ORIGINAL CONTRIBUTION

Rhinology, 47, 48-50, 2009

The impact of endonasal dacryocystorhinostomy (DCR), on patient health status as assessed by the Glasgow benefit inventory*

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SUMMARY

Objective: *To measure the effect of Endonasal DCR on the health status of patients, using a validated outcomes measure, the Glasgow Benefit Inventory.*

Method: *Postal questionnaire with telephone follow up of patients undergoing Endonasal DCR in two institutions in Scotland. The same surgical technique is used in both centres. Patients were identified from prospectively collected data on consecutive patients undergoing this procedure. All adult patients, a minimum of twelve months post-intervention, were included.*

Results: *Ninety two of 123 patients (75%) completed the questionnaire, the mean age was 59 years and the sex ratio m:f was 1:1.8. The mean overall GBI for this intervention was + 32.7 (95% confidence intervals 27.8 – 37.6). The patients were grouped according to the indication for intervention: Obstruction of lacrimal system GBI + 32.7 (26.3-37.1), mucoecele + 40.1 (28.7-51.4), dacryocystitis + 19.4 (10.0-28.9).*

Conclusion: *The GBI provides a measure of the effect of an ORL intervention on the health of a patient. Endonasal DCR scores highly when compared with a number of other rhinological procedures including rhinoplasty (GBI + 20), endoscopic sinus surgery (GBI + 23), and septal surgery (mean ranges from + 6 to + 24). Endonasal DCR is a successful intervention with demonstrable health benefits to the patient.*

Key words: Endonasal Dacryocystorhinostomy (DCR), benefit, outcome

INTRODUCTION

Dacryocystorhinostomy (DCR) is a widely accepted treatment for epiphora; the endonasal technique has become popular over the past decade and results are comparable with the traditional external procedure [(1,2)]. In an increasingly patient-centred health service and with the strong emphasis on results it is important for all surgeons to provide evidence of the benefit of their interventions. The Glasgow Benefit Inventory is a validated post-interventional questionnaire, which has been applied for many otorhinolaryngological procedures. Its aim is to assess the effects of an intervention on the health status of an individual [(3)]. Scores range from -100 (maximal harm) to +100 (maximal benefit) with 0 representing no change. We present the health outcomes of patients undergoing non-laser endonasal DCR in two institutions over a two-year period.

METHODS

Postal questionnaire with telephone follow up of patients who had undergone Endonasal DCR a minimum of twelve months prior to the study date. The surgical technique used is the same for both senior authors: A superiorly based nasal mucosal flap is elevated over the agger and reflected superiorly at the level of the axilla of the middle turbinate to expose the lacrimal crest of the maxilla. This is removed with a Hajek punch to widely expose the lacrimal sac. The sac is incised anteriorly and a flap reflected posteriorly to achieve a patent rhinostomy. The opened sac is then temporarily cannulated with O'Donohue lacrimal tubes. Data for all patients undergoing DCR was collected prospectively in Ninewells Hospital, Dundee & Raigmore Hospital, Inverness, Scotland. All patients who had achieved greater than 12 months follow up since surgery were included in this study. The GBI questionnaire and covering letter were sent out by post with telephone follow up for unreturned data sheets.

RESULTS

In total, 123 patients were identified, 92 questionnaires were completed either by postal return (n=82) or follow telephone interview (n=10), (response rate of 75%). The mean age was 59 years and the female to male ratio was 1.8 : 1. Seventy five

*Received for publication: March 7, 2008; accepted: August 4, 2008

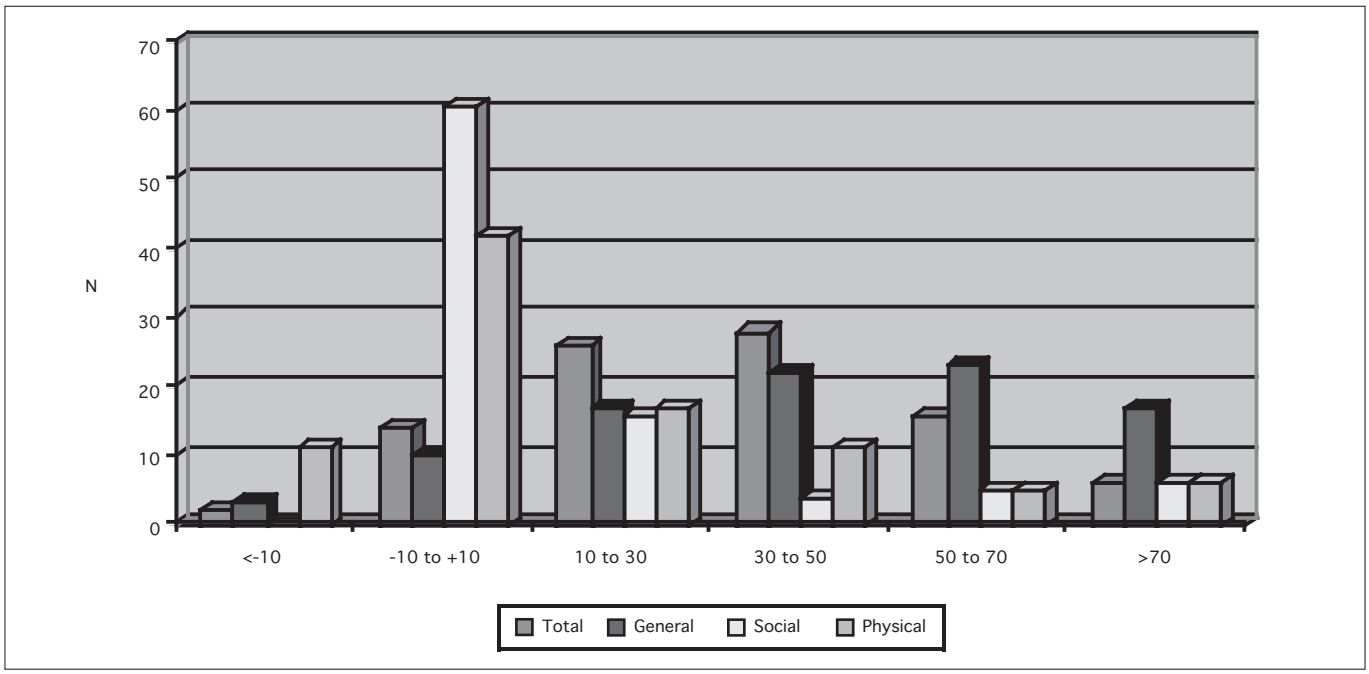

Figure 1. Breakdown of GBI scores by subsets.

respondents underwent the procedure in Dundee and 17 in Inverness. The mean GBI score for all respondents was +32.7 (95% confidence intervals 27.8 – 37.6), with a range of –13.9 to +100. Endonasal DCR was associated with a definite improvement in general well being, the impact on social and physical health status was less marked; the mean score breakdown by subsets is shown in Table 1 and the complete data scores are presented graphically in Figure 1. Scores were similar for patients in both institutions (Table 2).

Table 1. GBI scores for all patients.

	Score	95% confidence intervals
Total GBI score	32.7	27.8 - 37.6
General subset	44.2	38.5 - 49.9
Social subset	14.0	8.4 - 19.5
Physical subset	12.9	6.9 - 18.9

Table 2. Breakdown of scores by institution.

	Dundee mean scores (95% confidence intervals)	Inverness mean scores (95% confidence intervals)
Total GBI score	32.6 (26.8 – 38.4)	33.0 (25.7 – 40.33)
General subset	43.7 (37.1 – 50.2)	46.3 (34.3 – 58.4)
Social subset	14.7 (8.1 – 21.2)	10.8 (2.4 – 19.2)
Physical subset	12.6 (5.4 – 19.9)	13.7 (7.3 – 19.1)

Table 3. Breakdown of scores by indication for surgery.

	Number	Mean score	95% confidence intervals
Obstruction of lacrimal system	59	31.9	25.4 – 38.4
mucoecele	19	40.1	28.7 – 51.4
Dacrocystitis	5	19.4	10.0 – 28.9

The patients were grouped according to the indication for intervention: Obstruction of lacrimal system GBI +32.7 (26.3-37.1), mucoecele +40.1 (28.7-51.4), dacryocystitis +19.4 (10.0-28.9).

When scores were broken down depending on the indication for surgery, we found patients with mucoeceles reported the greatest improvement; this is demonstrated in table 3. (The indication was not recorded in eight cases, and have not been included here). There were 16 revision cases, from previous external or endonasal DCR, the mean GBI score for this group was +49.5 (35.3 – 63.7).

DISCUSSION

Endonasal DCR has been shown to have a significant positive impact on the general wellbeing of an individual. Three respondents returned negative scores suggesting a detrimental

Table 4. Comparison of mean GBI scores for other rhinological procedures.

Procedure	GBI score	Reference
Non-laser endonasal DCR	+34 if successful –19 if unsuccessful	Ho 2006 [4]
Septoplasty (for obstruction)	+23.8 if successful +6.3 if unsuccessful	Konstanidis 2005 [5]
Rhinoplasty	+20.0	Draper 2007 [6]
Rhinoplasty	+27.7 for functional improvement +52.7 for cosmetic rhinoplasty	McKiernan 2001 [7]
FESS	+23 for all patients (+30 for polyp patients)	Mehanna 2002 [8]

effect on overall health. We have not correlated the scores with objective findings of success or failure of surgery; this will be presented in a future publication. The GBI scores for Endonasal DCR can be compared with other rhinological procedures, such as Functional Endoscopic Sinus Surgery, Rhinoplasty and Septoplasty. The score of +32.7 compares favourably with all of these procedures, which have been detailed in table 4. The only previous assessment of the benefit of DCR demonstrated scores of +34 for successful surgery and –19 if unsuccessful [4]. The GBI scores therefore appear to be reproducible across patient populations.

CONCLUSION

Endonasal dacryocystorhinostomy has been shown to have a significant positive health impact. This is helpful when counselling patients who are considering such surgery and confirms the endoscopic technique is an acceptable alternative to the external approach.

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