromedical and public health issues was prepared and sent through the team leader for discussion during the conference. The feedback obtained from the checklist of the IPC was thoroughly analysed for the collection of the medical equipment to be carried for the exercise. The consultation with the flight surgeon of USAF who was part of Ex-Cope India -04 conducted in India was of great help.

Aeromedical Issues & Training. Two months prior to departure for the exercise, the Medical Officer reported to the detachment Squadron. After understanding the working culture and building up of good rapport, a number of didactic lectures on the physiological aspects of long duration flying were conducted. The specific issues related to long duration flying were discussed and various methods to alleviate these aeromedical problems were tried out. The various aeromedical issues perceived specific to fighter aircrew for the exercise are as given below:-

(a) Requirement of inflight nutrition. It was felt that the fighter aircrew flying long duration sorties would require additional inflight meal to maintain their

^Classified Specialist Aviation Medicine , IAM, IAF, Bangalore-17

Date of Submission : 5 Feb 2008

Accepted for publication : 19 June 2008

optimum efficiency. This problem was addressed by provision of chocolate bars, fruit juice in tetra packet and drinking water.

(b) Inflight urine disposal. Aircrew lectures were conducted on the physiology of urine formation, and use of adult diaper as a method of inflight urine disposal for the fighter aircrew. A study was conducted to evaluate the efficiency of adult diaper. A total of 90 sorties of duration 3-5 hours were considered and found that the urge to pass urine was present in sorties exceeding 4 hrs. However, to boost the confidence of the aircrew, they were advised to wear diapers for all sorties irrespective of the sortie duration. The Adult Diaper (DISPO-123) was used as a method of in-flight urine disposal.

(c) Fatigue Countermeasures. The ferry to Alaska involved flying across multiple time zones and hence problem of circadian rhythm disturbance was anticipated. It was decided to use fatigue countermeasure in the form of anti-fatigue medication (No-Go pill) to ensure adequate sleep for the fighter aircrew flying the ferry sorties. A trial was conducted on the efficiency of sleep inducing medication (Zolpidem) during the training phase and the same was used effectively during the ferry.

(d) Other Activities. The various other activities carried out are as given below:-

- (i) Special Medical Examination. A Special medical examination including screening for HIV of the Personnel was conducted.
- (ii) Collection of Medical stores. The Medical stores requirement for the whole team for the entire duration of the detachment was worked out and collected from the Station Medicare Centre.
- (iii) Preparation of a First Aid Kit. A first aid kit was prepared and was carried by

the MO to fulfill the day to day requirement of medical stores during the ferry. This kit was carried by the MO in person. A booklet on the first aid was prepared and distributed to all the personnel.

- (iv) Anti-Mosquito measures.

Adequate quantity of the mosquito repellent cream (MOSFREE) was collected from Station Medicare centre to overcome the mosquito menace as mentioned in the IPC checklist and was distributed to all the personnel.

- (v) Sea survival course. A Sea survival course was conducted for all of the fighter aircrew at the pre-designated AF Station which was revised prior to the departure.

The Trail (Out Bound)

The trail party left India in Jun 04 after a night halt at an AF Base in the western sector. The Medical Officer accompanied trail party whereas the Med Assts reached the exercise location directly by civil airlines. After traveling a distance of approximately 20,000 km the trail reached Alaska as planned.

The accommodation was satisfactory and lodging facility was close to the airfield at all places except in Egypt where one way journey time was approximately 90 min. The general health of all the Personnel was good with an average daily sickness of 3-5. There was no incidence of alcoholic intoxication or any major injuries sustained during out bound ferry.

The aircrew maintained their health in good condition through out the ferry by meticulously following the advice of the MO. Pre flight medical examination was carried out on the aircrew flying for the day at all the places. The fighter pilots used

adult diaper for in flight urine disposal during all the legs of flying. Adequate care was taken to ensure availability of pre flight and in-flight meals for all the aircrew. Majority of the fighter pilots used sleep inducing medication (Zleep) to have sound sleep on the night prior to the sorties. A questionnaire survey on fatigue was carried out after each legs of flying.

Exercise Cope Thunder -04

The exercise was conducted between Air Forces of 11 participating countries which operated from two AF bases in Alaska. The exercise missions were flown through out the day, either as AM or PM missions. Pre flight medical examination of the IAF aircrew was conducted every day immediately after the briefing. Daily sickness was within normal limits. The major illnesses reported were (a) Upper respiratory tract infections (b) Myalgia, (c) Dyspepsia, (d) constipation and (e) Minor injuries to extremities. One minor surgical procedure (Partial excision of the toenail) was carried out in the minor OT located within the Flt Surgeons Office. During spare time, visit to squadrons was undertaken which yielded a good interaction with the aircrew and the technical crew of the other deployed forces. The other activities included a visit to the Range and flying experience in low level drop exercise undertaken by the transport aircraft of the IAF.

The Base Medical facilities. The medical set up at AF Base consisted of the Base Medical Group and a Flight Surgeons Office. The referral hospital was located at a distance of 25 miles from the AF Base. This hospital had specialists in Medicine, Surgery and Gynaecology. All the patients requiring admission and any emergencies after 1630hr had to be referred to this hospital. The detailed description of the base medical facilities is as given below:

(a) The Base Medical Group. Commanded by a Lt Col the Base Medical Group had all the facilities similar to that of SMC in the IAF. Except in emergency, the patients were attended on prior appointment only. They had an observatory wherein the patient could be detained but there was no admission facility. Flight surgeons on the posted strength of base medical group were all GDMOs. All aircraft emergencies during the exercise were attended by the base flight surgeons and the MOs of deployed forces had no immediate access. The interaction with the flight surgeons at the base medical group was good. The Commander of the Base Medical Group was kind to offer help whenever required.

(b) The Flight Surgeons' Office. It was a three room set up located within the Squadron complex near the flight line. It had a provision for reception, examination/treatment and a rest room. The facility was accessible through out the day for all the Medical officers of the deployed forces. There were in total four MOs from the deployment forces including one Flt Surgeon from Germany two from USAF. The interaction among the doctors was good and informative. The following points were revealed during the discussion with other flight surgeons.

- (i) Pre-flight Medical Examination. Daily preflight medical examination of the aircrew is not carried out in either USAF or German AF. However, the aircrew and their Flt Cdr are made responsible for their fitness.
- (ii) Role of Sqn Med Officer. In USAF, the Aviation Medical Specialist is not posted to flying Sqn but to the AF Hospital for looking after the Aeromedical Sqn. The Flt Surgeon is a GDMO with a two months training in aviation medicine. He has to fly at least four hrs per month to maintain his

currency. He should be in possession of US classification-II medical fitness. In German Air Force, flying by the Flt Surgeon is voluntary similar to that in the IAF.

- (iii) Footprint as Identification Point: Foot printing is a mandatory requirement for all the pilots in USAF and is used as one of point of identification in case of aircraft accident victims. The justification was that the sole of the foot is unlikely to be damaged being protected by the flying shoes.

Trail (In Bound)

The trail party started its ferry back home from Eielson AF Base on 3rd Aug 04 and completed the journey at an AF base in the western sector in Aug 04. The stopovers included all the places mentioned in the outbound trial with an exception that Beja was included in place of Monte-Real (Both in Portugal).

The health of the Personnel was good with a sickness rate of 2-3 per day. However, the people suffered from additional problems like lack of appetite, sleep disturbance, constipation as a result of the changes in circadian rhythms. The fighter pilots used sleep inducing medication (Zleep) as advised on the night prior to the sorties under the supervision of the MO.

The medical cover provided for all the personnel during exercise Cope Thunder had a very high degree of clientele satisfaction. However, it was felt that there was still lot of scope for improvement in planning and implementation. The following points may be considered for the better functioning of the medical team during future exercises:-

- (a) IPC Team. The MO selected for the exercise should be a part of the IPC team for the following reasons;

- (i) It is necessary for the MO to obtain timely medical information for areas of deployment and to prepare medial briefings for the deploying forces. This information includes immunization, infective diseases and vectors, food and water precautions and climatic information. Being part of the initial planning team enables the MO to have first hand information about these medical issues peculiar to the exercise and helps him to prepare well.
- (ii) The MO should familiarize himself with the various medical establishments and the contact people available at the exercise location so that he could function smoothly during the exercise.

Therefore all efforts should be made to send the MO as a member of the IPC team. It is worth mentioning that the Flt Surgeons of USAF and other foreign Air Forces had visited India well in advance before their participation in the bilateral exercises conducted so far.

- (b) Detailing of Med Asst. -Due to administrative problems, the Med Assts selected for the exercise joined MO just 10 days prior to the move. This resulted in lack of adequate time for the MO to understand the efficiency of the Med Asst and to correct them if needed. Early selection and routing of the Med Asst shall help the MO in the preparation in a long way. Therefore, the Med Asst detailed for the exercise should join the MO at least 4 weeks prior to the actual move.

- (c) Movement Med Asst. The two Med Assts detailed for Ex-Cope Thunder were flown directly along with the Advance Party to Eielson AF Base. The MO always use to travel in the second transport ac during the ferry. Despite of the best efforts, it was difficult to provide the personal attention to all the personnel at all the time as the personnel were

accommodated at different hotels during the ferry. It is felt that these difficulties can be overcome by placing one Med Asst in the direct party to move along with the MO. The second Med Asst may accompany the direct party.

(d) Special Medical Examination -The duration of stay abroad for Ex-CCT-04 was 55 days. This necessitated the requirement of special medical examination of all the personnel, selected for the exercise in accordance with IAP4303. However, most of the units were ignorant about this requirement of special medical examination. This resulted in a situation wherein the MO had to complete medical examination of whole of the contingent in the last 10 days. It is desired that the medical examination of all the personnel be carried

out at their parent units before routing them to the training base.

Conclusion

The medical team consisting of one medical officer and two medical assistants took part in Exercise, Cooperative Cope Thunder-04 conducted in Alaska, USA. The exercise had an immense value of training for all the members of the team. The aeromedical problems encountered by the fighter pilots during long duration flying were adequately addressed and the methods for alleviating the same were successfully tried. The exercise provided an exposure to the working environment of the medical establishments of some of the most advanced Air Forces in the world. The medical cover provided for the exercise was satisfactory.

Answers to Aviation Medicine Quiz

1.a 2. b 3. c 4. c 5. a 6. c 7. b 8. b 9. d 10. c 11. b 12. b 13. b 14. a 15. c 16. a 17. b
18. d 19. c 20. a 21. d 22. c 23. b 24. b 25. b