

ція», була прийнята 94-й (морської) сесією Міжнародної конференції праці, що відбулася в Женеві в лютому 2006 року. Затвердивши Конвенцію 2006, Іспанія реалізувала рішення Ради Європейського Союзу від 2007 року, яке дозволяє країнам-членам ЄС провести ратифікацію в інтересах Європейського співтовариства до 31 грудня 2010 року.

Мета цієї роботи - аналіз змісту Конвенції щодо безпеки та запобігання нещасних випадків в морі у зв'язку з правилом 4.3 - здоров'я, забезпечення без-

пеки та попередження нещасних випадків, що призначені для забезпечення відповідних гідних умов праці моряків на борту суден та сприяють безпеці та гігієні праці.

Ключові слова: Нещасні випадки на виробництві, охорона праці, техніка безпеки, моряки, міжнародні конвенції.

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URGENT RADIO-MEDICAL SERVICE ON BOARD SHIP AS AN INDICATOR OF MEDICAL TRAINING OF MARINE OFFICERS

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144 radio-medical consultations given in 2009-2010 to the officers responsible for medical aid on board ship are analyzed. All the officers have been trained according to the requirements of STCW-78/95. The Centre for urgent medical-and-sanitary reaction for search and rescue (SAR, Ukraine) has registered 30 appeals for medical aid from a passenger liner, three ocean tugs and 26 merchant ships. Among them there were appeals from 13 bulkers (39,9%), 5 universal ships (16,5%), 4 tankers (13,3%), 4 container-carriers (13,3%). Medical aid was rendered by the masters in 22 (73,3%) cases, by the chief officer in 5 (17,0%) of cases and in 3 cases (9,7%) it was rendered by the second officer. Among those who needed medical aid there were 13(42,3%) citizens of Ukraine, 8 (27,3%) Filipinas, 4 (13,4%) citizens of Tanzania and Indonesia. The rest were representatives of Greece, Turkey, Cuba. Surgical problems had 8 seafarers (appendicitis – 2, abscesses-2, severe trauma with the fractures of the chest-2, fractures of the limbs – 2); nervous and psychotic episodes were on the second place (5 episodes), then cardio-vascular diseases and cutaneous diseases (4 cases), correspondingly. Infectious diseases have been diagnosed in 3 cases. The most severe case was presented by the acute poisoning with phosphine. The case was complicated with acute renal insufficiency. Another severe case was connected with a vast tumor of submaxillary area, complicated with life-threatening asphyxia. A complete recurrence on board ship there were in 32,7% cases, in 50,3% of cases the sufferers needed hospitalization to the coastal medical establishments, in 10,0% of cases helicopter evacuation was done. There were none fatalities. The medical skills of the officers from the named ships have been estimated as “good” in 53,2% of cases, “satisfactory” in 23,4% of cases and “poor” and “very poor” – 23,3%. Conclusions: seafarers’ morbidity at the voyages is an index of both their state of health and quality of marine officers medical training.

Key words: urgent medical service on board ship

In spite of the emergence of new large and highly efficient ships and improved technologies of mass and containerized cargo transportation, the seafarers are subjected to the traditional dangers: shipwreck, pirates, diseases.[1]

At the moment according to the expert estimation Ukraine possesses numerous (above 80000) highly qualified staff of seafarers, ready to operate under hard conditions of navigation in the world ocean, 20000 of Ukrainian seamen being now far beyond the Ukrainian borders in far sea and ocean voyages.

Specific and often hardly predictable conditions of navigation and work of crew members on high seas make them vulnerable to heavy injuries, acute and chronic diseases and chronic occupational, infectious and other diseases. These conditions define the seafarers as a professional group of high risk as to reveal and determine the symptoms of heavy closed injuries, diseases, and especially complications in particular in a single ship navigation, without a doctor (physician) on board in the shoreless expanse of the ocean is a difficult problem sometimes insolvable for the officer (not being a professional in the maritime medicine) responsible for the medical care on board.

The exclusion of the medical personnel from the crew staff caused the growth of the frequency of the attendance of the shore based hospitals by crew members, special calls at the ports for landing the sick persons, execution of emergency medical rescue-evacuational operations at sea with the aid of helicopters, as well as the fatal outcomes among the crew members, to say nothing of the huge financial losses.

The necessity of creation of a certain palliative in the medical care of the seamen at sea caused the inclusion of the practical first medical aid and medical care course with the issuing of a special certificate into the STCW system for the operative and managerial staff – “Medical First Aid” and “Medical Care”.

Many provisions have been issued to safeguard the life and the health of those on board seagoing ships; the principal ones are as follows.

1. A thorough professional medical selection effected by the medical professionals well aware of the specific conditions of work and life of the seamen at sea.
2. Incessant and unabated control of the seamen’s health in the ports.
3. Availability of the standard universal medical equipment, instrumentation and the necessary set of medicines on board every ship.
4. Proper training of all seamen regardless of their position to methods and ways, of self and mutual help.
5. Presence on board of the captain and mates possessing medical skills of rendering medical assistance and taking care of the sick persons.
6. The presence of the specialized Centre of radio consultative medical and urgent assistance to the seamen at sea in the national SAR-Ukraine system.

Unfortunately, the important elements of maritime public health services have been lost in Ukraine in the post soviet period: Central, Basin and Port Hospitals of the mariners of the Black and Azov seas have been closed, departments of the shipboard medical personnel have been cancelled and the state Centre of radiomedical assistance has been abolished. All the above badly influenced on the traditional methods of medical care aboard and the structure of illness cases in general.

The frequency of illness cases at sea, registered on board is an important index not only of the state of the seamen’s health, but also a criterion of both efficiency of rendering medical assistance to the crew and the level of officers training, sufficiency of their medical competence.

Rendering medical assistance on board and especially the study (analysis) of the rate of seamen’s illnesses during the voyage present some difficulties which are

caused by a number of objective and subjective factors:

- absence of the professional medical service: practically it is effected by one of the deck officers;
- rendering of the medical aid by the persons having no medical education and lacking the professional training and experience at sea;
- isolation from the shore;
- impossibility of receiving medical aid from outside and the evacuation of the injured or critically sick person to the shore-based hospital in optimal time;
- weak knowledge of modern forms and medicaments, limited choice and a small stock of medicaments anesthetics, blood substitutes, sterile linen and bandaging materials, instruments and other means necessary for the care of the sick persons;
- impossibility of the unconditional transference of the generally accepted patient curative procedure in a shore-based hospital to the shipboard conditions.

It is necessary to note that even under the favorable conditions, any ship is not a place suitable for a course of medical treatment of any length and the eventual evacuation of the sick person to a shore-based hospital has no alternative [4]

That is why rendering medical assistance on board by the deck officers is to be aimed to keep the life and the health of the sick person on the level of his primary request for a medical care and by all means to prevent the aggravation of his state or irrevocable changes i.e. to avert the development of serious complications in order to save the life and the health of the sick person.

Previously the leading position of the seamen's illnesses was occupied by the following diseases:

- acute catarrhal diseases (acute respiratory sicknesses, pharyngitis, bronchitis, grippe (influenza), pneumonia

etc) caused by the conditions of navigation and work; occupational traumatism, caused by the long periods of hypodynamia, weakening of the muscle strength, ligamentous apparatus, delay of the reaction speed;

- frequent microtraumas complicated with the purulent diseases of the skin and subcutaneous fat (panaritium, furunculus, carbunculus, abscess etc.)

The prevailing diseases, requiring medical aid in a shore-based hospital are:

- dental diseases ;
- acute appendicitis;
- body injuries (traumas), upper and lower extremities.

With the purpose of the study of the modern state of medical care of the seamen on board ships, the health and the rate of illnesses during the voyages of the transport fleet ships, a special campaign was launched. The purpose of the campaign was the collection, processing and analyzing the information concerning the appeals for the radiomedical help to the Centre of Urgent Medical Response in the Search and Rescue at Sea, of the Ukrainian Research Institute for Medicine of Transport, the Ministry of Health of Ukraine, the head of the Centre Belobrov Yv.P., Sc Dr, medicine, Professor.

During the period of 2009-2010 the appeals for medical aid from 30 ships have been registered, among them: for the aid to the people working aboard one passenger liner (3.3% from the general quantity of ship appeals), 3 tugboats (9.9%) and 27 dry cargo vessels. Among them there were 13 bulkers (39.9%) having the displacement 40-45 thousand tons; 5 universal type ships (16.5%); 4 tankers (13.3%) having tonnage of 18-68 thousand tons; 4 containerships (13.3%).

The crews of the above ships were engaged in the carriage of the following cargo: mass cargo – 17 ships (56.1%), among them bulk cargo (coal, iron ore, cement, fertilizers), on 9 ships, liquid cargo, (crude oil, oil products) on 5 ships,

loose bulk cargo (sugar, cereals, soybeans) on 3 ships. Containerized cargo equaled one third part of all the mass cargo. 6 ships addressed for medical assistance during the ballast passage.

Unfortunately, within the framework of the present investigation it was impossible to find out the dependence of illnesses and injuries of the seamen on the influence of the carried mass cargo.

Although it is worthy to note one occasion: the m/v Kite (the flag of Marshall Islands) in 2009 was engaged in carrying the cargo of maize (corn) after its fumigation with phosfine in the port of New York which caused a severe intoxication by this toxic substance of a sailor causing the development of a dangerous renal insufficiency necessitating his urgent evacuation by means of a helicopter to the shore-based hospital in the port of Savanna.

As a rule the crews of the ships are nowadays mixed, consisting of seamen belonging to different nationalities. Among those needed the medical care there were 13 Ukrainians 42.3%), Philippines 8(27.3%), Tanzanians and Indonesians – 4(13.4%), the other nationalities Greeks, Turks, Cubans.

The geography of navigation area of vessels that needed medical assistance is highly diverse. Distress signals caught the vessels in the centre of the Indian Ocean (33.6% of cases), the Atlantic Ocean (19.8%), the Pacific (6.6%), the Gulf of Mexico (13.3%), while navigating the following rivers: Congo, Danube, Parana; as well as during the outer harbour riding in Singapore, Kerch and many ports of China. In addition to that almost all the ocean voyages of the vessels with sick people on board (bulk carrier “John F”, tugboat “Swahili”, “Arcadia” etc.) were fulfilled under severe weather conditions and storms that significantly complicated not only the process of aid rendering in serious cases but also nursing measures accomplishment.

In all cases the emergency measures were carried out by the same medical adviser consulting through satellite communi-

cation using personal cellular telephone regardless of “Manual of Instructions for Medical Advisory Messages Transmission” [5]. During 52 days on a twenty-four hour basis 144 radio-communication contacts were established and 3672 minutes were expended. Emergency measures calls were mostly (49.5% of cases) received during the week-ends, on Saturdays and Sundays, also on Tuesdays, Wednesdays and Thursdays (4 calls per day – 39.6%), the least number of calls from the vessels was received on Mondays and Fridays (2 calls per day). It should be mentioned that in 10 cases the help was requested during the daytime (39.3%), 9 signals were received during the night, 7 calls – early in the morning (23.1%) between 5 and 8 a.m. Only 4 broadcast appeals were detected in the evening (13.4%). In 11 cases (33.3%) distress signals found the doctors at home, as it is shown above on the weekends, in 5 cases (15.5%) while driving a personal vehicle, in 3 cases during the trips by trains and coach vehicles (from Odessa to Moscow; from Odessa to Donetsk), during the conference meetings (10%) and only in 3 cases (9.9%) on-site at the workplace, in the cabinets.

Distress signals weren't notable for the orderliness of the former traditional medical advice request reception system through Odessa State Maritime Rescue Coordination Centre, among the general quantity of alarm signals the number of appeals through the Centre amounts 9 cases only (29.7%). In the remaining 20 cases (66.0%) the emergency signals were received from the unknown agents of shipping companies of Cyprus, Greece, Poland, Turkey, Germany that are beyond all calculation; and only in one case (3.3%) the signal was received from a specialized Odessa Medical Centre.

During that period the emergency medical care on board was provided by 22 shipmasters (73.3% of cases), 5 chief mates (17.0%) and 3 second mates (9.7%). The crew members providing the medical care differed not only in official positions but

also in the level of medical training concerning the first aid on board ship within the IMO documents requirements.

Sick seafarers forced to appeal for the emergency medical care are relatively divided into the following groups: the officers and the ratings, deck and engine seafarers and service personnel. Among them there are: 12 deck officers (1 master, 2 chief mates, 5 second mates), 4 engine officers (chief engineer, second engineer, third engineer and an electrical engineer). The number of sick ratings amounts 18 people (59.4%) and consists of 11 AB seamen (36.3%), 5 motormen (16.5%) and 2 steward-bartenders (6.6%).

As it can be seen from the data presented, the deck officers and ratings appealed for the medical care twice as frequent as engineers and motor-men working in the engine-room. At the same time the rate of illnesses of the ratings exceeds the similar figure of the officer's rate in 6 cases, (19.8%)

The frequency of illnesses analysis conducted on the basis of the emergency medical care appeals showed that the majority of calls concerned those who require the urgent surgical operation and traumatologic assistance (8 cases, 26.4%): among them there were 4 Ukrainians, 1 Russian and 3 Filipinos. The frequency of illnesses in these cases was characterized by the following features:

– 2 cases of acute appendicitis, both patients were second mates, when the masters providing the medical care (bulk carrier "Arcadia" under the flag of Malta and tugboat "Samoon" under the flag of Panama) required medical assistance by means of radio-medical communication in 23 sessions during 3 and more days to deliver them to the hospital for the purpose of surgical procedures.

– 2 cases of severe injuries with a thoracic cage fracture: a Ukrainian sailor of "John F" bulk carrier - traumatic right ribs fracture with dislocation and fissured fractures, traumatic shock, pectus haemor-

rhage and hematoperitoneum suspicion. Master managed to take the sick man into the port for his treatment in Uruguay shore-based hospital after rendering first medical aid for 8 days (more than 20 communication sessions) under 24-hour doctors' supervision following all the Centre's recommendations. The Second Engineer (Ukrainian) of "Doria" container ship (under Liberian flag) in the Indian Ocean was registered to have another severe injury. He was diagnosed with a vast lacerated wound of 15 cm deep with hypodermic tissue prolapses at the lower angle of shoulder-blade on the left. This was the case with a favorable outcome – the sick person was taken to hospital after 2 days after having a radio medical consultation. He was sent home afterwards.

Cases of nervous system and mental disorders among seafarers rank second in medical aid appeal ability - alcoholic psychosis, epilepsy (5 cases, 16,5%). All the sick people have been taken to a shore-based hospital and evacuated home being accompanied by doctors of the Centre.

The third place (4 cases – 13,2 %) is distributed among cardiovascular diseases (ischemic heart disease, acute coronary syndrome) and cutaneous covering diseases (4 cases as well). In case of cardiovascular diseases radio distress signals came from Turkish and Ukrainian ships: all the sick crewmembers were taken to the port and hospitalized. There were 4 cases of seafarers having dermatopathy but all of them ended up getting better and recovering on board the ship after radio medical consultations and medical assistance.

The other kinds of diseases which required urgent radio assistance were 3 cases (9,9 %) of infectious diseases, including swine flu which Philippine and Indonesian seafarers had and which were discovered at an early stage in the roads of the Singapore port; the sick people were isolated and evacuated to the infectious port hospital later on. Two other cases (3,3%) were digestive apparatus diseases which Ukrainian and Philippine seafarers were di-

agnosed with.

They were the reason of the course change when the sick crew members were taken to hospital and transferred from the ship under the radio medical supervision and after rendering medical assistance on board the ship. There were two more cases when after radio consultations crewmen were diagnosed with diseases related to the peculiarities of seafarers' work, e.g.: general hyperthermia and thermoplegia. These cases had a favourable outcome and people recovered after having medical assistance and treatment on board the ship.

Overall complete recovery on board ships has been achieved in 9 cases (32,7%) of resorting to the radio medical centre. Successful rendering of medical assistance on board by officers assisted by doctors over radio was substantiated by safe hospitalization to port hospitals accompanied by further special expert care – 17 cases (56,6%). In two cases (6,6%) following the recommendations of a medical consultant (doctor) over radio Masters ordered helicopters with coastal urgent medical assistance team for a Ukrainian seafarer after poisoning with phosfine in the area of New-York port and for a Philippine seaman with a dangerous asphyxia in the area of Capetown port with further evacuation to a marine hospital. There has been no fatal outcome over the considered period between 2009 – 2010 when having urgent radio medical aid.

At the final stage of work there has been made an evaluation and preliminary efficiency report of the officers responsible for seafarer's medical care who called for medical aid over the radio. [6,7] 53,28 % of all the officers who asked for assistance deserve high appraisal, 23,41% deserve a middle-level rating while 23,31% have been assessed as having poor training. Quite a number of officers with poor medical training is a kind of indicator of the necessity of their training system correction to ensure more effective medical care for seafarers on board a ship.

Conclusions

1. Nowadays any centralized maritime system of rendering qualified emergency medical aid to the seamen at sea by radio is absent, although the necessity of the one is growing from year to year. The creation of the Centre of the Urgent Response in the Search, Rescue and Rendering Medical Aid at Sea on the basis of ГЭМП-СПАС of the Ukrainian Research Institute for Medicine of Transport, the Ministry of Health of Ukraine is a pressing problem.
2. A high percentage of not sufficiently trained in medicine officers, responsible for the medical care and service on board necessitates to revise the state of the training and upgrading of the above officers in conformity with the IMO and ILO requirements on the one hand, and to practice the system of the periodical corrections of the training programmes in conformity with the requirements of the STCW Convention and the amendments to the ILO Convention 2006.

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Резюме

ЭКСТРЕННАЯ РАДИО-МЕДИЦИНСКАЯ ПОМОЩЬ НА БОРТУ СУДНА КАК ПОКАЗАТЕЛЬ МЕДИЦИНСКОЙ ПОДГОТОВКИ МОРСКИХ ОФИЦЕРОВ

Белобров Е.П., Торский В.Г.

Результаты проведенных в 2009-2010 гг. исследований по изучению оказания экстренной радио-медицинской помощи морякам в морских и океанических рейсах свидетельствуют о том, что среди тяжело заболевших и травмированных наибольший процент обращений (26,4 % случаев) приходилось на хирургические заболевания и травмы. На втором месте – нервные и психические заболевания (16,5 %) 13,2 % обращений за экстренной радио-медицинской помощью относятся к сердечно-сосудистым заболеваниям. Высокий процент обращений по поводу кожных и инфекционных болезней. Оценена работа офицерского состава как ответственных за оказание неотложной помощи в плавании. Хорошей оценки достойны 53,28 %, удовлетворительной – 23,41 %, слабая подготовка отмечена у 23 % случаев. Рекомендовано с одной стороны произвести ревизию состояния обучения офицеров в рамках требований ИМО и МОТ, с другой стороны – ввести в

постоянную практику систему периодической корректировки обучающих программ в соответствии с требованиями конвенции ПМДНВ и поправками Конвенции МОТ-2006.

Ключевые слова: экстренная радио-медицинская помощь

Резюме

ЕКСТРЕНА РАДІО-МЕДИЧНА ДОПОМОГА НА БОРТУ СУДНА ЯК ПОКАЗНИК МЕДИЧНОЇ ПІДГОТОВКИ МОРСЬКИХ ОФІЦЕРІВ

Білобров Є.П., Торський В.Г.

Результати проведених в 2009-2010 рр. досліджень по вивченню надання екстреної радіо-медичної допомоги морякам у морських і океанічних рейсах свідчать про те, що серед важко хворих і травмованих найбільший відсоток звернень (26,4% випадків) припадало на хірургічні захворювання і травми. На другому місці - нервові та психічні захворювання (16,5%) 13,2% звернень за екстреною радіо-медичною допомогою відносяться до серцево-судинних захворювань. Високий відсоток звернень з приводу шкірних та інфекційних хвороб. Оцінена робота офіцерського складу як відповідальних за надання невідкладної допомоги в плаванні. Гарної оцінки гідні 53,28%, задовільною - 23,41%, слабка підготовка відзначена у 23% випадків. Рекомендовано з одного боку зробити ревізію стану навчання офіцерів в рамках вимог ІМО і МОП, з іншого боку - ввести в постійну практику систему періодичного коректування навчальних програм відповідно до вимог конвенції ПМДНВ і поправками Конвенції МОП-2006.

Ключові слова: екстрена радіо-медична допомога

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