Women Air Medical Assistants [1]

by T. Lomonaco

The ever more frequent use of medical helicopters and aircraft by military and civilian organizations of modern nations to give first-aid to the wounded and have them transported has also led the central bodies of various National Red Cross Societies to add the most up-to-date and fastest methods of air transport to the traditional forms of transportation.

In the past, when it was necessary in exceptional circumstances to intervene as a matter of urgency on Italian soil (floods, earthquakes, heavy falls of snow in mountain areas where villages were cut off), the Italian Red Cross was already using helicopters in which voluntary nurses flew to aid the shipwrecked, the sick and wounded.

In flights of this sort, it was discovered by experience how necessary it was for personnel entrusted with caring for the sick or wounded to know the basic elements of aeronautical medicine.

What in fact are the tasks of a nurse who tends the sick and wounded in the air, in other words of a nurse who is an " Air Medical Assistant " ?

These are two-fold. On the one hand, she must give assistance and first-aid on the ground, on the other hand, she must also do the same in the air.

The first of these tasks are those of every nurse, male or female. However, to the training required for the accomplishment of these tasks are added special aptitudes, indispensable in particular circumstances, to be able to give first-aid, for example, in traffic accidents (road, sea, air). The air medical assistant is not only called upon to aid the victims, by employing every means to remedy the ill consequences of injury or shock which might place their

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lives in danger, but she has also to carry out the necessary movements when transporting sick or wounded cases into a medical aircraft. Such movements always demand great care, especially when it is a question of lesions on the spinal column or the head.

On the ground, the intervention of the air medical assistant becomes indispensable as a result of certain accidents, such as in aiding someone who has fallen into the sea or had a fall in the mountains or is found in the desert. In such cases, not only is an elementary knowledge of first-aid necessary but also of physiology in connection with diet and rules for thermal protection which may arise in unexpected circumstances.

If such are, by and large, the tasks of a medical assistant on the ground, they are much more complicated in flight. They cannot be carried out successfully unless she has previously had some general notions of aeronautical medicine.

It is in fact extremely difficult to give the proper treatment to persons suffering from acute lack of oxygen, if one does not know its exact cause or if one misunderstands the resultant physio-pathological effects, or is ignorant of the protective methods to which one should resort. It is most risky to give first-aid to a cardiac transported in an aircraft, if one does not take into account the aggravating effect on his condition caused by a lack of oxygen or other possible factors of trouble, such as acceleration, even if this is not too sudden, and also vibration. It is even more difficult to give aid to a person suffering from air sickness, especially if he has been injured or shocked, if one does not know the nature and causes of the malady which manifest themselves during the flight.

On the other hand, if the aircraft is not adequately equipped, that is to say if it is not provided with a pressurized cabin, or if it has one which is defective, transportation can aggravate abdominal lesions (deep wounds, damage to internal organs), by inducing a dilatation of gases due to a lowering of the temperature. It can also bring on frontal and maxillary sinus ailments, inflammation of the middle ear, etc... And always for the same reason, the volume of gas increases in the body's cavities or in those communicating with the exterior through narrow tubes from which air, as a result of aero-dynamics, finds difficulty in escaping. When these tubes are blocked,

which is still more serious and frequent, the expulsion of air becomes totally impossible.

The air medical assistant must therefore know the cause of these physio-pathological modifications in order to be able to give effective treatment.

In addition to a fundamental knowledge of physio-pathology concerning the human being in flight, the air medical assistant should have, to complete her culture and the better to carry out her tasks, general notions of hygiene applied to aeronautics. She should know the international regulations concerning measures against diseases liable to quarantine, have a general knowledge of contagious diseases, know how to transport those infected by them, also the disinfecting and anti-disinfestation measures of aircraft. In other words, she ought to possess a knowledge of general and prophylactic hygiene required in this particular sphere.

The psychological side which plays an important rôle on the ground, becomes preponderant once medical personnel have to intervene in the air.

It is not only necessary to acquire the indispensable knowledge to accomplish such tasks, but still more to develop and assimilate them.

At a time when the threat of atomic weapons hangs perilously over mankind, notions, even elementary ones, of methods of protection against ionizing radiation are indispensable for the whole world. They are more particularly so for the air medical assistant who may be called upon, in time of war, to give aid to mass victims of a method of lethal destruction whose effects, as we know, are not only limited to the present generation, but also threaten its successors.

Finally, the air medical assistant should possess other knowledge which is not exclusively connected with medicine applied to aeronautics, but which is however closely linked to that science and aviation. She should possess rudiments of meteorology, elementary notions of geography and know how to use air navigation maps.

As can be seen, the subjects of medicine applied to aeronautics which the air medical assistant should know are many and important.

A training programme has been drawn up for that purpose and followed up by the publication of a volume containing elementary notions of aeronautical medicine for the use of air pilots, but it has shown itself to be just as useful in the training of nurses of the Italian Red Cross.

The programme comprises:

1. Elementary notions of physio-pathology and the human being in the air.
2. Notions of technical aeronautical physiology and its applications.
3. Notions concerning physio-pathological causes and the dynamics of accidents in flight, as well as their prevention.
4. Notions of first-aid and the intervention of medical personnel on the ground and in the air.
5. Notions of individual medical aid; survival at sea, in mountains and inhospitable regions.
6. General notions concerning the structure of aerial engines, the equipping of medical aircraft and aeronautical medical material.
7. General notions of defence against the effects on the human organism of nuclear, biological and chemical weapons.
8. Psychological factors of the human being in the air and assistance in flight to neuro-psychopathic cases.
9. Notions of hygiene applied to aeronautics.
10. Notions of meteorology and elementary notions of geography.

The programme in addition comprises practical exercises on the ground and in the air.[1]

Exercises on the ground take place in decompression chambers to discover the whole range of physio-pathological transformations brought about by a lack of oxygen and falls in temperature, as well as to learn the correct manipulation of oxygen rescusitation appliances. Practical exercises also take place with a " Human Centrifugal Machine ", with a view to studying the effects of

[1] *Plate:* Italian Red Cross flying medical assistants in practice.

acceleration. Other exercises are concerned with artificial respiration including the iron lung.

Exercises in the air should correspond over all to a stated number of hours. Whilst in flight instructors explain, demonstrate and supervise the practical execution of handling in first-aid.

Here is an example of exercises carried out in flight:

1st day—Leave Rome for airport " X ". Visit to installations on the ground and medical aircraft.

2nd day—Leave Rome for the same airport. Embarkation in aircraft for airport " X ". Landing. Visit to local installations and medical aircraft. Return to Rome.

3rd day—Leave Rome for airport " V.V. ". Visit to Air Rescue Centre and examination of equipment with demonstrations. Launching of small rubber dinghy and rescue of simulated wounded.

4th day—Leave Rome for airport " V.V. ". During the flight, exercises in blood plasma and blood transfusion.

5th day—Leave for airport " C. " Helicopter flights with simulated wounded on board.

6th, 7th and 8th day—Various exercises in aid to wounded transported in helicopters and in fast air, sea and land ambulances.

9th and 10th day—Transporting of wounded and sick by medical helicopters and landing near hospitals.

The Aeronautical School of Medicine of Rome awarded diplomas to about one hundred air medical assistants. They have already started on their work and are ready to intervene in case of need.

Voluntary Red Cross nurses, whatever the circumstances, carry out their tasks alongside the doctor and the pilot. In the aircraft with its emblem of the Red Cross, they deal humbly with the sick and the dispossessed, thus reaching a high ideal through their devotion to duty.

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