
Kidney transplantation past and present

EDITORIAL

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Norway's kidney transplant programme is of a high quality thanks to the close cooperation between Oslo University Hospital and the other Norwegian hospitals. The main challenge is the gap between the need for organs and organ availability.

The first human-to-human kidney transplant was performed in 1933 in Ukraine, but it was not until 1954 that the first successful kidney transplant was carried out. The operation was performed in Boston, led by Joseph Murray (1919–2012) [\(1\)](#). It was just two years later that Professor Leif Efskind (1904–87) at Rikshospitalet carried out Norway's first kidney transplant [\(2\)](#). In the period 1960–62, four more patients received a kidney transplant at Rikshospitalet, but they all died after 14–40 days due to sepsis or organ rejection. The first successful kidney transplant in Norway was performed at Ullevål Hospital in 1963 [\(2\)](#).

In this edition of the Journal of the Norwegian Medical Association, Sara Namek and her colleagues present the results for 118 kidney transplant patients at Ullevål Hospital in the period 1963–83 [\(3\)](#). They describe a pioneering era in Norwegian medical history, in which the groundwork was laid for the country's current high-quality and universally accessible kidney transplant programme.

Since 1983, all transplants in Norway have been performed at Rikshospitalet. The Norwegian model, with a single national transplant centre, ensures a broad knowledge base and uniform evaluation of patients before, during and after transplantation. However, all evaluations of patients and potential living donors take place at local hospitals. After transplantation, patients are followed up for six to eight weeks at Oslo University Hospital, before being transferred to their local hospital for lifelong follow-up. A nephrologist at Oslo University Hospital is contacted in the event of any transplant-related issues. This cooperation is founded on a dedication to the field and interdisciplinary communication.

For those of us who are currently involved in the transplant work, it is difficult to imagine how transplants could have been performed without advanced immunosuppressive drugs and knowledge of HLA typing. The introduction of ciclosporin as an immunosuppressive drug in 1983 led to significantly improved results, with an increase from approximately 50 % to over 70 % in one-year transplant survival. Several immunosuppressive drugs have subsequently been developed, and we have learned more about dose optimisation. Together with advances in surgery and immunology, this has led to the current one-year transplant survival rate of more than 95 % [\(4\)](#). In addition to prolonged survival, most patients also experience a better quality of life after transplantation than with dialysis.

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Organ transplant patients are thus living longer than they did before. This has created new challenges. Kidney transplant patients are at greater risk of morbidity and mortality due to cardiovascular disease, cancer and infectious diseases. At the start of the COVID-19 pandemic, it was reported that COVID-19-related mortality was significantly higher for kidney transplant recipients [\(5\)](#). The vaccine is also less effective in this group. Only 30 % achieve a protective antibody level after two doses, while after three doses the response rate increases to almost 50 % [\(6\)](#). The possibility of a fourth dose is now being explored in order to further improve the response. Due to the poor vaccine response, the mortality rate among fully vaccinated kidney transplant recipients with COVID-19 is unfortunately still high.

One of our biggest challenges today is the imbalance between the number of patients on the waiting list and the availability of organs. Historically in Norway we have had stable, short waiting lists. However, over the last decade, the number waiting for a kidney transplant has doubled from just under 200 in 2011 to just over 400 at the end of 2020. It is estimated that a recently adopted method of donation following cardiac and respiratory arrest could provide 20 - 30 extra kidneys per year [\(7\)](#). In addition, the Nordic organ exchange organisation ScandiTransplant has established an exchange programme for kidneys from living donors. Several successful transplants have been performed in Sweden and Denmark as a result of this programme. It is hoped that Norwegian patients will also be able to benefit from this in 2022.

One of the goals of the programme is kidney transplantation for everyone who may benefit from it. In Norway, we have accepted more comorbidity than most other transplant programmes, and we also have no upper age limit for transplantation – if you are healthy enough, you are young enough. However, dialysis and medication for patients with renal failure have also improved in recent years. Some patients, especially those with complex comorbidities, may have just as good results with lifelong dialysis as with kidney transplantation. Assessing which treatment is best for each patient is extremely challenging and requires robust and up-to-date knowledge of factors that can impact on the results.

Modern day transplant work is resource intensive, but is nevertheless very beneficial from a socioeconomic perspective as a transplant patient will incur much lower costs than a dialysis patient. Our Christmas wish is therefore to have sufficient resources to further develop the national transplant programme to ensure that Norway can continue to deliver world-class transplant results.

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