BOTOX INJECTION FOR THE MANAGEMENT OF CHRONIC IDIOPATHIC CONSTIPATION IN CHILDREN

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Submitted 18 Jul 2013; accepted 30 Dec 2013

ABSTRACT

Background and objectives Chronic constipation stays one of the most common and challenging problems facing the doctors and the family as well. Most of these cases are idiopathic. A lot of medical and surgical treatment modalities are in use; however there is no universal way to manage resistant cases. Each method had its own benefits and side effects. Recently Botox were used in the management of idiopathic constipation in children. The aim of this study is to evaluate the role of Botox injection in the management of these cases.

Methods A prospective study of 25 children with idiopathic constipation underwent Botox injection in two pediatric surgery centers. The children condition was assessed before and after the injection using the same scoring system. The material was injected in the internal sphincter.

Results Patient's age ranged from 2 to 9 years. Twenty four percent of the patients had significant (p value < 0.05) and sustained improvement at three and six months after injection. While (36%) had significant improvement at three months, but they relapsed at 6 months after injection. Other 40% had no significant improvement (p value > 0.05). No patient had deterioration of his score at the time of therapy. Transient fecal incontinence was noticed in three patients and all recovered within two weeks. No complications were recorded through out the study.

Conclusions The use of Botox in managing idiopathic constipation in children is a new and safe method with good response but the problem is the significant relapse rate and should be reserved for selected resistant cases.

Duhok Med J 2013;7(2): 16-23.

Key words: Idiopathic constipation, Botox injection, Children.

A Concern about bowel function has been prevalent throughout history across many cultures. Normal bowel pattern is thought to be a sign of good health. Constipation in children is a very important problem and has reported prevalence rates between 1% and 30% in different communities.[1]

Constipation is defined as "a period of 8 weeks with at least[2] of the following symptoms: defecation frequency less than 3 times per week, fecal incontinence frequency greater than once per week, passage of large stools that clog the toilet, palpable abdominal or rectal fecal mass, stool withholding behavior, or painful defecation.[2] If there is no underlying cause the condition is termed" Idiopathic constipation" which represents most of the cases. Idiopathic constipation is very common and when it becomes resistant and relapsing it become a very distressing problem for the child and the family.3 Diagnosis of idiopathic constipation in children can usually be made by the history and physical examination and some investigations if indicated like thyroid function, rectal biopsy, manometry,

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barium enema, endorectal ultrasonography. However, in most infants and children with idiopathic chronic constipation there is no need for extensive investigations.[3] This condition is generally under treated, leading to acquired megarectum. More soiling, aggravating the distress to the family and the child.[3-5] Over activity or achalasia of the internal anal sphincter (IAS) is thought to play the major role in the etiology.[3,6] The treatment is traditionally by laxatives and enemas. Resistant cases treated in different ways all over the world, which include anal dilatation, internal sphincterotomy, myectomy and botox injection in the internal sphincter and in severe cases surgical resection of the dilated segment.[3-5] Anal dilatation and myectomy may carry the risk of damage to the anal sphincters which may not be apparent for many years.[3,7,8] Botox injection claimed to be safe, effective and carry no risk of damaging the sphincters. Botulinum toxin type-A would result in decreased muscle activity by blocking the release of acetylcholine from the neuron, leading to internal anal sphincter relaxation which last up to six months, it is recently used to treat recalcitrant constipation.[3,7,9]

The aim of this study is to evaluate the role of Botox injection in the internal anal sphincter in the management of children with idiopathic constipation.

METHODS

A prospective study done on 25 children with idiopathic constipation, between Jan.2010 to Jan.2012.The cases were managed by two pediatric surgeons in Duhok and Mosul pediatric surgery centers. Full history was taken and all cases were thoroughly examined. Behavioral and social background of the cases studied were taken into consideration during history assessment. At least one Barium enema was done for every patient and rectal biopsy were done as needed. Patients with underlying causes like Hirschsprung's disease, anal stenosis and neurological diseases etc. were excluded from the study. All the patients had at least three months treatment with laxatives and enemas with poor or no response. Patients' inclusion criteria were those of functional constipation under the Rome III criteria[2], symptoms must include at least two of the following: Two or fewer defecations per week. At least one episode per week of fecal incontinence after the child has acquired toileting skills ,history of excessive stool retention or retentive posturing, history of painful or hard bowel movements, presence of a large fecal mass in the rectum, history of stools with large diameter that may obstruct the toilet. The children were scored using symptom severity score (SS score)[7] as shown in table 1 before the injection and at 3 and 6 months after the injection. Patients with fecal impaction were dealt with before the time of injection. Finger disimpaction was not done at the time of injection in order not to interfere with the injection results. The injections were done under general anesthesia, lithotomy position. We used Botox which is Botulinum toxins Type A (onabotulinumtoxin A, Allergan Pharmaceuticals, Ireland) vial 100 international unit diluted in 5 cc normal saline. Twenty units were injected in 4 quadrants in the internal sphincter transanaly this done by inserting the left index finger in the anus to feel the internal sphincter then injection done 2-3 mm distal to dentate line into the internal sphincter. A total of 80 units were given. The operation done as a day case surgery and all the patient were discharged home at the same day. The patients were followed at regular intervals using the same SS scoring system.[7] The laxative treatment was not stopped during the study.

Table 1 Symptom severity scoring system for constipation and fecal incontinence in children.[7]

item		Score
Soiling	none	0
	Rarely	1
	Occasionally	2
	Only if bowel loaded	5
	Continuous day only	8
	Continuous day and night	10
Delay in defecation	Daily stool	0
	Every 2-3 d	1
	Every 3-5 d	2
	Every 5-10 d	5
	>10 d	8
	Never	10
Pain and difficulty with defecation	None	0
	Occasionally	1
	Often	2
	With most stool	4
	With every stool	5
Laxatives and enema	None	0
	Softeners only	1
	Softeners and daily stimulants	2
	Extra weekend Movicol or picosulfate	4
	Extra high-dose Movicol or Klean-Prep	8
	Laxatives and regular enemata or suppositories	10
Child's general health affected by the bowel problem	Well	0
	Occasionally ill	2
	Often ill	3
	Ill most of the days	4
Behavior related to the bowel problem	Cooperative	0
	Needs reminding to use the lavatory or pot	2
	Refuses to use the lavatory or pot	3
	Also refuses medicines	4
	Also generally difficult behavior	5
Overall improvement of the symptoms since last seen	Nearly completely OK	0
	Much better	1
	Some improvement	4
	Still as difficult	8
	Getting worse	12
Amount of stool detected on abdominal examination	None palpable	0
	Little palpable	1
	Suprapubic only	2
	To umbilicus	3
	Beyond umbilicus	5
	Reaching ribs	8

RESULTS

The patients age ranged from 2 to 9 years. Sixteen patients (64%) were males and 9 (36%) were females. Analysis of the SS scoring results was obtained. The comparison was between 3 readings: one before injection (laxatives time), then three and six months after injection.

Analysis (table2) showed that 6 patients (24%) had significant and sustained improvement (p value < 0.05) at three and six months after injection. Nine patients (36%) had significant improvement at three months but they relapsed after 6 months of injection. Ten patients (40%) had no significant improvement (p value > 0.05). No patient had deterioration of his SS score at the time of therapy. Transient fecal incontinence was noticed in three patients and all recovered within two weeks. No complications were recorded throughout the study.

Table 2 Outcomes of Botox Treatment

	Groups	No	%
1	significant and sustained improvement at three and six months	6	24%
2	significant improvement at three months but relapsed at 6 months	9	36%
3	No significant improvement	10	40%

DISCUSSION

When the rectum fails to empty the painful hard stools, willful defecation becomes less and less frequent. More hard stools then further accumulate in the sigmoid-rectum and the vicious cycle perpetuates. Painful defecation leads to sphincteric spasm, which further aggravates the outlet dysfunction as well as the vicious cycle.[10] Anal dilatations and sphincterotomies have long been practiced and benefited many children with refractory constipation. However, these procedures are in many ways traumatic and sphincterotomy risks long-term complications of permanent sphincteric damage with incontinence.[11] More recently, biofeedback relaxation therapies have been practiced with some success, but its application in young children would be 'cognitively' and technically challenging. Botulinum toxin injection as a muscle relaxant which cause internal sphincter relaxation; however, because of its overall safety profile and clinically reversible effects, has gained popularity in many areas of clinical practice and would be a natural alternative for treating constipation associated with anal sphincter spasm.[12-14]

Although the use of Botox in managing constipation in children is a new subject, researchers like Keshtgar et al from guy's & st. Thomas hospital obtained higher success rates (76%) than ours with sustained results at 3 and 6 months after injection.[3] Irani K, Rodriguez L et al found that of 24 pediatric patients with intractable constipation, 22 experienced significant improvement in their constipation lasting more than 2 weeks but the duration of effect was variable. Only 12 patients demonstrating benefit lasting 6 months.[15] Other researchers also found that recurrences are common after the pharmacological effect has receded but can be cured with an additional.[16] We did not report any persistent complications related to the use of Botox, however a short general anesthesia is needed at the time of injection. Reviewing the articles on this subject also did not mention any significant complications apart from transient incontinence which had also happened in 3 of our patients.[3,12-15,17-21] However Florian Friedmacher and Prem Puri reported higher rate of transient faecal incontinence and non-response to treatment.[22]

The use of Botox injection in the management of idiopathic constipation in children is safe, but unfortunately good and sustained response was only obtained in about 24% of the resistant cases. The cons of using Botox was a significant relapse and failure rate, and may be the high cost.

That is why Botox injection should be reserved for selected retractable functional constipation not responding to laxative therapy.

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پوختە

چارەسەرکرنا بارێن قەبزبونا دوم درێژ لنك زاروكان بكارئینانا ڤاكسینا بوتوكس

د زەبلەكا گڤشوك یا نافخویی یا دەرچێ

پێشەكی و ئارمانج: بارێن قەبزبونا دوم درێژ لنك زاروكان ژ ئاریشێن گەلەك بەربەلاڤە كو ب زەحمەت بهێتە چارەسەركرن و چێدبیت هندەك جاران یا ئالوزبیت ئەڤەژی كارتێكرنەكا نەرێنی دكەتە لسەر زاروكی و مالا وی و چێدبیت بەرەڤاژی بیت لسەر دەرونێ زاروكی و مالا وی. گەلەك جورێن رێكا هەنە كو لجیهانێ دهێنە بكارئینان بو چارەسەركرنا ڤی باری بەلێ چێدبیت هەمی سەر نەگرن. بارێن ئالوز چێدبیت پێتڤی ب مایتێكرنەكا نشتەرگەری هەبیت و كریارێن نشتەرگەریێ یا ڤالا نابیت ژ ئاریشا و زیانا. بكارئینانا ڤاكسینا بوتوكس رێكەكا نوی یە و چێدبیت جهێ نشتەرگەریێ بگریت و زاروكی ژ ڤێ ئاریشێ قورتال بكەت. ئارمانج ژ ڤێ ڤەكولینێ خواندنەكا رژدە بو ڤێ رێكێ د چارەسەركرنا بارێن ئالوز.

ریكێن ڤەكولینێ: خواندنەكا پاشەروژێ ژ ٢٥ زاروكا گرت ل مەلبەندێ دهوك و میسل یا نشتەرگەریا زاروكان هەمی بوار كەفتنە بەر چارەسەریا ئاسایی ئەوژی دەرمان كو دەمەكی كو كێمتر نەبوو ژ سێ هەیڤان بەلێ چ دیار نەبوون دڤی دەمی خواندنەكا دبواریّ وان هاتە كرن پاشی بمادێ بوتوكس هاتنە ڤاكسینكرن و ئەنجام هاتنە بەراوردكرن.

ئەنجام: خواندنێ دیاركر كو ٢٤ ٪ ژ زاروكان برەنگەكێ بەرچاڤ باش بوون. بەلێ ٣٦ ٪ هەرچەندە د هەر سێ هەیڤێن ئێكێ د باش بوون بەلێ جارەكا پێ تووش بوون و پشتی شەش هەیڤا نیشان لێ پەیدا بوون. ٤٠ ٪ بارێ وان یێ ساخلەمیێ باش نەبوون. چ نیشانێن لایەكی ژ چارەسەركرنێ نەهاتنە تومارکرن.

دەرئەنجام: بكارئینانا بوتوكس د چارەسەركرنا قەبزبوونا دوم درێژ لنك زاروكان رێكەكا نوی یە و پشت راستە بەلێ ژ خواندنێ دیاربوو كو وەرگرتنا دەرمانا یا باش و بەردەوام بوو بو چارێكا بارێن هاتینە خواندن. بەلێ بارێن دی د وەرگرتنا دەرمانا نەیا ب دل بوو. ئەڤجا شیرەت دهێتە كرن كو بكارئینانا ڤێ رێكێ بو هندەك بارێن ئالوز دهێتە دەست نیشانكرن.

الخلاصة

علاج حالات الإمساك المزمن عند الأطفال باستعمال حقن البوتوكس في العضلة العاصرة الداخلية للمخرج

خلفية واهداف البحث: تعتبر حالات الإمساك المزمن عند الأطفال من المشاكل الشائعة جدا والتي قد يصعب علاجها وقد تصبح مستعصية أحيانا مما يشكل تأثيرا سلبيا على الطفل والأهل وقد ينعكس على نفسية الطفل وأهله. تستخدم عالميا أنواع كثيرة من الوسائل لعلاج هذه الحالة وقد تفشل جميعها. إن الحالات المستعصية قد تحتاج إلى تداخل جراحي ولا تخلو العمليات الجراحية من مشاكل وأضرار جانبية. يعد استعمال حقن البوتوكس طريقة جديدة قد يحل محل الجراحة ويجنب الطفل هذه المشاكل. الهدف من هذا البحث دراسة جدوى هذه الطريقة في علاج الحالات المستعصية.

طرق البحث: دراسة مستقبلية شملت ٢٥ طفلا في مركزي دهوك والموصل لجراحة الأطفال. جميع الحالات خضعت للعلاج التقليدي بالادوية الملينة لفتره لا تقل عن ثلاثة اشهر و بدون استجابة ملحوظة. درست حالتهم خلال هذه الفتره ثم تم حقنهم بمادة البوتكس وقورنت النتائج.

النتائج: أظهرت الدراسة ان ٢٤% من الاطفال تحسنوا بشكل ملحوظ ومستديم. بينما ٣٦% بالرغم من تحسنهم في الثلاثة اشهر الاولى لكنهم عانوا من انتكاسة ورجوع الاعراض بعد ستة اشهر. ٤٠% لم تتحسن حالتهم الصحية. لم تسجل أي اعراض جانبية من جراء العلاج.

الاستنتاجات: استخدام البوتوكس في علاج الامساك المزمن عند الاطفال تعد طريقة حديثة ومأمونة.لكن لوحظ من الدراسة أن الاستجابة كانت جيدة ومستديمة لربع الحالات المدروسة فقط. أما بقية الحالات فقد كانت الاستجابة غير مرضية . لذا ينصح بتحديد استعمال هذه الطريق لبعض الحالات المستعصية.