

Cost Analysis of Vaginal and Cesarean Section Deliveries: A Training and Research Hospital Experience

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ABSTRACT

Objective

The rate of cesarean deliveries in Turkey remains above the limits recommended by the World Health Organization and stands out as high compared to developed countries. While cesarean delivery is necessary in cases where vaginal delivery poses risks, medically unnecessary cesareans increase maternal and neonatal morbidity and mortality, complications in subsequent pregnancies, and healthcare costs. This study aims to compare and evaluate the direct hospital costs of vaginal and cesarean deliveries from the hospital perspective.

Materials-Methods

This retrospective cost analysis included singleton births at ≥ 37 weeks among women aged 18–42 years, delivered between January 1, 2018, and April 30, 2022, in the obstetrics and gynecology clinic of a training and research hospital. Multiple and adolescent pregnancies were excluded. Data were obtained from electronic hospital records, including demographic characteristics, delivery mode, length of stay, and cost components (anesthesia, services, drugs, laboratory, pathology, consumables, imaging/tests, and bed charges). Since delivery services in Turkey are reimbursed by the Social Security Institution (SGK) through package payments that do not reflect actual resource utilization, costs were calculated from the hospital perspective, considering only direct costs. Indirect costs were excluded. Additional costs and length of stay attributable to delivery mode were calculated using a time-fixed approach, with crude comparisons based on differences in median values

between vaginal and cesarean groups. Statistical analyses were performed using SPSS 25.0; Chi-square and Mann Whitney U tests were used for group comparisons, Spearman test for correlations, and linear regression for factors influencing total costs. Deliveries were also evaluated according to pre- and post-pandemic periods. Ethical approval was obtained from the Clinical Research Ethics Committee of Dr. Sami Ulus Child Health and Diseases Training and Research Hospital (01.06.2022; 2020-KAEK-141/353). The authors declare no conflicts of interest.

Results

A total of 6,771 deliveries were evaluated, of which 47.4% (n=3211) were vaginal and 52.6% (n=3559) were cesarean deliveries. Among cesareans, 47.8% (n=1703) were primary and 52.2% (n=1857) secondary. The most common indications for cesarean were previous uterine surgery (49.2%, n=1750), fetal distress (12.5%, n=446), and prolonged labor (7.1%, n=253). The cesarean rate increased from 50.3% before the pandemic to 55.0% after. The mean cost of vaginal delivery was 406.37 TL (median 321.81 TL), while cesarean delivery cost 775.53 TL (median 676.82 TL), yielding an additional cost of 355 TL for cesarean. The median length of stay was 1.46 days for vaginal and 2.25 days for cesarean deliveries, with an additional stay of 0.8 days. Clinically, at least two nights of hospitalization are recommended after cesarean and at least one after vaginal delivery, consistent with the findings. Cesarean costs were higher than vaginal in all subcomponents except laboratory tests ($p<0.001$). Regression analysis showed that cesarean delivery increased costs by 283.7 TL, post-pandemic deliveries by 134.3 TL, and each additional day of hospitalization added 94.9 TL to the total cost.

Conclusion

Cesarean deliveries are significantly more costly than vaginal deliveries. A first delivery by cesarean increases the likelihood of cesarean in subsequent pregnancies, amplifying long-term costs. Promoting vaginal delivery and reducing unnecessary cesareans are crucial for cost-effectiveness in healthcare policies.

Keywords

delivery cost, cost analysis, cesarean section, vaginal delivery, hospital costs

Presentation Language

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