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THE SCOTTISH NATIONAL BLOOD TRANSFUSION ASSOCIATION

REPORT,

STATISTICAL SUMMARY

AND ACCOUNTS

For Year ended 31st March 1972/3

To be submitted to the Annual General Meeting of the Association to be held in the Board Room at the Royal Infirmary, Edinburgh, on Wednesday, 13th December 1972, at 2.30 p.m.

The Scottish National Blood Transfusion Association

Headquarters—5 ST COLME STREET, EDINBURGH, EH3 6AE

THE THIRTY-SECOND ANNUAL REPORT INCORPORATING THE MEDICAL SECRETARY'S REPORT AND STATISTICAL SUMMARY AND THE ANNUAL ACCOUNTS OF THE ASSOCIATION FOR THE YEAR TO 31st MARCH 1972

To be submitted to the Annual General Meeting of the Association to be held within the Board Room of the Royal Infirmary, Edinburgh, on Wednesday, 13th December 1972, at 2.30 p.m.

The Association places on record its great indebtedness to all blood donors whose regular gifts of incalculable value are indeed the life blood of the Association; all voluntary organisers and helpers who give so much of their time and energy to our cause; the many employers who have so generously co-operated in the provision of facilities for our mobile team sessions and last but not least the Regional Directors and their staffs for their loyalty and devoted service during the year.

The recent awards of the M.B.E. to Miss H. M. White, Regional Organising Secretary in the South-Eastern Region and to Mr G. R. Milne, F.P.S., Deputy Director in the Western Region in recognition of their respective outstanding services over many years were noted with pleasure.

Sadly, the death is recorded of Dr C. P. Stewart, whose active interest and involvement in blood transfusion extended from 1940 until in 1969 he retired as Vice-President of the Association and Chairman of the Executive Committee.

In name of the Association,

NEIL A. MILNE, *Secretary.*

December 1972.

ANNUAL REPORT OF THE MEDICAL SECRETARY FOR THE YEAR ENDING 31st MARCH 1972

The Blood Transfusion Service has continued to develop rapidly and the Association can take considerable satisfaction in the progress which has been made and in the way in which the service has responded to the increasingly complex demands made upon it. This rapid progress has, however, imposed strains upon the organisation of the service and brought about the need for changes. Several important decisions about the future of the service have been taken during the year and these will be discussed later in the report.

Donors.—The number of attendances by donors to give blood was 241,683. For various reasons it is not always possible or advisable to accept donations of blood and the actual number of donations obtained, at 212,475, falls short of the total number of attendances.

Blood and its Fractions.—The amount of blood collected by the Regional Centres increased from 207,122, in the year ended 31st March 1971, to 212,475 in the year under review. This is an increase of 2·6 per cent. and is a resumption of the normal upward trend following a year when there was a slight fall in the amount of blood collected. However, there has been for the third successive year, a reduction in the amount of blood used as whole blood, from 100,852 in the preceding year, to 95,699 in the year under review.

This is the smallest amount of blood used as whole blood in any single year since 1964. This is not, however, an indication of diminished activity on the part of the Blood Transfusion Service, but is one aspect of the increasingly complex and much more rewarding use which is now being made of blood in the form of blood products.

This is reflected in other figures which show how rapidly the change in use is occurring. The number of units of blood issued as concentrated red cells has increased from 23,557 in the preceding year, to 29,631 in the year under review—an increase of 25·8 per cent. This increase is more than enough to offset the reduction in the number of units given as whole blood. By using blood as concentrated red cells the plasma becomes available for the preparation of other products and greater benefit can be obtained from a unit of blood used in this way than from a unit given as whole blood to a single patient.

The quantities of certain blood products issued by the Regional Transfusion Centres has increased remarkably since the preceding year. The production of platelet concentrate has increased by 59 per cent. The production of Cryoglobulin Precipitate has increased by 24·4 per cent. and the issues of human AHF increased by 18·6 per cent. Both the latter products are used in the treatment of haemophilia.

The production of long-established products such as normal immunoglobulin has continued at much the same rate as before but the range of specific immunoglobulin has been increased by the addition of an immunoglobulin prepared from plasma containing Australia (SH) antibody. Issues of albumin have increased by 6·2 per cent. and modest quantities of plasma protein solution are now available in anticipation of the ultimate replacement of dried plasma with this safer product when the new Plasma Fractionation Centre is opened at Liberton. Development work is also proceeding on new anti-coagulants.

Specific Immunoglobulins.—Immunoglobulins prepared from plasma from donors known to have unusually large amounts of antibodies are useful for particular therapeutic purposes. A considerable range of these specific immunoglobulins can be prepared and this imposes additional burdens on the service, both in organising the collection of blood from special panels of donors and in processing individual batches of immunoglobulin for each specific antibody. However, the value of these products is not in doubt.

The production of anti-D immunoglobulin, which is used for the prevention of haemolytic disease of the newborn, continued to increase. During the year 5,515 doses were prepared, an increase of 10·6 per cent. compared with the previous year. Since July 1971, it has been possible to offer treatment to all women who are at risk of developing the disease in a subsequent pregnancy. Much of the plasma which has been contributed since 1968 has come from a small group of Rh negative men in Inverness who have volunteered to be immunised with Rh positive blood in order to be able to provide this material. It is right that their outstanding contribution should be acknowledged.

The production of relatively small quantities of anti-tetanus immunoglobulin continues but the quantities available should increase as a result of efforts now being made to obtain larger quantities of plasma from donors with tetanus antibody. The North of Scotland Blood Transfusion Service has now provided 50 litres of plasma from volunteer donors with high tetanus anti-toxin level who have been plasmapheresed on a regular basis. Anti-vaccinial immunoglobulin is prepared from time to time but there are difficulties in accumulating reasonable sized pools of plasma for this purpose. Work has now begun on the production of small quantities of a specific immunoglobulin from plasma containing Australia antibody.

Tissue Typing.—The Blood Transfusion Service is becoming increasingly involved in tissue typing, a subject which is of great practical importance in transplant surgery but which may come to have other practical applications in medicine. Screening of samples of blood in order to find sera which might be valuable for typing purposes is undertaken in three regional centres and has been authorised in a fourth. This work is undertaken in co-operation with the National Tissue Typing Reference Laboratory at Bristol and specimens which are of potential interest are referred to Bristol for further assessment. The National Laboratory at Bristol has links with similar organisations in other countries and forms part of an international network through which information can be exchanged. The collection, typing and distribution of sera provides the raw materials for the typing of patients requiring kidney transplants and the potential donors of kidneys. In Edinburgh the work of the Blood Transfusion Service also includes the typing of recipients and potential donors of kidneys. This work is undertaken on behalf of the South Eastern Regional Hospital Board which reimburses the cost.

Cryobiology.—Considerable progress is now being made in the practical application of very low temperatures to the long-term preservation of red blood cells. This technique has several valuable practical applications although the high cost and certain technical disadvantages are likely to limit its use. In the Western Region considerable progress has been made. A new Cryobiology Laboratory has been opened and a frozen cell bank established with the aid of a development grant from the Scottish Home and Health Department. In the South Eastern Region the major problems have been solved and the clinical use of blood prepared and stored in this way is on the point of being introduced.

Hepatitis Associated Antigen.—Routine screening of all donated blood for the presence of hepatitis associated antigen has been in progress for at least a year in all Centres and longer in some. Now that this initial objective has been attained, further avenues of development are opening up. There is need to improve the reliability, specificity and sensitivity of the present tests and to develop more sensitive methods. Our understanding of the nature of the hepatitis associated antigen is still far from complete and it would be realistic to expect that in the course of the next year or two the present antigen will be broken down into several components or sub-types. This will lead to greater refinements in the testing procedures which will almost certainly make them of greater value to the Blood Transfusion Service.

At the same time the introduction of greater refinements in the testing procedure will have administrative and financial repercussions. The present situation and the potential developments in this field make it essential for the Blood Transfusion Service to work in close partnership with experts in this field of microbiology. Developments in other aspects of microbiology point in the same direction and discussions have taken place, and are continuing about the relationship between the Blood Transfusion Service and microbiologists.

Accommodation.—There is a continuing problem in anticipating and fulfilling the accommodation requirements in the Blood Transfusion Service. In Dundee the move into the new Centre being built at Ninewells, is one year closer. It is inevitable that the accommodation which was planned for the Blood Transfusion Service so long ago will prove inadequate and the Association may have to resort to various expedients until a more lasting solution can be found. In Edinburgh work continued during the year on the conversion for temporary use of empty tenement property in Lauriston Place which was mentioned in the Report for the preceding year. At the time of writing this accommodation has been partially occupied and work has begun on alterations to the rooms which have been vacated in the existing Centre. This will provide temporary relief of the most acute problems until the Protein Fractionation Centre moves to Liberton and ultimately a new Regional Transfusion Centre is provided in the course of rebuilding the Royal Infirmary. The building of the Protein Fractionation Centre at Liberton has now begun and it seems likely that this particular move will take place on time in 1974. In the Western Region a new animal house has been provided at the Centre at Law Hospital and planning is in progress for the building of additional laboratory accommodation at the same site. The most acute problem in the Western Region is the future of the West Regent Street Donor Centre. This building occupies an advantageous site in the city centre close to the main rail and bus termini but the building itself is now inadequate. Various lines of action have been examined and discussions are continuing.

Teaching.—The Blood Transfusion Service continues to be heavily committed to a variety of teaching and training activities. All the medical, scientific and senior technical staff are involved in this and their commitments have increased once again.

Staff.—Changes among senior staff have been confined to the Protein Fractionation Centre following up-grading of post of Scientific Director (Mr J. G. Watt). A new post of Deputy Scientific Director was created and Dr J. K. Smith was appointed to this post in the grade of Principal Bio-Chemist. Mr William Grant, who joined the Blood Transfusion Service in 1952 and had been a Chief Technician since 1964, was appointed to the new post of Production Manager in the Protein Fractionation Centre.

At the end of the year there were 435 full-time staff and 180 part-time staff employed by the Association. This is an increase of sixteen full-time staff and a decrease of two part-time staff over the year.

The Future.—Changes are in the offing. The Association has decided that the time has come to appoint a National Medical Director and has authority to proceed with such an appointment. The Scottish Office Management Services Unit has examined the future administrative organisation required in the Blood Transfusion Service in Scotland and a report on this is about to be presented to the Association. In a wider context the National Health Service is about to be re-organised and this will inevitably have repercussions on the Blood Transfusion Service. The present organisation has served the Blood Transfusion Service well for over thirty years. During that time there has, however, been a remarkable change in the scale and the complexity of the Association's activities. The time has surely come when the need for change has to be faced and the foundations laid for the work of the next thirty years.

Publications.—The following papers have been published or accepted for publication:—

I. A. Cook.—Primary Rhesus Immunization of Male Volunteers (*Brit. J. Haematol.* (1971), **21,** 369.

T. M. Allan.—ABO blood-groups and venous thromboembolism (*Lancet* (1971), **ii,** 1209-1210.

J. D. Cash.—Fibrinolysis in Pregnancy (*Proc. Roy. Soc. Med.* (September 1971), 64: 9: 926.

A. R. Clarkson, Mary K. MacDonald, J. J. B. Petrie, J. D. Cash and J. S. Robson.—Serum and Urinary Fibrin/Fibrinogen Degradation Products in Glomerulonephritis (*Brit. Med. J.* (21st August 1971), **3,** 447.)

J. D. Cash.—An Envelope System Designed to Facilitate Safer Transport and Rapid Identification of 'High Risk' Specimens in Hospital Laboratories (*J. Clin. Path.* (1971), **24,** 367).

M. S. Hoq, J. D. Cash, P. C. Das and R. A. Cumming.—Variability of Sheep Red Cells in their Reaction to Agglutinins in Normal Human Sera (*Brit. J. Haematol.* (December 1971), **21,** 6).

P. C. Das, R. Hopkins, J. D. Cash and R. A. Cumming.—Rapid Identification of Hepatitis Associated Antigen and Antibody by Counter-Immunoelectrosmophoresis (*Brit. J. Haematol.* (December 1971) **21,** 6).

J. D. Cash, P. C. Das and V. A. Ruckley.—Serum Fibrin/Fibrinogen Degradation Products Associated with Post-Operative Pulmonary Embolus and Venous Thrombosis: Fibrinogen Degradation Products—International Workshop, Oslo, 22nd to 25th July 1970 (*Scand. J. Haematol. Suppl.* (1970), 13, **323,** 70).

J. D. Cash.—Platelet Transfusion Therapy (*Clin. in Haematol.* **1,** 395).

A. J. Barber, D. S. Pepper and G. A. Jamieson.—Comparison of Methods for the Isolation of Platelet Membranes (*Throm. Diath. Haemorrh.* (1971), 26, **38,** 71.

A. G. White.—HL-A Typing, fact and fiction: Edinburgh/Leiden—Joint Scientific Meeting, Edinburgh, October 1971.

D. S. Pepper.—Isolation and Characterisation of PF-4: Second International Conference, Oslo, July 1971.

R. A. Cumming.—Optimal Utilisation of Blood: Visit of the American Association of Physicians to the Royal College of Physicians of Edinburgh, 1971.

R. A. Cumming.—Developments in Blood Transfusion Practice during the past 25 years: Royal College of Physicians of Edinburgh and the Royal Society of Edinburgh, 4th February 1972.

J. D. Cash.—Principles of Effective and Safe Transfusion: Royal College of Physicians of Edinburgh and the Royal Society of Edinburgh, 4th February, 1972.

J. G. Watt and J. K. Smith.—Clotting Factor Concentrates (*Brit. Med. J.* (1972), **I,** 5802, 752.

J. G. Watt and J. K. Smith.—Plasma Protein Fractionation (*Process Biochemistry* (September 1971), P29.

J. K. Smith, J. G. Watt, C. N. Watson and G. G. A. Mastenbroek.—Alternatives to Freeze-Drying for the Removal of Ethanol from Plasma Protein (*Vox Sang.* (1972), **22,** 120).

D. F. Hopkins.—Naturally occurring anti-E in one identical twin but not the other (*Lancet* (1971), **2,** 409-410).

R. Mitchell.—Storage, Retrieval and Inventory Control of donor red cells in liquid nitrogen (*J. Clin. Path* (1972), **25,** 487-490.

R. Mitchell and F. Fupi.—Sickling in Tanzania (*East Afr. Med. J.*, in press).

R. Mitchell, O. J. Ofeigsson and R. S. Patrick.—Histopathological observations on the cold water treatment of burns (*J. Path.*, in press).

R. Mitchell.—Tumbu Fly (*Brit. Med. J.* (28th April 1972)).

G. M. Todd.—Blood group antibodies in Samonidae Roe (*Vox Sang.* (1971), **21,** 451-454).

H. M. Dick, W. B. Crichton, M. A. Ferguson-Smith and M. M. Izatt.—Study of the HL-A and other polymorphic systems in a Scottish population. Proceedings of the Fifth International Histocompatibility Workshop Conference, Evian 1972. Munksgaard, Copenhagen. (In press).

M. M. Izatt.—The serum IgG allotype Gm (1) in Scotland (*Human Heredity* (1971), **21,** 628-633).

M. M. Izatt.—The Gm (1) and Gm (2) Factors in Scotland. Proceedings of the Society for the study of Human Biology. (*Human Biology*, in press).

J. H. Renwick, S. E. Bundey, M. A. Ferguson-Smith and M. M. Izatt.—Mohr's linkage hat trick confirmed: enables pre-natal diagnosis of myotonic dystrophy from secretor phenotype of fetus. (Abstr.) *Excerpta Medica* International Congress Series (1971), **233,** 150.

J. H. Renwick, S. E. Bundey, M. A. Ferguson-Smith and M. M. Izatt. Confirmation of Linkage of the loci for myotonic dystrophy and ABH secretion (*J. Med. Genet.* (1971), **8,** 407-416.

G. E. D. Urquhart, M. M. Izatt and R. W. Logan.—Cot death—an immune-complex disease? (*Lancet* (1972), **i,** 210.