

The History of the Foundation of the Iranian National Blood Transfusion Service in 1974 and the Biography of its Founder; Professor Fereydoun Ala

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Abstract

The history of early attempts of blood transfusion in Iran traces back to the 1940s; however, around three decades later in 1974, the Iranian National Blood Transfusion Service (*Sazeman-e Mell-e Enteqal-e Khun-e Iran*) was founded by the outstanding hematologist, Professor Fereydoun Ala. The main goals of this centralized organization were to collect blood from healthy voluntary donors, to screen the donated blood and to provide various safe blood products based on scientific and ethical standards. In due course, a new era of blood transfusion service in Iran had begun to such a degree that after more than four decades of its activity, it is now considered the best-developed blood service in the eastern Mediterranean region. Here, a brief historical account of the early blood transfusion efforts and the establishment of the modern Iranian National Blood Transfusion Service in Iran is discussed in addition to the life and career of its founder and first director, Professor Fereydoun Ala.

Keywords: Blood transfusion, History of Medicine, Iran

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“Blood is that fragile scarlet tree we carry within us.”
Francis Osbert Sacheverell Sitwell (1892–1969),
the English writer.

Introduction

For centuries, the therapeutic benefits of blood have been recognized.¹ The earliest known effort was in the case of Pope Innocent VIII who was dying in 1492 and it is said that his physician had him drink the blood of three healthy boys; but it was useless, resulting in the death of the boys as well as the Pope.² The modern practice of blood transfusion was initiated at the beginning of the 20th century when the different blood groups were identified.¹

Blood transfusion can be a lifesaving procedure in a wide variety of acute or chronic medical and surgical situations, but it may also cause adverse sequelae. The World Health Organization (WHO) has always advocated the establishment of centralized blood services, focusing on providing a sufficient and safe blood supply obtained from voluntary unpaid donors; the meticulous screening of donated blood units and avoidance of unnecessary blood transfusion. Presently, it is estimated that annually, around 108 million voluntary unpaid blood donations are carried out, which provide 100% of blood supplies of 60 countries.³ To highlight the importance of transfusion of blood, the “World Blood Donor Day” is celebrated globally on the 14th of June every year.

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History of blood transfusion at a glance

The historical development of the concepts of blood circulation is often ignored. Prior to the accurate clarification of the systemic blood circulation by the English physician William Harvey (1578–1657 C.E.) in 1628 C.E., ancient physicians including Galen, Rhazes, Avicenna, and Ibn Nafis had attempted to describe it. Ibn Nafis (1210–1285 C.E.) in his ‘Commentary on the Anatomy of the Canon of Avicenna’ (*Sharh-e Tashrih-e Qanun*), dated 1242 C.E. described the pulmonary circulation.⁴

In due course, a new era started when in 1658; the erythrocytes were observed and described by the Dutch biologist, Jan Swammerdam (1637–1680).⁵ In 1665, the first animal blood transfusion was performed by the English physician, Richard Lower (1631–1691) and in 1667, the French physician, Jean-Baptiste Denis (1635–1704) and Edmund King in England reported the first blood transfusion from a sheep to a human. In 1818, the English obstetrician, James Blundell (1790–1877) carried out the first transfusion of human blood to a woman with postpartum hemorrhage.⁶

The first decade of the 20th century is considered as a historical turning point in the development of the modern science of blood transfusion. The discovery of the ABO blood groups was made in 1900 by the Austrian physician Karl Landsteiner (1868–1943).¹ He won the Nobel Prize in Medicine for his discovery and for the recognition of the Rhesus blood system in the 1930s.⁷ These were the foremost initial steps, but at that time, blood could not be stored, because it coagulated.⁸ The first transfusion of anticoagulated, stored blood was carried out in 1916, and the first blood bank was founded during World War I.⁹ For the first time, in 1921, a blood donor service was founded by the British Red Cross.¹⁰ In 1940, the U.S. Government launched a national blood collection program and in 1940, the industrial science of cold ethanol fractionation of human plasma into albumin, immune globulin,

and fibrinogen concentrates was introduced by Edwin Cohn at Harvard.¹¹ In 1947, the routine ABO, Rh blood-typing, and syphilis testing of donated blood was initiated.⁵ In the 1960s, multiple disposable polyvinyl chloride (PVC) blood bags replaced glass bottles, enabling the production of blood components, such as red cell and platelet concentrates.¹¹ The nomenclature of circulating clotting factors was established in 1963 and later in the 1960s and early 1970s, the first industrially manufactured factor VIII and IX concentrates became available.¹² Plasmapheresis was introduced in 1964 and in 1965, screening of donated blood for hepatitis B surface antigen was initiated. In 1983, testing donor blood for HIV-1 and later HIV-2 antibodies (anti-HIV-1 and anti-HIV-2) became mandatory, and screening for hepatitis C followed in 1992.⁵

Early attempts in Iran

Prior to the foundation of the “Iranian National Blood Transfusion Service” or INBTS (*Sazeman-e Mellie Enteqal-e Khun-e Iran*) in 1974, up to the late 1960s only untested whole blood preserved in washed and re-sterilized glass bottles was available.⁸ At that period, the only blood available for transfusion was provided by blood sellers, obtained in unhygienic conditions for use in both private and governmental or teaching hospitals.¹¹ The poor, highly commercial status of blood transfusion in Iran was shown in 1975 in a film called *Dayerey-e Mina* (the Cycle), directed by Iranian director Dariush Mehrjui. “The Cycle” highlighted the unethical trade of blood donations and its scenes illustrated deprived, often drug-addicted donors selling their blood.¹³

As available data show, the history of scattered disorganized blood transfusion practice in Iran dates back to the 1940s. It seems that Dr. Bauer, a French anesthesiologist, performed the first blood transfusion in the Sina Educational Hospital of Tehran University Medical School in 1945.¹⁴

In the 1950s, health authorities invited several blood transfusion experts including the director of French Military Blood Transfusion Center and the first President of the International Society of Blood Transfusion (founded in 1935) to advise on improving blood transfusion practice in Iran, but their suggestions were ignored.¹⁵ In 1952, a blood transfusion service was officially established by the former “Red Lion and Sun Society” (now the Red Crescent Society) by Dr. Ahmad Ajeer (1912–1984) (Figure 1). He was a graduate of Tehran Medical School in 1937, who was appointed as the director of Clinical Laboratory at the Sina Hospital in Tehran. In 1950, he went to England and worked in blood transfusion centers and hematology laboratories.¹⁶ By the end of 1965, seven blood transfusion centers were established by the former “Red Lion and Sun Society” in the cities of Tehran, Esfahan, Shiraz, Shahi (now Ghaemshahr), Rasht, Sari and Mashhad and at

the beginning of the 1970s, these expanded to 26 centers.¹⁶ All of these centers relied exclusively upon paid donors drawn from the most deprived sectors of society.

In addition, from 1961, a military blood bank was also founded by Dr. Fath-Ali Shams. Around 1965, Dr. Yahya Pouya (b.1894) (Figure 2), a French trained specialist of tropical diseases who was the director of the Clinical Razi Laboratory and faculty of Tehran Medical School, together with Dr. Ajeer, and Dr. Eftehkari tried to advance the blood transfusion service at the former “Red Lion and Sun Society”, but their efforts were unsuccessful.¹⁸

Professor Ala’s recollections are a rich source with regard to the historical aspects of development of blood transfusion in Iran. In his recent interview, he described the appalling status of blood transfusion in Iran before the establishment of INBTS and stated: “What was required was a widespread, continuous publicity program, drawing the attention of every sector of the public to the dangers of current services, and the need for their participation in providing society, their friends and family, with safe blood from altruistic, healthy volunteers – in short, a social revolution.”¹¹

In 1972, Professor Ala proposed the project of the establishment of a national blood transfusion service in Iran and accordingly a wide-spread public information campaign was started, which emphasized the dangers of the current primitive transfusion services. Another first step was obtaining parliamentary approval for the creation of a national service as a legal entity. At that time, the advice and support of two official authorities, Dr. Shoja-ad-Din Sheikholeslamzadeh (1931–2014), an orthopedic surgeon and the Minister of Health and Welfare and Dr. Khodadad Farmanfarmaian, Head of the Plan Organization were very helpful, and finally an initial budget of 800,000 Tomans (around 100,000 USD in 1972) was allocated to this project by the Plan Organization.⁸

A crucial step was integration of the new found INBTS with the transfusion services of the Armed Forces and the Red Lion, and Sun Society. As Professor Ala says: “Perhaps the most important and far-reaching policy decision of the INBTS was to propose the integration of the INBTS with the Armed Forces Blood Service”, then added: “This arrangement was enormously helpful to us as we started to establish regional centers in provincial chief cities.”¹¹

The INBTS was formally established in 1974 and Professor Ala was its National Director until 1981. In his recent interview, he described the first building, which was devoted to the INBTS in Tehran. He says, “The former premises of the ‘Tehran Clinic’ on Villa Avenue (now Ostad Nejatollahi) were rented. The building was gutted, and rebuilt specifically for our purposes as a clean, modern, welcoming center, equipped with the latest automated laboratory equipment.”¹¹ However, as Professor Ala mentioned, he did not want merely to construct a ‘supermarket’ for various



Figure 1.
Dr. Ahmad Ajeer (1912–1984).



Figure 2.
Dr. Yahya Pouya (b.1894).



Figure 3.
Dr. Behrouz Nikbin Moghaddam
(b.1941)

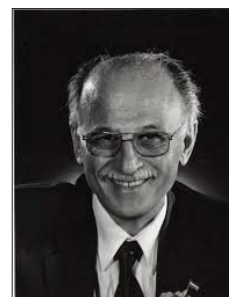


Figure 4.
Dr. Behrouz Broumand (b.1940).

blood products. The National Service had to have an academic facet as well. As he said: “University doctors and scientists were consequently recruited to staff the various departments.”⁸ The employment of experts and staff and their further training was carried out successfully. Drs. Mas’oud and Forouzanfar collaborated in setting up the first clinical immunology laboratories, and Dr. Behrouz Nikbin Moghaddam (b.1941) (Figure 3), Professor of Immunology at Teheran University of Medical Sciences, joined the scientific staff and established the histocompatibility laboratories at the INBTS.¹⁹

Thus, tissue-typing and the matching of kidney donor and recipient were introduced by Dr. Nikbin, and together with Dr. Behrouz Broumand (Figure 4) and Dr. Ahad Ghods the way was paved for the first renal transplants in Iran. Dr. Broumand is an American-trained pioneer nephrologist who was the director of the “National Dialysis and Transplant Center” at the Ministry of Health between 1975 and 1981. At that time, the first kidney transplant was performed by Dr. Homayoun Khansari in Beh-Avar Hospital in Tehran. The recipient was a 15-year-old girl from Kerman.²⁰

Some of the scientific staff of INBTS who were sent abroad for further training included: Dr. Noushin Forouzanfar, Dr. Irandokht Shoai, Dr. Mas’oud, Dr. Akhtar-Zandi, and Ms. Mesbah-Karimi. Later, Dr. H. Farzadegan (virologist) and Dr. Houri Rezvan (biochemist) and a British management consultant joined the INBTS. At that time, Dr. Khosrow Majidi was the Director of Administration who was later appointed as the Deputy Director of the INBTS and Ms. Pari Momen, (social worker) was in charge of organizing public education and motivation campaigns, together with the mobile blood-collection teams.⁸

The most important next step was recruiting voluntary blood donors. Professor Ala mentioned in his interview that: “without voluntary blood donors, there could be no blood service. Thus, it was my task to approach cabinet ministers, directors of organizations or business executives initially, in order to explain the horrors of the present blood services, and the virtues of obtaining the participation of the healthy population in providing safe blood for themselves and their fellow-citizens. A date was then agreed for conducting a mobile blood collection session. A blood collection team composed of doctors, impeccably uniformed donor attendants and drivers would arrive at the appointed time, equipped with folding beds; clean white sheets and all the materiel required to take between 120 and 150 units of blood. At the beginning,



Figure 5. The original Iranian National Blood Transfusion Service (INBTS) emblem before 1979. It was designed by the famous German artist Karl Schlammingner.

they had to use promotional films imported from the International Red Cross or the American Association of Blood Banks, but these were soon replaced by a short film showing Iranian faces and Iranian scenes, by Darioush Mehrjuei. To demonstrate our integrity, each volunteer was carefully examined and at least 10% or 12% were rejected as being ineligible for donation. In a surprisingly

short time, our persistence paid off, and we were gradually able to provide for all the needs of hospitals in Tehran.” He added: “The distinctive red and white cars, bearing the strong, simple INBTS emblem designed by the famous German artist Karl Schlammingner, were to be seen all over the city, delivering or picking up crates of blood units (Figure 5).”¹¹

The INBTS’ achievements

- The introduction of voluntary, non-remunerated blood donation by all sectors of society, instead of the commercial exploitation of the poorest members of society – the only such program in the Middle East.

- The introduction of an academic component to the practice of transfusion science and medicine.

- Training of required experts, researchers, and the introduction of the concept of Transfusion Medicine, a new medical specialty.

- Launching the first mobile blood collection sessions in Tehran and other large cities.⁸

- Continuous efforts for enhancing the standards of clinical transfusion practice in Iran as a long-term mission.⁸

- Applying the best and most modern scientific principles and technology in blood group serology, virology screening, cryobiology, clinical immunology, and homeostasis.⁸

- Designing a software program for a national database management system by Stefan Palffy, who was a systems analyst who also designed the software for the National Library project in Tehran.⁸

- Publication of numerous scientific articles, books, and pamphlets on blood transfusion science and medicine.

- Production of blood products including cellular blood components, frozen blood, a high-yield cryoprecipitated factor VIII concentrate, etc. The establishment of a pilot-plant for the production of human albumin, polyvalent immunoglobulin, coagulant factor VIII concentrate, and a triple prothrombin complex (coagulant factors II, IX, and X) for the treatment of hemophilia B was a significant achievement. The initial fractionation processing capacity was 10,000 kg of plasma. The director of the Scottish National Blood Transfusion Service Protein Fractionation Center in Edinburgh, the late Dr. John Watt helped the INBTS to obtain and commission the equipment for this plant.⁸ In 1979, the first plans for establishing a new plasma production plant with an annual processing capacity of 100,000 kg were started.⁸

- According to the report of July 1978, the INBTS in collaboration with the Pasteur Institute of Iran was the only center outside France where a specific hyper-immune anti-rabies immune-globulin was produced by Dr. Akhtar Zandi.⁸

- Provincial and Regional blood transfusion centers: after the establishment of the INBTS in Tehran in 1974, in subsequent years, more blood transfusion centers were gradually established in many of the provincial capitals of Iran. Professor Ala pointed out: “It was only in 1975 that we, at the Iranian National Blood Transfusion Service, began planning the establishment of Regional Blood Centers. Our objective was to create only a few large centers, affiliated, wherever possible, to the regional University Hospital, and so equipped and staffed, as to be able to provide many of the services available at the main center in Tehran, such as multiple PVC blood bags for blood component production (Red Cell and Platelet concentrates and Cryoprecipitate); advanced screening tests for viral disease; special red-cell serology for problem cases and as an antenatal service; histocompatibility testing for renal transplantation, etc.). In addition, we fortunately



Figure 6. Dr. Mansour Haghshenas (b.1937).



Figure 7. Professor Fereydoun Ala (b. 1931).

had access to the military personnel at the local Armed Forces HQ, in order to prime our regional voluntary donor recruitment campaign. The first such center was created in Shiraz, and was soon followed in rapid succession by centers in Hamadan, Sari, Mashhad, and Ahvaz. The latter three centers were constructed as prefabricated buildings, in the interests of speed and flexibility.” He added: “Shiraz was the first such center. We chose a former night-club near the Namazee Hospital, which was gutted and rebuilt for the purpose. Fortunately, Dr. Haghshenas (Figure 6) who was the only hematologist at the Namazee Teaching Hospital after Dr. Parvin Saidi left for Tehran, kindly accepted my invitation to be the Regional Director of the BTS – an absolutely ideal choice. He was a highly-trained, well-motivated US graduate, with considerable charm, perfectly suiting him for donor-recruitment campaigns.”²¹

From 1985 onwards, the number of provincial or regional blood transfusion centers greatly increased in Iran and in 2008, it expanded to 200 centers⁸ including some in remote areas.²²

In summary, the INBTS achievements were important in providing effective infrastructural support for the rapidly developing advances in medicine, surgery, and traumatology throughout the country. However, the story of blood transfusion in Iran would be incomplete without looking at the life and career of Professor Ala; the founder and first director of the INBTS.

The life and career of Professor Fereydoun Ala

“Much have I seen and known; cities of men, and manners, climates, councils, governments, myself not least, but honored of them all.”

Alfred Tennyson (1809–1892), British poet.²³

Fereydoun Ala (Figure 7) was born in Paris in 1931. At the time, his father was the Iranian Minister Plenipotentiary in France. Once the four-year assignment of his father, Mr. Hossein Ala ended, he was appointed Iranian Minister at the Court of St. James in London, where he served until 1935. However, Fereydoun and his mother returned to Iran in 1936. He was sent to the Nezami Primary School on the former Sepah Avenue in Tehran. He also attended the Lazariste St. Louis School to learn French, as well as the American ‘Community School’. Before the end of World War II, he was sent off alone to continue his secondary education in England. In London, he entered Harrow School. In 1945, his father was appointed as the Iranian Ambassador to the USA and he joined his family in order to complete his secondary education at Milton Academy near Boston and then, went to Harvard University where he studied history as his major. After graduation, he stayed on for a further year of pre-medical studies and in due course, he attended the Edinburgh University Medical School in Scotland. He completed his medical training and after graduation, as a Senior House Officer, he obtained a one-year research grant from the Wellcome Trust to investigate anemias associated with intestinal malabsorption. This was followed by taking the examination for Membership of the Royal College of Physicians in internal medicine and hematology (equivalent to the fellowship examination). Dr. Ala was the first Iranian to become a member and later Fellow of the Royal College of Physicians. In 1964, his father passed away and the young Dr. Ala returned to Iran in 1965, having spent many years abroad, and joined the Tehran University Medical Faculty with a monthly salary of 600 Tomans. At that time, Dr. Jahanshah Saleh was the Chancellor of the University and Dr. Hafizi was Dean of the Tehran University Medical School. In the course of his new appointment, Dr. Ala established the first Clinical Hematology Department in Iran at the former Pahlavi Hospital (now Emam Khomeini Medical Center).

He stated in a recent interview: “as I came in to work every morning it was truly a painful sight: a herd of pale, sick-looking professional donors, drawn from the most vulnerable, impoverished sectors of society, were lined up by a tough, menacing ‘agent’. They were bled as they squatted on the floor, into re-usable glass bottles (supplied and re-sterilized by the Institute Pasteur), and most of them, especially those with rare blood groups, were so anemic that only a small layer of red blood cells could be seen at the bottom of the bottles – the rest was plasma! They were then paid a pittance by the ‘agent’, before going off. None of the donors were examined or tested. The blood was simply grouped, typed and used directly without further compatibility-testing, and these were the standards prevalent throughout Iran.”¹¹ For the establishment of a modern clinical hematology department at the former Pahlavi Hospital (now Emam Khomeini Medical Center), according to Professor Ala, what was needed was an independent, specialized laboratory. He was able to obtain a grant of 18,000 Pounds Sterling from the Wellcome Trust for the purpose. This made it possible to purchase all the equipment needed and he also recruited a technologist from abroad to help in the training of the



Figure 8. Professor Ala as Director of the West Midlands Regional Blood Transfusion Service, UK, 1994.



Figure 9. Iranian Comprehensive Hemophilia Care Center, Tehran. From **Left to Right:** Dr. Irandokht Shoaie, Dr. Fereydoun Ala, Barbara Peters, and Cyrus Salimi.²⁴

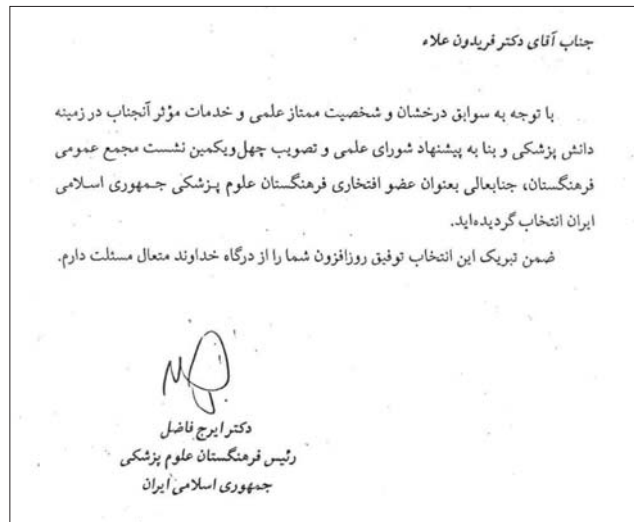


Figure 10. Honorary Membership official letter of the Iranian Academy of Medical Sciences signed by Professor Iraj Fazel, the former President in 2002.

laboratory staff for a few months.¹¹

In due course, he became interested in the diagnosis and treatment of the inherited bleeding disorders like hemophilia A and B, or von Willebrand's Disease. Professor Ala stated: "These inherited bleeding disorders were medical orphans in Iran, in that they had no advocate, and had not yet attracted the interest of anyone. To make a definitive laboratory diagnosis of hemophilia A or B for the first time in Iran was exciting, but we also had to find a way of treating these miserable children, crippled by repeated joint hemorrhages, and often so disabled as to be entirely bed-ridden."¹¹ In consequence, in 1967, the first hemophilia clinic was established at the former Pahlavi University Hospital by two dedicated physicians, Dr. Ala and Dr. Shoaie.²⁴

In 1971, "the 7th Congress of the World Federation of Hemophilia" was held in Tehran. In 1973, a book was published in Amsterdam entitled: "Hemophilia; proceedings of the 7th congress of the World Federation of Hemophilia, May 17–20, 1971, Tehran". The authors were F. Ala and K. W. E. Denson and the corporate author was the World Federation of Hemophilia.

In 1981, Professor Ala traveled to UK and after a few months, he was designated as Director of the West Midlands Blood Transfusion Service in Birmingham. He also obtained a clinical appoint-

ment as Consultant and Senior Lecturer at the Birmingham University Hematology Department (Figure 8).

Professor Ala is currently the Honorary President of the Iranian Comprehensive Hemophilia Care Center, Tehran, Iran, since 1999 (Figure 9).²⁴

In 2002, Professor Ala was appointed as Honorary Member of the Iranian Academy of Medical Sciences (Figure 10).²⁵

Professor Ala's appointments

- o Director, National Blood Service, West Midlands Region and WHO Collaborating Center for Training and Development in Blood Transfusion (retired).

- o Honorary Senior Lecturer and Consultant Hematologist, Birmingham University Department of Hematology.

- o Chairman, UKBTS/NIBSC Standing Advisory Committee on Transfusion-Transmitted Infection, 1993 to 1996.

- o Member, Blood Transfusion Service National Management Committee, 1989 to 1992.

- o Co-Editor of "Transfusion Today", from 1992.

- o Councilor, International Society of Blood Transfusion, from 1998.

- o Currently, Honorary President of the Iranian Comprehensive Hemophilia Care Center, Tehran, Iran, since 1999.
- o Founding Director, Tehran University Hematology Department, formerly Pahlavi Medical Center, 1969 to 1981.
- o Founder and National Director, Iranian National Blood Transfusion Service, 1973 to 1981.
- o Founding Director, Iranian Hemophilia Society and WFH International Hemophilia Training Center in Tehran, 1970 to 1981.
- o Medical Secretary, World Federation of Hemophilia, 1970 to 1974.
- o Member, Medical and Scientific Advisory Committee, World Federation of Hemophilia, 1978 to 1983.
- o Councilor, International Society of Blood Transfusion, 1969–1975.
- o Member, WHO Eastern Mediterranean Advisory Committee on Medical Research, 1979 to 1982.
- o Member, WHO Expert Advisory Panel on Human Blood Products and Related Substances, 1979 to 1990.



Figure 11. Professor Ala at a Blood Transfusion Meeting, the Makassed Hospital, Beirut, 1997.



Figure 12. Left: Professor Ala and Pakistani students at a WHO Blood Transfusion workshop, Lahore, Pakistan, 1998. Right: Professor Ala in the course of a WHO assignment in Gilgit, Pakistan, 1998.

- o Director Iranian Medical Research Committee, 1975 to 1978.
- o WHO Short-Term Consultant in Blood Transfusion since 1975: Byelorussia, Cyprus, Djibouti, Egypt, India, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Pakistan, Syria, Tajikistan, Taiwan, Tunis, United Arab Emirates, and Uzbekistan (Figures 11 and 12).

Professor Ala's publications

He is a prolific researcher and has published 127 articles mainly on blood transfusion in sound medical journals. In addition, he was the author or co-author of several books and chapters, including:

- o Hemophilia. *Excerpta Medica*. Eds: Ala FA and Denson KWE, 1971.
- o Plasma Fractionation for Developing Economies, and the Safety of Plasma Fractions. WHO Regional Publications, Eastern Mediterranean Series. Ala FA, Burnouf T, El Nageh M, 1999.
- o Blood Grouping Reagents, Preparation & Application Methods. WHO Regional Publications, Eastern Mediterranean Series 5. Roy TCF, Nicholson GS, Ala FA, 1993.
- o Blood Transfusion, A Basic Text. WHO Regional Publications, Eastern Mediterranean Series 7. Britten AFH, Ala FA, El Nageh M, 1994 (Figure 13).
- o Blood and Blood Products, Ala FA, Chapter 15, in Side Effects of Drugs. Annual 15, 1991. Elsevier, Eds. Dukes and Beeley.
- o Transfusion of Red Cells, Ala FA, Chapter 5, in Modern Transfusion Medicine. Ed. D. Pamphilon, CRC Press, 1994.
- o Blood Transfusion Programs for Developing Countries, Ala FA, Chapter 7, Part III, in Supportive Therapy in Hematology, Eds. Das, M and Smit Sibinga CTh. Martinus Nijhoff.

His international guidelines on blood transfusion medicine

- o WHO/Global Program on AIDS. WHO/GPA - Global Blood Safety Initiatives - INF/89. Joint Author: Documents 89.7, 89.8, 89.10, 89.11
- o WHO/GBSI Consultation on Screening of Blood Donations for the Infectious Agents Transmissible Through Blood Transfusion, 1990. Joint Author - WHO/LBS/91.1
- o WHO/GBSI Consultation on Quality Assurance in Blood Transfusion Practice, 1993. Joint Author.

Professor Ala attended many scientific meetings in Iran and abroad (Figure 14).

Current status of Blood Transfusion Organization in Iran

After the Islamic Revolution of 1979, the well-organized services, standards and integrity of the INBTS founded by Professor Ala and his colleagues survived and developed.⁸ It was supervised by the Ministry of Health and the name, the Iranian National Blood Transfusion Service (INBTS) was changed to the Iranian Blood Transfusion Organization (IBTO) or *Sazeman-e Enteqal-e Khun-e Iran* and in 1984 its Articles of Association was approved.¹⁸ IBTO's vital lifesaving service to the wounded soldiers during Iran-Iraq war will be never forgotten.

A study published in 2009 showed a significant increase in the annual blood donation trend in Iran between 1998 and 2009, based on the reports of the IBTO and the national database. According to the authors, blood donations increased from 1,183,630 blood units in 1998 to 1,735,008 by the end of 2007 with an overall growth rate of 59.8% (Figure 15). The rate of annual blood donation in

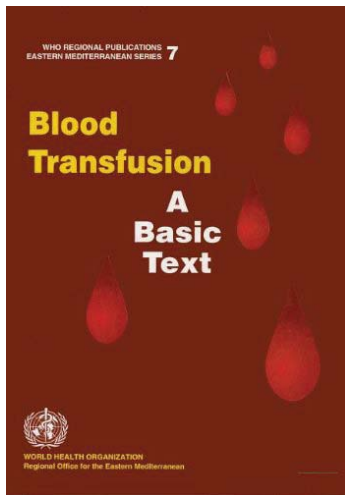


Figure 13. The front cover of the Blood Transfusion, A Basic Text.



Figure 14. Professor Ala in the Annual Congress of the Iranian Society of Pathologists; in Honor of Professor Abdol-Mahmoud Shamsa, Tehran, 2000. First row-sitting from **Right**: Dr. Mansour Shamsa, Dr. Javad Ghafourzadeh, Dr. Moslem Bahadori, Dr. Fereydoun Ala, Dr. S. Mohammad Ghodsi, Dr. Sameni and the late Dr. Parviz Dabiri.



Figure 15. A stamp on occasion of the blood donation week in Iran, 1991.



Figure 16. The 40th year anniversary poster of the Iranian Blood Transfusion Organization designed by Sajadi Mahdizadeh, 2014.

the northwest region of Iran was 13 per 1000 versus 39 per 1000 in the central region. Voluntary donations were 77% in 1998 and reached 100% by the end of 2007.²⁶ In 40 countries; blood is still supplied through family donors or paid donors.

The theme of 2015 World Blood Donor Day Campaign is “Thank you for saving my life”. The goal of WHO for all countries is to provide their blood supplies from voluntary unpaid donors by 2020.²⁷ Iran accomplished the WHO’s goal in 2007. In addition, the establishment of “Higher Institute for Education and Research on Transfusion Medicine” in 2008, the foundation of the “IBTO Research Center”, and publication of 30 books and 348 articles by IBTO experts were among the major achievements of the IBTO.¹⁹ In 2014, the 40th year anniversary of the Iranian Blood Transfusion Organization was held (Figure 16).

It is our honor to show our gratitude to Professor Ala and his colleagues as well as their successors at the Iranian Blood Transfusion Organization for saving the life of thousands of people in Iran in the past four decades.

Acknowledgment

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