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Medical support services during the evacuation of noncombatants from Kabul in 2021

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BACKGROUND AND OBJECTIVE. The noncombatant evacuation operation (NEO) to airlift Afghan citizens who collaborated with Spain and their families involved the support of health care personnel. Support was provided on airborne units during 2 phases of evacuation: between Kabul, Afghanistan, and Dubai (tactical phase) and between Dubai and Torrejón de Ardoz in Spain (strategic phase). The aim of this paper is to describe the Spanish NEO and medical support capabilities and interventions carried out during the 2 phases.

MATERIAL AND METHODS. Retrospective descriptive study of the NEO and interventions carried out between August 18 and August 27, 2021, from Kabul to Torrejón de Ardoz.

RESULTS. A total of 1918 persons were evacuated, and 113 interventions were carried out. Seventy-four interventions were in the tactical phase and 39 in the strategic phase. Most of the interventions addressed common problems, which accounted for 92% in the tactical phase and 82% in the strategic phase. The remaining 8% and 18% of the interventions in each phase, respectively, were for urgent care. Three confirmed cases of active SARS-CoV-2 infections were detected on arrival in Spain.

DISCUSSION AND CONCLUSIONS. NEO operations should include medical support personnel trained to give first aid and primary care. They should also have the ability to manage aerospace medical emergencies and provide advance life support.

Keywords: Noncombatant evacuation operations. Evacuations: tactical, strategic. Aerospace medicine. Urgent care.

Aspectos del apoyo sanitario en las evacuaciones aéreas de Kabul 2021

ANTECEDENTES Y OBJETIVOS. La operación de Evacuación a No Combatientes (*Non-combatant Evacuation Operation* - NEO) de ciudadanos afganos colaboradores con Spain y de sus familiares, contó con despliegue sanitario. Este apoyo se realizó en plataformas aéreas para las evacuaciones en dos fases seguidas: Desde Kabul a Dubai, y desde Dubai a Torrejón de Ardoz. El objetivo de este trabajo es describir y analizar la operación, las capacidades sanitarias en las diferentes fases de evacuación, así como las asistencias realizadas durante las mismas.

MATERIAL Y MÉTODOS. Estudio descriptivo retrospectivo sobre las intervenciones realizadas en las evacuaciones de personal civil entre los días 18 y 27 de agosto del 2021 desde Kabul (Afganistán) a Torrejón de Ardoz (Spain). Se analizaron las evacuaciones en las dos fases del operativo: tácticas (Kabul-Dubai) y estratégicas (Dubai-Torrejón de Ardoz).

RESULTADOS. Se evacuaron 1.918 personas, realizándose 113 asistencias sanitarias, 74 en la fase táctica y 39 en la estratégica. La mayoría fueron contingencias comunes (92% en fase táctica y 82% en fase estratégica), pero con un 8% de casos urgentes en la fase táctica y un 18% en la estratégica. Se declararon 3 casos confirmados de infección activa por SARS-CoV-2 en los cribados realizados en Spain.

CONCLUSIONES. Es recomendable que el despliegue cuente con profesionales formados en atención primaria y soporte vital avanzado, en urgencias y emergencias, así como en asistencia en vuelo.

Palabras clave: NEO. Evacuación. Medicina Aeronáutica. Táctica. Estratégica. Urgencias.

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Introduction

During August 2021, the unexpected speed with which the Taliban regime seized power in Afghanistan precipitated the departure of foreign personnel and the asylum requests of Afghan citizens to other countries. This required an unprecedented diplomatic and military response, in which Spain played a decisive role.

To evacuate Afghan personnel and their families who had collaborated with our country, other European Union nations, or international organizations, it was necessary to organize a Non-Combatant Evacuation Operation (NEO), defined by NATO (North Atlantic Treaty Organization) as a military operation involving the relocation of selected non-combatant personnel under threat, from a foreign country to a safe area.[1] The operational environment was defined as hostile.[1]

The following key elements were established for this mission (Figures 1–4):

– A 3-level command structure: Personnel from the Operational Health Section of the Operations Command Headquarters were responsible for directing the deployed medical component from Spain; personnel from the Air and Space Force Medical Directorate managed staffing and logistical support for deployed medical equipment; and a deployed medical team from the Madrid Air Medical Deployment Support Unit (UMAAD Madrid) provided on-site medical assistance and coordinated human and material resources.

– Two bases: a forward operating base[1] at Kabul Airport, from which evacuees were transported aboard the T-23 aircraft (tactical evacuation), and an advanced support base[1] at the Dubai Air Base, where evacuees were transferred from the T-23 to the aircraft bound for Spain (strategic evacuation), most commonly to Torrejón Air Base in Madrid (Spain).

– Aircraft platforms: armored T-23s with tactical flight capabilities, among others, and commercial aircraft for the strategic flight segments (Figures 1 and 2).

– Medical crews composed of 1 medical officer and 1 nursing officer for both tactical and strategic evacuations, capable of providing life support, aeromedical, and primary care. One T-23 was reinforced with two additional healthcare professionals and supplies for four emergency and critical care stations (Figure 4).

Figure 1. Platform T 23. Preparing for tactical flight. Dubai Air Base.

Figure 3. Personal protective equipment and emergency equipment for tactical flight on the T-23 platform.

Figure 2. Transfer for strategic evacuation. Dubai Air Base.

Figure 4. T-23 platform adapted for 4 emergency and critical care stations.

The aeronautical environment affects in-flight medical care. Inside the aircraft cabin, changes occur in pressure and gas volume, partial oxygen pressure, acceleration, vibration, temperature, humidity, and noise. These factors influence human physiology and, consequently, patient pathophysiology. Therefore, medical personnel must have knowledge of aerospace medicine and, as they are also exposed to these effects, must possess proper training and health status to operate in such conditions.[2]

The tactical flights lasted approximately 3.5 hours, and the strategic ones about 8 hours. During the tactical phase, work shifts extended up to 16 consecutive hours, including transit between lodging and the airbase, material preparation, flights, and transfers of evacuees. Due to emerging logistical and health care needs, 2 additional medical teams were deployed, along with specialists in pediatrics, anesthesiology, and gynecology.

In the strategic phase, 4 additional medical-nursing teams were recruited, equipped for the 3 health care capacities mentioned—life support, primary care, and aerospace medicine.

During tactical flights, all necessary safety measures were implemented to counter threats, including personal protective equipment (Figure 3) and defined procedures for disembarkation, transfer, boarding, and in-flight care.

The objective of this article is to describe a non-combatant evacuation mission conducted in a hostile environment, characterized by sudden activation and rapid execution, and to analyze the medical capabilities and care provided during the flights.

Materials and methods

We conducted a retrospective descriptive study using data from the non-combatant evacuation operation carried out from August 18th through August 27th, 2021, inclusive.

The study population included Afghan personnel evacuated on tactical flights from Kabul (Afghanistan) to Dubai (United Arab Emirates) and on strategic flights from Dubai to Torrejón Air Base (Spain).

Inclusion criteria were belonging to the group of personnel evacuated by the Spanish Armed Forces from Kabul Airport and presenting medical conditions or injuries requiring health care.

Exclusion criteria included incomplete or incorrect health records and individuals who had received medical assistance before advanced evacuation.

The following variables were collected: type of aeroevacuation (tactical or strategic), pregnancy status (yes/no), age group (adults $\geq$ 18 years, non-infant minors < 18 and > 2 years, and infants $\leq$ 2 years), and acute diseases or comorbidities, recorded according to the International Classification of Diseases (ICD-11),[9] associated with medical acts[7] and/or nursing interventions.[8]

A table was created summarizing the cases attended, type of evacuation, date, age range, and pregnancy status. Descriptive statistics were expressed as absolute and relative frequencies (%).

Data were obtained from the medical records of each flight crew, which lacked a standardized format due to the operational circumstances.

Results

Data were collected from 17 tactical aeroevacuations conducted from Kabul Airport to Dubai Airport, and from 12 subsequent strategic aeroevacuations from Dubai Airport to Torrejón Air Base. A total of 1,918 people were evacuated from Kabul — 1,891 Afghan nationals, 8 military personnel of other nationalities, and 19 members of the Spanish Embassy in Kabul.[10]

It was not possible to collect complete data for all variables related to age and pregnancy status.

A total of 113 medical assists were recorded, although there were numerous other consultations and interventions that could not be quantified due to the operational demands of the tactical scenario. Of these, 74 occurred during the tactical phase and 39 during the strategic phase. A total of 68 cases (92%) and 32 cases (82%), respectively, corresponded to primary care interventions, with 37 assists related to aeromedical conditions.

In the tactical phase, the most frequent condition was motion sickness, with 34 cases (46%), most commonly presenting as nausea, vomiting, and syncope. Headache was the second most frequent symptom, with 17 cases (23%), mainly of tension type and often associated with motion sickness.

In the strategic phase, there were 13 cases (33%) of tension-type headache and 4 cases (10%) of dehydration.

In the field of emergency and critical care, 6 cases (8%) were identified during the tactical phase and 7 cases (18%) during the strategic phase. These included 2 pediatric patients with diabetic decompensation; 2 infants with marked dehydration; 1 adult with renal colic; 1 high-risk pregnant woman (oligohydramnios) who was accompanied during the strategic flight by the deployed team including a gynecologist, anesthesiologist, and pediatrician; and 1 seizure episode during a strategic flight, which required in-flight management and subsequent transfer to the *Hospital Central de la Defensa Gómez Ulla* in Madrid.

In the field of aerospace medicine, in addition to the cases of motion sickness (mainly in tactical flights), several cases of Eustachian tube dysfunction (ototubaritis) were identified, primarily in children. Although mild, they required specific treatment (Table 1).

Finally, 3 cases of active SARS-CoV-2 infection were detected during screening at Torrejón Air Base using antigen tests and confirmed by PCR.

Discussion

The sudden activation of an evacuation operation from a conflict zone requires trained professionals prepared for such missions. Medical capabilities must be clearly defined and adapted to the demands of high-threat environments. Based on the results obtained and relevant literature, the operation must include specialists in Emergency and Critical Care Medicine, Primary Care, and Aerospace Medicine, with training in Advanced Life Support.[4,5]

Table 1. Diagnoses of medical assists performed

Tactical evacuations (%)		Strategic evacuations (%)	
Motion sickness	46	Headache	34
Headache	23	Dehydration	10
Dehydration	7	Sunburn	8
Sunburn	4	Exanthematous disease	8
Anxiety crisis	3	Anxiety crisis	3
Exanthematous disease	3	Other	36
Eustachian tube dysfunction	2		
Other	12		

There are few references in the literature comparable to this experience[4-6] — evacuations conducted in a complex geopolitical context with a high and variable level of threat; involving daily, large-scale airlifts; adverse weather conditions affecting both flight operations and the Afghan population; and the unique demographic, sociological, and epidemiological characteristics of evacuees. Furthermore, care was delivered in non-medical aircraft configurations (T-23 platforms and commercial planes).

Medical preparedness largely aligned with the identified needs, which were primarily in primary care and aerospace medicine. Medical assists were more frequent during tactical flights, which involved more hostile conditions, greater accelerations, vibrations, and higher temperatures[2] than strategic (commercial) flights.

Although headache had a significant incidence in both phases, it was not possible to determine which cases were caused by flight conditions. The higher prevalence in tactical flights may be related to acceleration–deceleration phenomena, abrupt pressure changes, and vibrations in the T-23 platform, compared with commercial aircraft (e.g., Boeing passenger planes), where such changes are less pronounced.

During transfers, maximum temperatures reached 41 °C, posing substantial risk to passengers at the extremes of age, those dehydrated, and those physically or mentally exhausted.

Probably due to the longer duration of strategic flights, their continuous scheduling after tactical flights, and high temperatures on the tarmac during transfers, the absolute and relative incidence of urgent medical conditions was higher in these longer flights — an aspect to be considered for future missions of similar characteristics.

Medical personnel must have the training and physical fitness required for in-flight operations. They should hold valid aeromedical certification and aerophysiological training appropriate for their role.

In-flight care requires trained medical flight crews and equipment adapted for use in aircraft and aeromedical environments.[11]

The literature highlights the importance of training in non-combat pathologies, conditions related to extreme ages, and chronic diseases.[4] As Chris Field[6] proposes, hygiene aspects, infant nutrition, diaper care, dental health, and mental health — supported by leisure, connectivity, and religious practice — should all be included within a comprehensive approach to evacuee care.

Consistent with our findings, such operations should include specialists in pediatrics, gynecology, and anesthesiology. Additionally, for peacekeeping and humanitarian missions, relevant considerations include sociocultural awareness, availability of interpreters, cultural competence, and updated knowledge of the operational region.[12]

Safety must be ensured throughout all phases of such missions. Medical personnel must be actively involved, familiar with protective gear, assigned weaponry (if applicable), and aerial and ground safety procedures.

The implementation of preventive measures against SARS-CoV-2 and other airborne infectious diseases must be strict due to their operational and public health impact.[13-15]

Conclusions

During this 10-day NEO mission, a total of 1,918 people were evacuated from Afghanistan to Spain, with extraction from Kabul Airport via the T-23 aircraft (tactical phase), and continuation from Dubai Air Base to Spain via commercial aircraft (strategic phase). Urgent and emergency medical conditions were reported during both phases, with a predominance of primary care–related clinical cases, especially motion sickness and headache.

The essential medical capabilities identified for such operations include:

Emergency and Critical Care Medicine (at least advanced life support if full specialty unavailable); primary care; aerospace Medicine, including pediatric, geriatric, gynecologic, and obstetric aspects; flight Medicine and Nursing, with corresponding medical certifications and aerophysiological training; and crew training for the aircraft used, and in transfer techniques and flight operations under high-threat conditions.

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REFERENCES

1. Joint Doctrine Publication 3-51 Non-Combatant Evacuation Publication. 3rd edition. NATO; 2021-
2. Fernández FJ, Guardiola JA. Manual del Médico de vuelo. Madrid. Ministerio de Defensa. 2000.
3. The New York Times. What we know about the 13 U.S. service members killed in the Kabul attack. (Accessed 28 Agosto 2022). Available at: What We Know About the 13 US Service Members Killed in Kabul - The New York Times (nytimes.com)
4. Nordmann G, Aye N, Reavley P. UK medical support to non-combatant evacuation operations. BMJ Mil Health. 2020;166:48-51.
5. Shaw A, Ellery N, Shepherd S, Knox C, Nelstrop A. OP deference--Libyan crisis 2011. Non combatant evacuation operations (NEO) role one medical experience. J R Nav Med Serv. 2012;98:22-6.
6. Field C. The Cove. Non-combatant evacuation operations: six ideas from august 2021. (Accessed 10 Febrero 2022). Available at: https://cove.army.gov.au/article/non-combatant-evacuation-operations-six-ideas-august-2021
7. Organización Médica Colegial de Spain. Código de Deontología Médica. Madrid: Guía de Ética Médica; 2011. p. 12.
8. Butcher HK, Bulechek GM, Faan PR, Dochterman JM, Wagner CM, Mba RP. Clasificación de intervenciones de enfermería (NIC). Elsevier; 2018.
9. Organización Mundial de la Salud. CIE-11 Clasificación Internacional de Enfermedades, 11.a revisión. (Accessed 27 Febrero 2022). Available at: https://icd.who.int/es
10. Domínguez JC, Neira D. Operación NEO en Kabul. La perspectiva del Mando Aéreo de Combate. Revista Aeronáutica y Astronáutica. 2021;Junio:900-6.
11. Ministerio de Defensa. Orden Ministerial 23/2011, de 27 de abril, por la que se aprueban las normas para la valoración de la aptitud médica del personal de las Fuerzas Armadas con responsabilidad de vuelo. (Accessed 22 Octubre 2022). Available at: https://ejercitodelaire.defensa.gob.es/EA/ejercitodelaire/es/.galleries/anexos/captacion/Cuadro-medico-de-exclusiones-personal-con-responsabilidad-en-vuelo.pdf
12. Lynn L. Review of Humanitarian Guidelines to Ensure the Health and Well-being of Afghan Refugees on U.S. Military Bases. Military Medicine. 2022;187:1299-309.
13. Sencan I, Kuzi S. Global threat of COVID 19 and evacuation of the citizens of different countries. Turkish Journal of Medical Sciences. 2020;50:534-43.
14. Patel A, Jernigan DB. Initial public health response and interim clinical guidance for the 2019 novel coronavirus outbreak—United States. US Department of Health and Human Services/Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report. 2020;69:140-6.
15. Hoehl S, Rabenau H, Berger A, Kortenbusch M, Cinatl J. Evidence of SARS-CoV-2 infection in returning travelers from Wuhan, China. N Engl J Med. 2020;382:1278-80.