

Blood transfusion during the Spanish civil war

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Abstract. By the end of World War I, the value of blood transfusion was widely recognized, but it was not until the Spanish Civil War (1936-1939) that large civilian blood donor organizations were created to provide preserved blood for transfusion in civilian and military patients on both sides. The Spanish Civil War was the scene of several surgical innovations, which were introduced into both war and civil medicine. Indirect blood transfusion along with cadaveric transfusion and advances in syphilis eradication were among the most important. This pioneering work allowed the creation, for the first time in history, of military blood transfusion services. This method was later applied in World War II thanks to experience and involves of British volunteer doctors integrated into the Republic's Military Health.

Key words: Blood transfusion, Spanish civil war, María Hervás Moncho

Introduction

According to the book of *Genesis* "God formed man from dust, breathed into his nostrils the breath of life and thus bestowed on him the divine spirit, also called vital spirit or soul. *Genesis* insists on the similarity between the soul and the blood". Blood is the fabric that has most motivated literary inventiveness, as well as the one most linked to magical and religious processes.

In this article, we are going to talk about the use of blood transfusion during the Spanish Civil War highlighting the figure of Maria Hervás Moncho, director of Institute of Blood Transfusion in Valencia, and the techniques discovered and used at the time to preserve the blood once extracted and to stop the spread of venereal diseases such as syphilis.

Discussion

The outbreak of the civil war caused the process of blood transfusions to develop intensely. Before the war, arm-to-arm transfusion had been used. The discovery of the different blood groups together with the discovery of the anticoagulant properties of sodium brought

with it the development of new techniques for blood transfusion and blood preservation. This had great repercussions in areas such as surgery or the treatment of diseases such as anemia.

During the Spanish Civil War, the use of this practice was extended because it was applied to patients, wounded in war, who suffered large hemorrhages. In addition, indirect transfusion methods were proposed so that the donor would not have to be in contact with the injured. Indirect blood transfusion was successfully used by Carlos Elósegui Sarasola (1902-1981) (1). He was a hematologist, founder and director of the National Institute of Hematology and Hemotherapy in Madrid. He was the chamber physician to the sons of Alfonso XIII for hemophilia. He is considered to be one of the pioneers of hemotherapy in Spain. During the war, he oversaw the setting up of blood banks in several hospitals (Burgos, San Sebastián, Córdoba), where he created a simple donation system of 30,000 volunteers. He organized an extensive blood distribution network on all battlefronts (with trucks and refrigerators where blood was stored for up to two weeks) and designed a simple hand-held pump to shorten transfusion time. After the end of the civil war, Dr. Elósegui created the Spanish Institute

of Hematology and Hemotherapy, being a large-scale introducer of stabilized blood. He made a notable contribution to the so-called war surgery, achieving an improvement in the survival of the wounded.

His counterpart on the Republican side was Dr. Frederic Durán Jorda (1905-1957). He created the first transfusion service in the world in Barcelona in 1936. The methodology used was to collect blood from donors at the transfusion centre and then transfuse it on the battlefield. This method was later applied in World War II thanks to experience and involves of British volunteer doctors integrated into the Republic's Military Health.

After the end of the war, Durán Jordá published his transfusion technique in the prestigious *The Lancet* and became head of the Pathological Anatomy service at Booth Hall Children's Hospital in Manchester, making notable contributions to the epithelium of the digestive mucosa (2).

The first step for blood donation was the recruitment of donors that was done through the press and radio (3). After going to the transfusion center, potential donors went to the administrative area to collect filiation data and later underwent a medical examination. Subsequently, in the laboratory, serological tests were performed to rule out syphilis and/or malaria. Those selected to be donors agreed to be there in case of emergency and, as rule, no more than one collection per month was carried out. The extracted blood ranged between 300 - 500 cc and was stored in a refrigerator at a temperature between two and five degrees Celcius (4, 5).

One of the top representatives was María Hervás Moncho. She was one of the first women doctors in Spain, graduating from the University of Valencia in 1918. She continued her studies at the Pasteur Institute of Serology in Paris and made a decisive contribution to making blood transfusions safer during the Civil War through the combined application of three different serological diagnostic tests for syphilis (6).

The so-called "venereal fight" constituted one of the main fronts of the sanitary campaigns that characterized public health in Europe and gained greater importance, if possible, during the war periods, since syphilis and other sexually transmitted diseases were often the cause of casualties among soldiers (7). The

mobilization of troops during World War I and the Spanish Civil War had led to the further spread of these diseases. Although the mortality rate was not high, there were many infections that caused numerous casualties (8, 9).

The contribution of María Hervás to the investigation of potential donors and the elimination of those who were at risk of suffering from syphilis, making blood transfusions that were performed so frequently, especially during the war, safer (10). Figure 1 represents a propaganda poster showing the importance of venereal diseases during the Spanish civil war (11).

On the other hand, the discovery of cadaveric blood transfusions had great international resonance during the 1930s, especially in Western Europe. However, the method continued to be practiced in the USSR for 40 years (12). Within this area, it is worth mentioning the figure of its main architect, Sergei Yudin, chief surgeon at the Skifosovsky Institute of Emergency Medicine in



Figure 1. Horacio, Germán (1902-1975) Title: Always-alert!/ the 3 fearsome bullets!: gonorrhoea, soft chancre, syphilis Publisher: Asturias. Popular front. Propaganda/Spain. Republic Army. Military Hygiene Institute Printing; Graphic Arts, Lithography Control. 1937

Moscow. At the 1930 Moscow Meeting of Surgeons, a series of more than 500 patients was reported and it was concluded that cadaver blood collected within the first four hours after death could be used without risk to the patient. Despite the reluctance that cadaveric transfusion could entail, it was appealed that in a future war soldiers would have to be transfused with this method.

Sergei Yudin attended several congresses and traveled around Europe speaking about digestive surgery and cadaveric blood transfusion. His work meant the creation of the first blood bank in the world and the start of clinical transplantation, since he broke with the previous belief that it was impossible to use organs or tissues from cadavers. The main advantage of this phenomenon was the possibility of preserving blood without anticoagulants (13).

During the Spanish War, the transfusion of corpse blood was also tried, without meeting the expectations created due to the difficulties of transporting recent dead bodies as well as hematological, psychological, and legal considerations, but they took the idea of conserving the 4% citrated blood in a refrigerator between 2-4°C (14). The existing reasons outside the Soviet Union for not using cadaveric blood transfusions generally lay in the legal provisions that prevented blood collection within 24 hours of death (15).

In Spain, the Madrid Blood Transfusion Service was directed by Canadian Norman Bethune, who had visited Moscow during the XV International Physiological Congress in 1935 and probably met Yudin (14). This doctor began his own research in Madrid together with the North American geneticist Herman Muller. The latter investigated techniques for preserving the blood of dead combatants. After a series of experiments, he was convinced of the efficacy of cadaveric blood transfusion and tested it on himself.

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