Work Reintegration after Lung Transplantation: A Complex and Multifaceted Topic

Arbeitsintegration nach Lungentransplantation:
ein komplexes, vielschichtiges Thema

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Blazsik et al. [1] report on work reintegration after lung transplantation, a topic that has been rarely researched so far. Possible reasons for the low level of research activity are the limited comparability between different countries due to different patient populations (underlying disease, age and previous professional training, etc.) and different framework conditions in the labor market [2]. In addition, insurance-related aspects can influence the return to work: In the United States, only working patients benefit from relevant premium reductions for private health insurance, with a part of the premium being paid by the employer. Good insurance coverage is necessary to finance post-transplant hospital costs [3, 4]. In general, age and level of education at the time of transplantation as well as the possibility of part-time employment are decisive factors for reintegration and show great differences between countries. In the study by White et al. the post-transplant age was significantly lower in working patients (29 years) than in unemployed patients (42 years) [4].

A Belgian study mentioned a median age of 56 years at transplantation. This is the age at which many Belgians can apply for early retirement [5]. Other studies also describe early retirement in lung transplant patients as a relevant option [6, 7].

Compared to heart, liver and kidney transplant patients, the level of education is on average lower in lung transplant recipients [5]. Blue-collar workers tend to have more difficulty re-entering the workforce than white-collar workers. However, the most important predictor of post-transplantation employment is pre-transplantation employment status within one year immediately prior to surgery [8, 9]. A limiting factor, however, is that the functional status is strongly limited due to physical factors (respiratory insufficiency) [7, 10]. While part-time positions are taken for granted in Switzerland, such positions are less available or not at all possible in other countries. This considerably limits work reintegration, especially for lung transplant patients.

Quality of life is another central issue. Unfortunately, quality of life changes after transplantation have generally only been investigated in cross-sectional studies. In this context, the question arises whether a better quality of life increases the chances of returning to work, or whether taking up work improves the quality of life. Due to the study design, the causality cannot be clearly clarified.

Pre- and post-transplant depression also affect the ability to work. However, post-transplantation work uptake has no clear influence on the incidence of depression and thus also no protective effect [8]. However, because depression can affect post-transplant work ability, detailed screening is indicated so that therapy can be started early.

The concerns of the patients should be taken into account. In the study by Cicutto et al. 36 % (42 patients) were worried about their disability pension, 27 % had problems making necessary adjustments at work, 18 % (n = 21) had too little flexibility regarding working hours or tasks, and 18 % (n = 21) were discriminated in the context of their job applications because of their medical history [11].

Blazsik et al. [1] describe various aspects that have an influence on taking up work. They name factors that should be taken into account and a few specifics that should be considered when counselling these patients.

Using the example of an driver on an excavator, they explain how complicated it is for a person from the construction industry to resume work. Although the example is very illustrative, it is exceptional that a lung transplant patient returns to this type of work place. This is because patients with lung diseases in general, and lung transplant recipients in particular, require ideal (pure) air conditions by default. After all, employees spend about a third of their day at work; if dust, fine particles and/or microorganisms are inhaled during this time, this is very unfavorable for the disease course of these patients. In other words, lung transplant candidates who have upfront a profession in which such exposures are highly likely to occur are advised to undergo appropriate retraining so that a new profession-

Table 1. General conditions

Special aspect	Justification	Reference
Part-time work as a rule	Medication measures are extensive, visits to the doctor are frequent and complications are quite frequent.	
Risk of infection relevant	Lifelong triple immunosuppression makes people highly susceptible to infection. The transplanted organ is in direct contact with the environment via inhaled air.	[12]
Muscular development limited	Despite extensive training, physical performance can generally not be increased to more than 2/3 of the maximum age-corrected predicted value.	[6, 7, 13]
Limited ability to concentrate	Due to medication (side effects)	[14]
Susceptible to environmental influences e.g. <ul style="list-style-type: none"> • sun exposure • dust • microorganisms 	Sunscreen, mask, etc.	[2]
Therapy measures	Therapy intensity and frequency vary, sometimes considerably. All patients have to take 15–20 drugs, but some of them have additional therapies such as infusions, additional inhalations, physiotherapy, hospitalisation, etc.	
Secondary psychiatric diagnoses	Depression, anxiety disorders, adaptation disorders are not uncommon in patients with end-stage lung disease, and some of them persist or relapse post-transplant (e.g. in chronic rejection). Reduced stress and frustration tolerance is frequently noted.	
Co-morbidities	Almost all secondary diagnoses are aggravated post-transplant under the influence of polymedication (e.g. osteoporosis, arteriosclerosis, renal insufficiency, eye diseases, etc.).	

al activity can be carried out in ideal air conditions. In such cases, it is often possible to obtain career advice from our social workers or from the office evaluating workplace impairments (invalidity). Under favorable conditions, this office supports the change of work activity by financing re-training.

The authors themselves write that activities in the building industry are generally not recommended [1]. Nevertheless, after a thorough evaluation, conditions were adapted in a way that this excavator operator could continue to work in his previous profession even after the transplantation. The implementation of the necessary measures in this case was exemplary and only possible thanks to the employer's willingness to cooperate.

The diagram by Blazsik et al. [1] on "Recommendations for working before and after lung transplantation" gives a list of the aspects that need to be taken into account in the corresponding phases.

A completely different approach could be: Starting from the transplant candidate's traditional profession, the question of post-transplant professional activity is already addressed and discussed in a pre-transplant stage. Transplant-specific topics are considered in the context of the professional activity and discussed with the patient. A slightly different list is applied:

The general conditions of a specific professional activity are first discussed in the context of the precautionary measures that lung transplant recipients must respect in their leisure and professional activities. Certain precautionary measures are comparable to those that must now be observed by the entire population in the context of the coronavirus pandemic [12]. The measures that are currently necessary (e.g. protection against infection by wearing

masks, avoiding crowds, etc.) will enhance the understanding among the general population for the adjustments that a lung transplant recipient must make in his/her life to prevent complications. Part-time work is one of the most important issues in this context, since even with a low-complication rate a maximal long-term workload of about 50 % can be generally achieved (Table 1). Only in exceptional cases are higher workloads realistic. Home office working is also an option that must be evaluated. Certain lung transplant patients who could otherwise not be integrated into the work process may be able to work only from home either because their ability to walk is limited or because frequent therapies are necessary (repeated inhalations etc.). When evaluating going back to work, the aspects mentioned in Table 1 must be systematically discussed in addition to the above-mentioned topics.

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