First long-term prospective case series of Percutaneous Endoscopic Gastrostomy with Jejunal Extension for drug administration

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To the Editor,

Direct jejunal feeding by Percutaneous Endoscopic Gastrostomy with Jejunal Extension (PEG-J) or direct percutaneous endoscopic jejunostomy (DPEJ) is more indicated than gastric feeding in patients with aspiration of gastric contents, gastroparesis or gastric outlet obstruction. Other indication is administration of drugs that must be directly delivered to duodenum or jejunum to achieve a precise and controlled absorption. In this setting, PEG-J may be preferable to DPEJ, despite the risk of tube dysfunction or dislocation (1, 2). There are large series describing DPEJ outcomes (3), but the long-term outcome of PEG-J is not well reported, particularly regarding drug administration.

A retrospective study compared DPEJ with PEG-J for the purpose of nutritional support (4). PEG-J had the advantage of being easier to place and to allow gastric decompression, but it required more endoscopic interventions, due migration of the extension, leakage, occlusion or infection. However, these results may not be reproducible for PEG-J used for other purposes.

Our institution was enrolled in an international multicenter prospective study for the evaluation of the efficacy of levodopa plus carbidopa intestinal gel formula administered by PEG-J, in patients with Parkinson's disease. Our Department was responsible for the placement and monitoring of PEG-J in 5 patients, and we performed a parallel long-term prospective evaluation on the safety and durability of the devices. An adverse event was considered as a complication related to the device, with the exception of malfunctioning or deterioration due to the prolonged use of the same tube, since durability of the device was one of the parameters that we wanted to evaluate.

PEG-J were placed between January 2009 and March 2011 and long-term follow-up regarding PEG-J functioning, deterioration and need to change was registered, until December 2015. Fifteen French PEG devices with 9Fr jejunal extension (Freka® Fresenius Kabi AG, Germany) were used.

From the 5 patients, 3 were male. Mean age was 63±3 years. Mean follow-up was 46±26 months (Table 1). At the end of the first year, all maintained the original device with good functioning; mean duration of the first device was 28±10 months. The replacement was difficult in those patients having their first PEG-J for a longer period (39 and 36 months), due to the inability of pulling the jejunal extension tube through the PEG - a *en bloc* removal was necessary. Currently, 2 patients maintain the PEG-J.

There were two major adverse events: a migration through a gastro-colic fistula (5) that was treated surgically (he had simultaneously an adenocarcinoma of the colon that demanded a segmental colectomy), and a gastric outlet obstruction caused by the inner bumper, simultaneously with migration of the jejunal extension through the duodenal wall due to a bezoar, that demanded *en bloc* removal of the entire PEG-J system (6). One patient had a minor adverse event, namely some erythema around the tube in the days after the procedure that spontaneously resolved.

One explanation for our high rate of adverse events is the long time with the same PEG-J. One study (7) with PEG-J used for nutrition reported a mean functional duration of 55 days. Here we report a functional duration up to 39 months. There is no established duration of PEG-J when they are functional and without external signs of deterioration. It is expected that tubes used for drug administration have slower deterioration than when used for feeding. However, 3 years is probably too much time. We strongly suggest replacement of the device at least every 2 years, even if working properly, to reduce the risk of migration, bezoar formation or occlusion, and to avoid technical difficulties in its replacement.

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Submission date : 02/05/2016
Acceptance date : 31/05/2016

Table 1 — **Description of the patients enrolled in the study**

Case nr.	Gender	Age	First PEG-J duration (months)	Reasons for first replacement/ removal	Total follow-up with PEG-J (months)	Adverse events
1	Female	64	39	Malfunctioning	83	Mild erythema
2	Male	64	36	Malfunctioning	66	None
3	Male	60	32	Deterioration	49	Gastric outlet obstruction (with the second PEG-J)
4	Male	67	22	Colonic migration	22	Colonic migration
5	Female	59	12	None	12	None

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