

COST-EFFECTIVENESS ANALYSIS OF SACRAL NERVE STIMULATION (SNS) WITH INTERSTIM™ FOR FECAL INCONTINENCE PATIENTS IN THE NETHERLANDS

Hypothesis / aims of study

Fecal incontinence is a condition with a high impact on the psychological and social life of healthy people. Sacral nerve stimulation (SNS), Interstim™ therapy, has shown higher effectiveness and safety rates than surgical procedures like dynamic graciloplasty or artificial anal sphincter in patients with intact anal sphincter (IAS) and in patients after sphincteroplasty with structural deficient anal sphincter (SDAS).

The objective is to assess cost-effectiveness of SNS in the treatment of fecal incontinence in the Dutch setting.

Study design, materials and methods

Decision analytical models were developed (one for IAS and one for SDAS patients) representing the treatment strategies with and without SNS, as well as its clinical and economical consequences in the mid-long term. The treatment strategies are presented in Figure 1 i.e. fecal incontinence management strategy without SNS (without box sacral nerve stimulation) compared to fecal incontinence management strategy with SNS (with box sacral nerve stimulation).

Effectiveness of the two different surgical treatments is assessed 6 months after the intervention. Non-responders at each stage of the model are offered a new intervention.

Treatment related success rates (see Table 1) were taken from (1) and (2), utility values (see Table 2) were based on (3), resource use data were based on expert opinion and cost data were drawn from the Dutch costing manual.

Table 1 Treatment related success rates

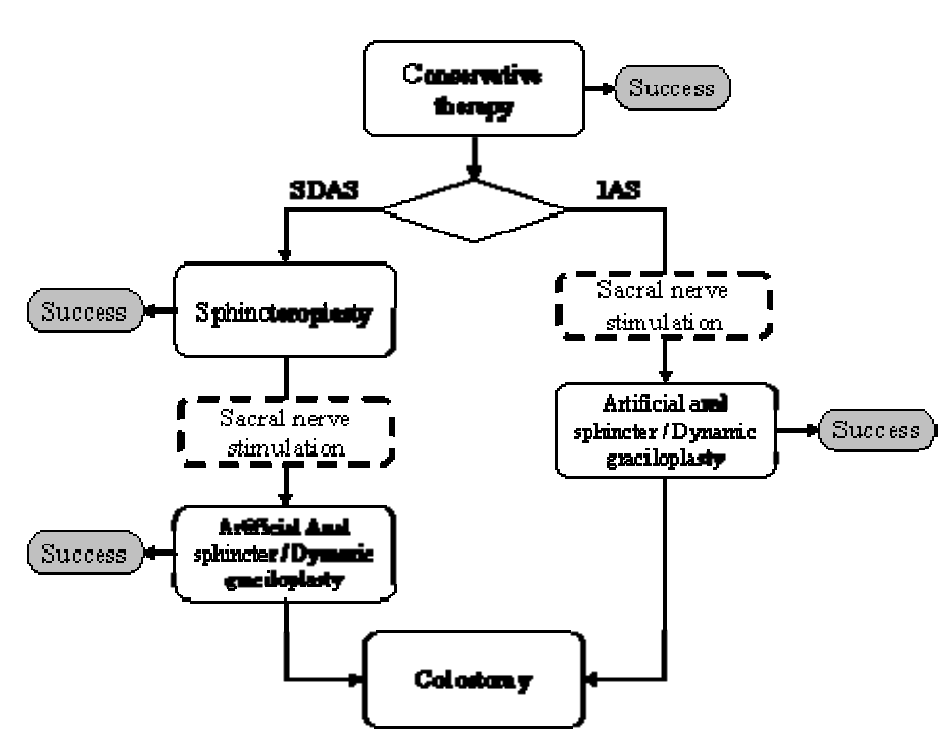
	SDAS patient	IAS patient	Ref
% initial success of sphincteroplasty	66% (52%-83%)	66% (52%-83%)	(1)
% initial success of dynamic graciloplasty	65% (55%-78%)	65% (55%-78%)	(1)
% initial success of artificial sphincter	53% (47%-75%)	53% (47%-75%)	(1)
% 5-year success for initial responders	70%	70%	(1)
% of viable SNS implants	55% (27%-100%)	55% (27%-100%)	(2)
% initial success of SNS for successfully piloted implants	75% (47%-100%)	75% (47%-100%)	(2)

Table 2 Utility values

	SDAS patient	IAS patient	Ref
Utility value no fecal incontinence	0,74	0,74	(3)
Disutility associated with fecal incontinence	0.55	0.55	(3)

Effectiveness was measured with quality adjusted life years (QALY) and symptom free years (SFY). A 3% discount rate was used for future costs and of 1.5% for future benefits (time horizon = 5 years).

Figure 1 Fecal incontinence treatment strategies



Results

The results of the cost-effectiveness analysis show that the strategy with SNS provides an additional effectiveness of 0.33 and 0.36 SFY per patient in a 5-year period, with an additional cost of €1,201 for SDAS and €630 for IAS patients, respectively. Corresponding cost-effectiveness ratios were €3,600 per SFY for SDAS and €1,750 per SFY for IAS patients, respectively.

The corresponding gains in terms of QALYs were 0.06 and 0.07, with cost-effectiveness ratios of €19,000 per QALY for SDAS and €9,000 per QALY for IAS patients, respectively.

Probabilistic sensitivity analysis showed the robustness of these results and suggested better results if a longer time-frame is used and known trends of response rates of SNS are confirmed in the future.

Interpretation of results

We showed that a fecal incontinence treatment strategy with SNS has an associated cost-effectiveness ratio of €9,000 per QALY for IAS patients and €19,000 per QALY for SDAS patients compared to a strategy without SNS. SNS in the management of FI in IAS and SDAS patients in the Dutch setting has shown to be an efficient measure with an incremental cost-effectiveness ratio below the accepted threshold in the Netherlands (around €20,000/QALY).

Concluding message

Use of SNS therapy in the management of FI in the Netherlands will improve patients' outcomes at a reasonable cost.

References

- (1) Gastroenterology 2004; 126:S48-S54.
- (2) Br.J.Surg. 2004; 91:1559-1569.
- (3) Med.Decis.Making 2001; 21:288-294.

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