Sleep Quality in Peritoneal Dialysis Patients and Its Associated Economic Burden for Society

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INTRODUCTION

Employment rates among peritoneal dialysis (PD) patients tend to be **low**,[1] with **sleep disorders** being a **prevalent issue** within this population.[2]

Automated PD (APD) is a treatment that uses a machine to automatically perform fluid exchanges while the patient sleeps. Developing **a more silent operating** cycler could **potentially improve sleep quality** for PD patients by reducing nighttime disturbances.

OBJECTIVE

This research aims to analyze

1. the **potential economic burden** of **poor sleep quality in PD patients**, and
2. the **impact** of a **quieter APD cycler on sleep quality**.

METHOD

- To evaluate the current evidence, we systematically identified and analyzed published literature from 2010 onwards on the impact of sleep quality in PD Patients.
- The findings were categorized into main topics identified.
- We performed a targeted literature review to identify studies that specifically address the impact of a more silent APD cycler and the association with alarms on sleep quality.

RESULTS

In total, 19 studies were included.

Four primary categories of potential economic burden in PD Patients with poor sleeping quality were identified:

Increased direct healthcare spending
due to a higher consumption of medications,[3] and the association of poor sleep quality with worse residual kidney function[4] and cardiovascular events[5,6]

Reduced productivity
due to daytime fatigue and reduced cognitive function[2,7-11]

Decreased disease-specific quality of life
due to depressive symptoms and higher levels of anxiety[3,8,10,12-17]

Long-term socioeconomic impact
due to exacerbated chronic conditions (e.g., diabetes or cardiovascular diseases)[6,11,12,13,18]

An analysis from Chile, Ecuador and Turkey showed that the use of a **quieter APD cycler** could support PD treatment with **a low number of alarms and cautions**,[19] potentially leading to **fewer overnight disruptions.** Additionally, one small study reported an **increase in sleep duration** among users of the same quieter cycler.[20]

CONCLUSIONS

Poor sleep quality in PD patients **imposes considerable economic burdens** across various dimensions, emphasizing the **need for targeted interventions** to **improve sleep** and **reduce associated costs**.

Improving sleep quality with a **more silent operating cycler** could help by **reducing nighttime disruptions, potentially increasing sleep duration** and thereby **further alleviating these economic burdens.**

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