A Cost-Evaluation Study on the Use of Negative Pressure Wound Therapy with Instillation for Salvage of Infected Implant-Based Breast Reconstructions

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Abstract: Background: Implant loss due to infection is the most devastating complication of implant-based breast reconstruction. The use of negative pressure wound therapy with instillation (NPWTi) for salvage of infected implant-based breast reconstructions has shown promising results to allow early reinsertion of a new implant as an alternative to current management of delayed reinsertion. This study compares the cost implication of NPWTi against current management of delayed reinsertion of infected breast implants. Methods: 20 cases of an infected breast implant treated with NPWTi (V.A.C. VERAFLÓ™ Therapy) followed by early re-insertion of a new implant were compared with 20 cases who had delayed reinsertion (non-NPWTi). Average cost per person was calculated using total operative expenses, cost of inpatient stay, cost of investigations, cost of antibiotics, and cost of outpatient visits. Results: Treatment with NPWTi allowed for earlier re-insertion of a new implant (NPWTi: 9.04 ± 2.92 days vs. non-NPWTi: 236.25 ± 123.89 days). The average cost per patient for NPWTi and non-NPWTi was £14,343.13 ± £2,786.70 and £8,920.31 ± £3,005.73 respectively. All patients treated with NPWTi had one admission and spent 11.9 ± 4.1 days as an inpatient while non-NPWTi patients had 2.1 ± 0.3 admissions with total length of inpatient stay of 7.1 ± 5.8 days. Patients treated with NPWTi had more surgeries (NPWTi: 3.35 ± 0.81 vs. non-NPWTi: 2.2 ± 0.41), however 3 non-NPWTi cases required flap reconstruction. Patients treated with NPWTi had fewer total outpatient visits (NPWTi: 12 ± 6 vs. non-NPWTi: 14.2 ± 6.3). Conclusion: Patients treated with NPWTi incurred higher average cost per patient, longer inpatient stay, and more procedures; however, had early re-insertion of new implants and fewer admissions and outpatient visits. A further study on patient-reported outcome is essential to compare cost against patient benefit.

Keywords: breast reconstruction, cost evaluation, infection, negative pressure wound therapy

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