Digital Technology for Monitoring Adherence to Inhaled Therapies in People with Cystic Fibrosis

Individuals with cystic fibrosis (CF) now have a higher life expectancy due to advances in knowledge and treatment. However, adhering to complicated treatment programs, particularly those requiring inhaled medicines, remains difficult and has a substantial influence on health outcomes. In this scenario, digital technology integration has emerged as a potential alternative. Adherence to inhaled medicines may be properly monitored and recorded using methods such as chipped nebulizers, smartphone apps, and web platforms. This not only provides real-time insights about treatment adherence, but also allows healthcare providers to provide patients with prompt feedback and assistance.

The primary purpose of this study was to assess the influence of digital technologies on monitoring adherence to inhaled medications and overall health status in adults and children with cystic fibrosis. The researchers obtained important insights from numerous studies through a comprehensive evaluation of current literature.

The evaluation includes two trials with a total of 628 individuals ranging in age from five to 41 years. The research looked into many elements of digital technology adoption for CF management, including:

1)Target Inhalation Mode on a Nebulizer vs. Standard Inhalation Mode:

One researcher compared digitally improved inhalation modes for nebulized antibiotics (target inhalation mode) to standard modes in children attending a regional CF clinic in the United Kingdom.The results suggested that employing the target inhalation mode might enhance adherence, with a slight rise in adherence rates reported.This conclusion, however, was based on data with a low level of assurance.There was no significant influence on lung function (FEV1% predicted) or other outcomes such as treatment burden, QoL, or pulmonary exacerbations.

2)eNebulizer with Digital Support vs. eNebulizer without Support: Which is better?

A bigger, multicenter randomized controlled study (RCT) looked at the impact of a digital intervention that included data-tracking nebulizers and an online platform called CFHealthHub.The digital intervention group got personalized guidance, as well as access to adherence data, instructional materials, and problem-solving aid.This strategy

increased inhaled medication adherence, reduced treatment load, and perhaps improved lung function (FEV1% anticipated).There were no significant changes in the incidence of pulmonary exacerbations or QoL between the intervention and control groups.

In conclusion, the incorporation of digital technology, particularly when paired with personalized online assistance, appears to have a favorable influence on inhaled therapy adherence and the medium-term reduction of treatment burden for people with cystic fibrosis. While no significant changes in lung function or QoL were reported, these therapies have the potential to improve CF management. Future studies must investigate the impacts of digital technology on adherence across different age groups and analyze the larger influence on the whole treatment regimen. Overall, this study highlights the potential of digital tools to improve CF care and patient outcomes.