COSTS ASSOCIATED WITH SUBCUTANEOUS PERIPHERAL NERVE STIMULATION: DATA FROM THE SUBQSTIM RCT

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Background and aims

The SubQStim study reported subcutaneous nerve stimulation (SQS) plus optimized medical management (OMM) was more effective in reducing back pain than OMM alone in patients with failed back surgery syndrome.¹ Here we present estimates of healthcare resource use (HCU) and costs within the study.

Methods

Ethics committee approval was obtained for each site. Using data collected within-trial, we present descriptive analysis across categories of HCU (pain medication, hospital costs, healthcare visits), as well as device implantation, system modifications, and device deficiencies/adverse events. Combining HCU data with published UK cost data (NHS Payment by Results tariffs², British National Formulary³) and device kit prices, we estimated baseline costs (3-months pre-baseline) and over 9-months follow-up for the OMM (N=60) and SQS+OMM (N=56) treatment arms.

A UK payer perspective was adopted, and all results are presented as the mean cost per patient in each treatment group. An intention-to-treat approach was taken for the analysis; however, to ensure that the cost results reflected the full follow-up period, the analyses of pain medication and health care visits were restricted to patients with complete follow-up data (OMM, N=36; SQS+OMM, N=38).

Results

Fewer health care visits

SQS+OMM subjects utilized fewer health care visits (covering primary care, inpatient care, non-surgical back pain care and other visits) over the 9-month period than OMM group, with mean per-patient costs of £1,082 and £1,238, respectively (Table 1).

Table 1: Breakdown of health care visit costs by treatment group; mean (SD)

Cost category	OMM (£) (n=36)	SQS+OMM (£) (n=38)
Primary care	146.03 (302.01)	104.88 (269.49)
Inpatient care	0.00 (0.00)	210.53 (1,297.77)
Non-surgical back pain care	346.93 (539.13)	103.42 (218.82)
Other*	745.03 (1,651.28)	663.11 (1,757.98)
Total	1,237.99 (2,019.36)	1,081.94 (2,245.61)

* Other healthcare visits *not necessarily related* to back pain including day hospital <24 hr, outpatient visits, AE department, other free text (e.g., GP visits, dentist, rehabilitation not categorized under back pain treatment)

Reduced pain medication costs

Monthly pain medication costs reduced in the SQS+OMM group (£17.74 pre-baseline to £16.67 during the study) and increased in the OMM group (from £23.08 to £25.60). Overall mean pain medication costs during the study period were £150.07 (SQS+OMM) and £230.43 (OMM). The majority of these costs were attributable to opioid use.

Other Cost Categories

Device and implantation costs were assigned according to the specific device and equipment implanted in each patient in the study (including test phase costs). Adverse events related to the device, procedure or to pain medication were included in the cost analysis, together with any device system modifications and deficiencies.

Cost Summary

Overall cost per patient over the 9-month study period was £1,613 in the OMM group and £18,403 in the SQS+OMM group, with 89% of the total cost of SQS+OMM group being driven by the device and procedural costs. In the OMM group, health care visits comprised 80% of the total cost. Table 2 shows a breakdown of the mean cost per patient in each group.

Table 2: Overall cost breakdown by treatment group; mean (SD)

Cost category	OMM (£) (n=60)	SQS+OMM (£) (n=52)
Device & implantation	0 (0)	16,291.87 (5,462.68)
System modifications	0 (0)	139.21 (736.41)
Device deficiencies	0 (0)	111.84 (487.40)
Adverse events	144.08 (584.96)	628.30 (1,600.01)
Pain medication	230.43 (393.40)	150.07 (225.17)
Health care visits	1,237.99 (2,019.36)	1,081.94 (2,245.61)
Total (SD)	1,613 (1,693)	18,403 (6,290)

Discussion & Conclusion

Compared to OMM alone, adding SQS may lead to reductions in HCU and medication costs, but does not offset the up-front device and implantation costs within a 9-month timeframe.

Further analyses are needed to assess the longer-term economic impact of SQS therapy relative to the initial device costs.

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¹ Eldabe SS et al. *Neuromodulation* 2018; E-pub ahead of print. DOI:10.1111/ner.12784.
² NHS Payment by Results Tariffs, 2017-18.
³ British National Formulary, No. 75. 2018.