

Editorial



Home Mechanical Ventilation in Children from Intensive Care Unit to Home: What Is the Major Hurdle to Overcome in Korea?

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In this issue of *Journal of Korean Medical Science*, Park et al.¹ from Severance Children's Hospital described the present situation and future strategy for pediatric home mechanical ventilation (HMV) in Korea using databases of the National Health Insurance Service. There are several limitations because data from just one-year were analyzed at the year when the government had decided to cover HMV in the social insurance. The authors suggested in the article that resources for children with HMV are necessary to better understand and to provide better care for patients and their families.¹

As the number of survivors after intensive care increases with the advances of technology in critical care, several long-term managements are required, including respiratory supports such as ventilator care.^{2,3} It is well known that this specific population requires an extensive range of health care services including primary or preventative and rehabilitative care, but sometimes more specific and emergent or critical care services also are required, as the continuum of care.² Most of these patients tend to maintain their medical care at home rather than in a hospital, and this care usually goes on for a long period after hospital discharge.⁴ Technical improvements in the mechanical ventilator have made it possible to manage the patients with respiratory failure in the community and even at home.⁵

Home care with a mechanical ventilator was first applied to adult patients with congenital myopathy, but now it is not uncommon for Korean children to use mechanical ventilator at home.^{6,7} HMV is recognized as a safe option for selected children with chronic respiratory failure.⁸ However, HMV in children has important implications in several aspects such as economic problems and ethical issues. As financial burden of managements in the intensive care unit increases, early transfer to the unit with less intensive settings becomes more important. And family stimulation is essential for the neurocognitive development of a growing child, care in the ward with parents is better than that in the intensive care unit. As a result, currently health care services have been undergoing a versatile transformation in order to meet the diverse and high demands of these ventilator dependent children (VDC).⁹ First, community-based primary care for these patients has emerged since late 2010's in Korea. Additionally, care policy of those population has been shifting from the disease-oriented

issue to the patients- and family-centered care coordination issue, which is more important to provide high quality care for these patients.

However, in Korea, the community-based primary care physician lacks in the health care system of the country.¹⁰ And there is no provision of official medical home care services to assist the caregivers of these technology dependent children. Because of such environments, VDC have to rely on family-led care at home from the moment when they leave the hospital. Additionally, due to the absence of organized patient referral systems in the country, the tertiary-grade hospitals are responsible not only for the special managements related to the underlying diseases, but also for their routine in-home managements, suddenly aroused emergency care, and critical care for acute deterioration of the condition without comprehensive management program. Therefore, compared to other countries with well-established home care programs, this environment in Korea can have different consequences, such as additional burdens to the family or to the patient, even to the country. For examples, VDC living in the region far from the tertiary-grade hospital require frequent long-distance travels for only routine and subtle cares, which may cause considerable burdens and inefficiency on the caregivers. In addition, caregivers of VDC sometimes struggle alone with psychological burden related with the solving medical problems which occur during the home care.

From January 2019, the Korean government has launched a pilot project to provide home medical services served by the medical personnel composed with doctors, nurses, rehabilitation therapists and nutrition specialists to the technology dependent children including VDC, based on a survey of the grade of demands for the medical care at home. This project is expected to improve the overall quality of the home care and to reduce the caregiver's physical and emotional burden. But as reported by previous studies, despite the provision of variety services, children with several medical problems simultaneously have still unmet needs.^{11,12} Further studies are required to develop and modify the optimal management models adequate for the variety of demand according to morbidity of the patients and the current medical environment of the country.

REFERENCES

1. Park M, Jang H, Sol IS, Kim SY, Kim YS, Kim YH, et al. Pediatric home mechanical ventilation in Korea: the present situation and future strategy. *J Korean Med Sci* 2019;34(42):e268.
[CROSSREF](#)
2. Cohen E, Kuo DZ, Agrawal R, Berry JG, Bhagat SK, Simon TD, et al. Children with medical complexity: an emerging population for clinical and research initiatives. *Pediatrics* 2011;127(3):529-38.
[PUBMED](#) | [CROSSREF](#)
3. Spratling R. Defining technology dependence in children and adolescents. *West J Nurs Res* 2015;37(5):634-51.
[PUBMED](#) | [CROSSREF](#)
4. Wang KW, Barnard A. Caregivers' experiences at home with a ventilator-dependent child. *Qual Health Res* 2008;18(4):501-8.
[PUBMED](#) | [CROSSREF](#)
5. Simonds AK. Home ventilation. *Eur Respir J Suppl* 2003;47(47 suppl):38s-46s.
[PUBMED](#) | [CROSSREF](#)
6. Han YJ, Park JD, Lee B, Choi YH, Suh DI, Lim BC, et al. Home mechanical ventilation in childhood-onset hereditary neuromuscular diseases: 13 years' experience at a single center in Korea. *PLoS One* 2015;10(3):e0122346.
[PUBMED](#) | [CROSSREF](#)

7. Ahn YJ, Lee SH, Kim HB, Park SJ, Ko TS, Hong SJ. Clinical study of children using home mechanical ventilation. *Korean J Pediatr* 2005;48(4):401-5.
8. Lloyd-Owen SJ, Donaldson GC, Ambrosino N, Escarabill J, Farre R, Fauroux B, et al. Patterns of home mechanical ventilation use in Europe: results from the Eurovent survey. *Eur Respir J* 2005;25(6):1025-31.
[PUBMED](#) | [CROSSREF](#)
9. Pordes E, Gordon J, Sanders LM, Cohen E. Models of care delivery for children with medical complexity. *Pediatrics* 2018;141 Suppl 3:S212-23.
[PUBMED](#) | [CROSSREF](#)
10. Lee JY, Eun SJ, Ock M, Kim HJ, Lee HJ, Son WS, et al. General internists' perspectives regarding primary care and currently related issues in Korea. *J Korean Med Sci* 2015;30(5):523-32.
[PUBMED](#) | [CROSSREF](#)
11. Kuo DZ, Cohen E, Agrawal R, Berry JG, Casey PH. A national profile of caregiver challenges among more medically complex children with special health care needs. *Arch Pediatr Adolesc Med* 2011;165(11):1020-6.
[PUBMED](#) | [CROSSREF](#)
12. Hefner JL, Tsai WC. Ventilator-dependent children and the health services system. Unmet needs and coordination of care. *Ann Am Thorac Soc* 2013;10(5):482-9.
[PUBMED](#) | [CROSSREF](#)