

PP-18

한국 수부 이식의 비용 부담과 경제적 영향: 단일기관 경험

(Financial Challenges and Economic Implications of Hand Transplantation in South Korea: A Single-Center Experience)



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Purpose:

To evaluate the financial costs associated with hand transplantation in South Korea and assess the patient financial burden within the national health insurance system.

Methods:

A retrospective review was conducted of patients who underwent hand transplantation at a single institution between 2021 and 2023. Demographic, operative, and postoperative data were collected from medical records. Medical expenses were analyzed across multiple categories, including surgical costs, hospitalization, outpatient follow-up, immunosuppressive therapy, and rehabilitation. The proportion of out-of-pocket (OOP) payment relative to total medical expenditure was also evaluated to determine the financial burden on patients. Postoperative follow-up ranged from two to four years.

Results:

Three patients underwent unilateral hand transplantation for traumatic distal forearm amputation. The mean surgical cost was ₩15.47 million (\$10,931), with patients paying an average of 19.7% out-of-pocket. The mean total medical cost, including hospitalization, postoperative care, rehabilitation, and immunosuppressive therapy, was ₩50.08 million (\$35,389), with an average OOP burden of 34.1%. Immunosuppressive therapy costs were highest during the first postoperative year (mean ₩10.20 million) and gradually decreased over time.

Rehabilitation during the first postoperative year cost an average of ₩10.10 million.

Conclusion:

Hand transplantation in South Korea demonstrates relatively lower surgical and postoperative costs compared with previously reported data from other countries, largely due to the national health insurance system. Although lifelong immunosuppressive therapy and rehabilitation contribute substantially to long-term costs, structured insurance coverage reduces the patient financial burden. Continued policy support and further economic evaluation are necessary to ensure the sustainable development of hand transplantation programs in Korea.

Table 1. Hand Transplantation and Total Medical Costs (KRW and USD)

	Patient 1	Patient 2	Patient 3	Mean ± SD
Hand Transplantation Surgery (KRW)	14.48M	18.81M	13.11M	15.47 ± 2.98 M
Total Medical Cost (KRW)	53.24M	54.33M	42.65M	50.07 ± 6.45 M
Hand Transplantation Surgery (USD)	\$10,230	\$13,297	\$9,267	\$10,931 ± 2,105
Total Medical Cost (USD)	\$37,629	\$38,399	\$30,141	\$35,389 ± 4,562

SD: standard deviation, KRW: Korean Republic Won, USD: United States Dollar, M: million, ₩1,415 = \$ 1 USD

Table 2. Out-of-pocket (OOP) payments of Hand Transplantation Surgery

Patient	Hand Transplantation Surgery		OOP Payments		OOP Proportion
	USD	KRW	USD	KRW	
P1	\$10,230	14.48M	\$1,559	2.21M	15.2%
P2	\$13,297	18.81M	\$2,994	4.24M	22.5%
P3	\$9,267	13.11M	\$1,971	2.79M	21.3%
Mean ± SD	\$10,931 ± 2,105	15.47 ± 2.98M	\$2,175 ± 739	3.08 ± 1.04M	19.7 ± 3.9%

SD: standard deviation, KRW: Korean Republic Won, USD: United States Dollar, M: million, exchange rate ₩1,415 = \$ 1 USD

Table 3. Out-of-pocket (OOP) payments of the Total Medical Cost

Patient	Total Medical Cost		OOP Payments		OOP Proportion
	USD	KRW	USD	KRW	
P1	\$37,629	53.24M	\$15,623	22.11M	41.5%
P2	\$38,399	54.33M	\$11,570	16.37M	30.1%
P3	\$30,141	42.65M	\$9,288	13.14M	30.8%
Mean ± SD	\$35,389 ± 4,562	50.07 ± 6.45M	\$12,160 ± 3,208	17.21 ± 4.54M	34.1 ± 6.4%

SD: standard deviation, KRW: Korean Republic Won, USD: United States Dollar, M: million, exchange rate ₩1,415 = \$ 1 USD

Table 4. Annual Cost of Immunosuppressive Therapy Following Hand Transplantation

Patient	1st year	2nd year	3rd year	4th year	Total
P1	₩10,455,819 (\$7,389)	₩5,519,896 (\$3,900)	₩5,474,303 (\$3,868)	₩4,797,254 (\$3,390)	₩26,247,272 (\$18,549)
P2	₩11,370,930 (\$8,035)	₩7,648,711 (\$5,405)	₩6,167,517 (\$4,358)	—	₩25,187,158 (\$17,800)
P3	₩8,777,678 (\$6,203)	₩7,958,004 (\$5,624)	—	—	₩16,735,682 (\$11,827)
Mean ± SD	₩10,201,476 ± 1,073,858 (\$7,209 ± 758.91)	₩7,042,204 ± 1,083,815 (\$4,976 ± 765.95)	₩5,820,910 ± 346,607 (\$4,113 ± 244.95)	—	—

SD: standard deviation, KRW: Korean Republic Won, USD: United States Dollar, M: million, exchange rate ₩1,415 = \$ 1 USD