89

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NON-CONTINENT URINARY DIVERSION (ILEAL CONDUIT) AS A SALVAGE THERAPY IN PATIENTS WITH REFRACTORY LOWER URINARY TRACT DYSFUNCTIONS DUE TO MULTIPLE SCLEROSIS: PRELIMINARY RESULTS OF A NATIONAL COHORT STUDY

Hypothesis / aims of study

Multiple sclerosis (MS) is the most common cause of acquired neurological disability in young adults in Europe, with a prevalence of 83 cases per 100,000 people. In MS, lower urinary tract dysfunctions (LUTDs) and symptoms (LUTSs) are frequent (reported by >75% of patients after 10 years of disease progression) affecting both storage and voiding phases. In these patients, LUTDs have a strong impact on quality of life (QOL) and can be responsible for urinary complications including urinary tract infections (UTIs) and kidney damages (1). When 1st and 2nd line conservative urological treatments fail or are impossible due to MS progression, indwelling catheter is a palliative 3rd line solution associated with poor comfort and high risk of complications including UTIs, urethral fistulas, bladder stones or tumors and kidney damages (1). In selected cases non-continent urinary diversion (ileal conduit) has been proposed as an alternative to indwelling catheter to improve patients' QOL and to reduce complication rates (2,3). The aim of this study was to describe the outcomes of ileal conduit as a salvage therapy for refractory LUTDs due to MS in a national neuro-urology referral center network.

Study design, materials and methods

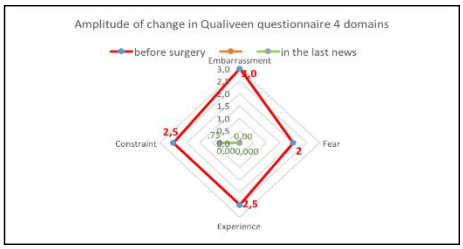
All 13 centers represented in a network of national referral centers were asked to search their databases to identify MS patients who had a non-continent urinary diversion with or without cystectomy for refractory LUTDs between January 2010 and December 2015 and with a follow-up>6 months. They were asked to update the follow-up of each identified patient (telephone or consultation), before sending an anonymous set of data for each case. Preoperative data included: date of MS diagnosis, EDSS score, voiding modality, GFR, upper urinary tract (UUT) anatomy, number of hospitalizations for UTIs. An assessment of the pre-operative QOL by the validated Qualiveen™ short-form questionnaire (QSF) was searched. In the absence of preoperative QSF, centers were asked to interview patient or family at the updating visit. The use of preoperative or a posteriori QSF was distinguished in the analysis. Indication for surgery, surgical approach and concomitant cystectomy and early complications (<30 days) graded with Clavien-Dindo system were reported. At last follow-up, survival, GFR, UUT anatomy, postoperative QSF as well as a patient global impression of improvement (PGI-I) on urinary problems and on everyday-life easiness were collected. Quantitative data were described using average and standard deviations (SD) or median and interquartile range (IQR). Qualitative data were described using count and percent. Normality of data distribution was assessed with Shapiro-Wilk test. To compare quantitative data before surgery to last follow-up a paired-student t test (normal distribution) or non-parametric paired Wilcoxon test (non normal distribution) were performed with IBM SPSS statistics v. 20 software.

Results

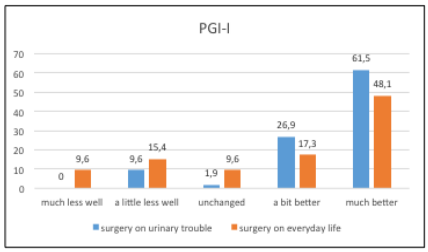
Overall, 10 out of 13 centers identified 211 patients (77.3% females) of mean age 54 y.o. (+/- 10 SD) at surgery. Mean MS progression at the time of surgery was 20.9 years (+/-9.8 SD). Mean and median pre-op. EDSS score were 7.3 (+/-1 SD) and 7.5 (IQR 7-8) respectively. Before surgery, bladder-emptying modalities were: urethral indwelling catheter (33.2%), third-party intermittent catheterization (IC) (15.2%), spontaneous voiding (12.8%), intermittent self-catheterization (ISC) (10.9%) and suprapubic catheter (3.3%), (unknown 24.6%). 36.5% of patients had none hospitalization for symptomatic UTIs before surgery, 21.3% had 1 or 2; 7.1% had 3 to 5 (unknown 35.1%). Mean pre op. GFR was 102.6 ml/min (+/- 33.9 SD). 6.5% of patients had GFR <60ml/min; 2.2%<40ml/min. UUT anatomy was normal in 70.1% of patients; unilateral kidney dilation was reported in 4.3%, bilateral kidney dilation in 7.1% (18.5% unknown). Indications for urinary diversion were: progression of MS with inability to perform ISC (64.5%); failure of conservative treatments but ISC still possible (6.6%); poorly-tolerated indwelling catheter (6.2%); symptomatic recurrent UTIs without indwelling catheter (4.7%), vesico-vaginal fistula (1.4%), (unknown 14.7%). Surgery was an ileal conduit associated with simple cystectomy in all cases (100%). Cystectomy was justified by the risk of pyocystitis in all centers. A laparoscopic approach was used in 39.3% of cases, open surgery in 34.6% and laparoscopic robotically-assisted in 21.8% (unknown 4.2%). Mean duration of hospitalization was 17.5 days (+/- 8.6 SD). Early postoperative complications were reported in 44% of patients: among them, 87% of Clavien I, II or IIIa grades and 10% of IIIb or IV grades; 1 patient died (septic shock of pulmonary origin - Clavien V). Median follow-up was 22 months (IQR 9 - 44). 19 patients died between day 30 and the last visit. 2/19 died of urosepsis, other causes of death were not related to urinary tract. Mean postop. GFR was 101.5ml/min vs 102.6ml/min preop. In paired analysis mean changes in GFR were not significant (p=0.709). 77 patients (35.6%) were not analyzed due to missing data. UUT anatomy remained unchanged in 73.2 % of patients, improved (no more dilation) in 8.1% and developed uni or bilateral dilation in 18.7%. 88 patients (41.7%) were not analyzed due to missing data. Mean EDSS score at last follow-up was 7.6 vs 7.3 (IQR 7-8). In paired analysis, mean EDSS score change (+0.3 +/- 0.6 SD) was significant p<0.0001. Only 77 patients had complete preop. and last follow-up data at last analysis. Median total QSF score was 2.75 (IQR 1.53 - 3.25) before surgery and improved significantly in paired analysis to 0.37 (IQR 0.22 - 0.87) at last follow-up (Minimal Important Difference 0.5). Amplitude of change in each QSF domains (embarrassment, fear, experience and constraints) is summarized in graph 1. Only 42 patients (20%) had an available QOL assessment before and at 12 months or more after surgery at the time of

last analysis. In 40% (17/42) a pre-operative QSF was present, and in the other case QSF was collected during the last follow-up update. Median PGI-I on the impact of surgery on urinary problems was 5 “much better” (IQR 4-5). Median PGI-I on the impact of surgery on every day life was 4 “a bit better” (IQR 2.25-5). PGI-I was available for 52 patients (25%) at the time of last analysis (graph 2).

Graph 1



Graph 2



Interpretation of results

In this case series, ileal conduit was proposed as a salvage treatment of refractory LUTDs in selected patients with an advanced MS (EDSS >7). The main reason for diverting was the progression of MS that results in the inability to self catheterize. Although early complications were present in almost half of the patients, it was of low Clavien grade and made the early morbidity acceptable for such frail patients. At 22 months of follow up upper urinary tract dilatation appears in 18.7% of patients although renal function was maintained. It was comparable with the 13.6% to 17% reported in similar studies(2,3). Positive impacts on urinary symptoms and on the quality of life were observed and reinforced with a PGII quoted as better (a bit or much) in 87% of patients. Comparison to palliative conservative approach (indwelling suprapubic tube) would clarify the actual place of non-continent urinary diversion with ileal conduit in the management of end stage LUTDs due to MS. The main limitation of our work was its retrospective aspect with an underuse of QSF and a high rate of missing data. An updating of QSF and PGII status has been asked to all centers to improve response rate and is ongoing until September 2017

Concluding message

We have reported the largest case series of cystectomy and ileal conduit performed in selected MS patients who suffer end-stage LUTDs. Patients were at an advanced stage of MS. Early post-operative complication was frequent but mainly of low Clavien grade. At medium follow up renal function remains normal. Urinary-related quality of life was significantly improved and patient impression of improvement was high in the subset of patient with proper assessment. These results suggest a place for non-continent diversion in the management of end-stage LUTDs due to MS

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Disclosures

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