

4PS-29-02

SURVIVAL AFTER BLOOD TRANSFUSION - A STUDY OF MORE THAN ONE MILLION TRANSFUSION RECIPIENTS

K. Titlestad¹, M. Ahlgren², H. Hjalgrim², K. Rostgaard Petersen², A. Shanwell³, G. Edgren⁴, E. Tynell⁵, R. Norda⁶

¹ *Department of Clinical Immunology, Odense C, Denmark*

² *Department of Epidemiology Research, Statens Serum Institut, Copenhagen, Denmark*

³ *Clin. Immunology & Transfusion Medicin, Karolinska University Hospital, Huddinge, Sweden*

⁴ *Dep Medical Epidemiology & Biostatistics, Karolinska Institutet, Stockholm, Sweden*

⁵ *Dept. Medicine, Infectious Diseases Unit, Karolinska University Hospital, Stockholm, Sweden*

⁶ *Clin. Immunology & Transfusion Medicine, Uppsala University Hospital, Uppsala, Sweden*

Background: The lack of information on long term survival of transfusion recipients is remarkable since such information is highly relevant both for the assessment of possible transfusion-transmitted diseases and for the implementation of new and often expensive screening techniques.

Aims: As part of a large Danish-Swedish register-based initiative to study long-term health patterns in blood donors and transfusion recipients, we assessed absolute and relative mortality after blood transfusion for up to 20 years in a population-based cohort of more than one million transfusion recipients in Denmark and Sweden.

Methods: Computerized registration of transfusions began in 1966 in Sweden and in 1981 in Denmark (coverage of respectively 90% and 100% was achieved in 1992 and 1996 in Sweden and 1997 and 2002 in Denmark). All this information have been collected and pooled into the Scandinavian Donation and Transfusion database (SCANDAT). Follow-up started on the day of the first registered allogenic transfusion after January 1, 1983 for Danish recipients and after January 1, 1968 for Swedish recipients and ended on the day of death, emigration or 31 December 2002 whichever came first. Due to the daily updated civil registration systems in both countries there has been virtually no loss to follow-up.

Results: Cumulative survival estimates after first registered transfusion: 84% of transfusion recipients were alive after three months, 74% after one year, 55% after five years, and 29% were still alive after 20 years. Age at first registered transfusion increased over time (median age was 62.2 years in 1980-84 and 72.1 years in 1995-1999); and was inversely correlated with cumulative survival (except recipients younger than ten years who had poorer cumulative survival than the age groups 10-19 and 20-39 years). The recipients' cumulative survival decreased over calendar period: for recipients transfused in 1980-84 the 1-year cumulative survival was 79%, but only 74% for recipients transfused 1995-1999. Correspondingly, the 5-year cumulative survival was 63% in 1980-84 compared to 52% in 1995-99. Relative mortality: The standardized mortality ratios were close to ten-fold during the first year following transfusion and levelled off after 5 years to approximately 1.4 and remained statistically significantly increased even 20 years after the first registered transfusion.

Summary/Conclusions: More than 50% of recipients survived their transfusion by five years and almost 30% survived their transfusion by 20 years. However, there was an increased mortality even 20 years after the first registered transfusion as compared to the general population. In conclusion our study of more than one million Danish and Swedish transfusion recipients in the period between 1968 and 2002 contributes new information on both short and long-term survival of transfusion recipients. Survival estimates more than ten years post transfusions have not been available previously. Our results are essential for improvement of the assessment of possible transfusion-transmitted disease as well as for cost-benefit estimation of new screening techniques. It underlines that comparison of post-transfusion survival between studies requires in-depth knowledge on the demography and the composition of the cohorts with respect to underlying morbidity and year of transfusion.