

Negative pressure wound therapy for at risk surgical closures: A prospective randomized controlled clinical trial.

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Background:

Recently the use of negative pressure wound therapy (NPWT) on surgical incisions has emerged as an option to assist healing following surgical closure. We performed the largest prospective randomized controlled clinical trial comparing NPWT to dry dressings on surgical incisions.

Methods:

Patients undergoing primary wound closure at a busy referral center were randomized to either NPWT or a dry occlusive dressing over their incision at the end of surgery. All dressings were removed at post-op day 3 and evaluated routinely in clinic. Endpoints included post-op infection, wound dehiscence and reoperation. Multivariate regression and Kaplan-Meier analyses were performed

Results:

43 patients were randomized to receive dry dressings, and 50 to receive NPWT (n=93). Average follow up was 123 days. The majority of closures occurred in the lower leg (54%), followed by the foot (18%), thigh (17%), and trunk (11%). There was no statistically significant difference in rate of infection, 6.8% for NPWT and 13.5% for dry dressing, or time to developing infection between the groups. Foot wounds became infected earliest (17 days), followed by leg (29 days), and trunk wounds (65 days); this was statistically significant ($p=0.01$).

There was no statistically significant difference in the incidence of dehiscence (36.4% vs. 29.7%; $p=0.54$) or mean time to dehiscence (33 days vs. 60 days; $p=0.45$) between the NPWT and dry dressing groups. Foot wounds dehisced earliest (22 days), followed by leg (33 days), and trunk wounds (66 days); this was statistically significant ($p<0.0001$).

There was no difference in the rate of reoperation between the groups (21% NPWT vs. 22% dry dressing).

Conclusions:

There does not seem to be any benefit to negative pressure wound therapy with regard to infection or dehiscence when applied to these surgical incisions post-operatively. Post operative wound infection and dehiscence occurs earlier with more distally located wounds.

References:

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