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PREGNANCY AND DELIVERY FOR WOMEN WITH CONGENITAL SPINAL CORD DEFECTS AND NEUROGENIC BLADDER.

Aims of study:

Data are scarce regarding pregnancy and delivery for women with congenital spinal cord defects. We report the obstetrical and urologic outcomes for women with congenital spinal cord defects and vesico-sphincteric disorders.

Study design:

A retrospective multicentre study included women with congenital spinal cord defects and a neurogenic bladder who delivered between 2005 and 2014. Medical records and phone interviews were used to collect demographic data, disease characteristics, urological and obstetrical history, complications during pregnancy, neonatal outcomes, and changes in urological symptoms.

Results:

Sixteen women, median age 29.4 years old (IQR 22-36), had a total of 20 pregnancies and 21 births. Patients' baseline characteristics are identified in table 1.

Table 2 shows the frequency of urinary tract infections (UTIs), the neurourological complications and their management during pregnancy. Symptomatic UTIs during pregnancy occurred in 11 pregnancies, including 4 pyelonephritis. In 4 pregnancies, stress urinary incontinence had worsened but recovered in postpartum. In 3 pregnancies, de novo clean intermittent catheterization became necessary and had to be continued in postpartum. In 3 pregnancies, anticholinergic treatment had been started or increased because of urge urinary incontinence worsened. A deterioration of the neurological deficit occurred in 4 pregnancies. Urodynamic data were available both before and after the pregnancy for 7 women. No significant changes on urodynamic data were reported.

The mean gestational age at birth was 38.6 weeks (range 34-40). There were 15 caesarean sections, of which 9 were indicated to avoid a potential aggravation of vesico-sphincteric disorders. Table 3 shows obstetrical and neonatal outcomes. There was no post-partum alteration of the sphincter function, especially among the 5 pregnancies with vaginal delivery .

Interpretation of results:

Pregnant women with neurogenic bladder represents a very specific subgroup for whom no specific recommendation exists regarding management and follow-up.

Obstetrical and neonatal outcomes within our series are favorable according to the literature. The preterm birth rate reaches 15 %, which is higher than the general population, but lower than the rate previously described, between 21 and 35%, among women with spina bifida [1-3]. Similarly, the absence of surgical complications, especially for caesarean sections, is in contradiction with the previous series that described the rate of post cesarean complications up to 83% [1,3].

The caesarean section rate was particularly high (75%), preferably performed under general anesthesia (70%) and indicated to avoid a potential aggravation of vesico-sphincteric disorders during a vaginal delivery. In our series, regarding women with no obstetric indication of caesarean, vaginal delivery appears to be safe.

The high prevalence of UTIs (55%), their impact (2 preterm deliveries), and the changes in neuro-urology care during pregnancy (mode of voiding, anticholinergic treatment, cycling antibiotic) justifies the need for a specific monitoring during their pregnancy.

Concluding message:

Successful pregnancy outcome is possible for women with congenital spinal cord defects and vesico-sphincteric disorders. However these pregnancies are associated with an increased risk of pyelonephritis, caesarean section, and occasionally aggravation of the urinary dysfunction. Therefore, this suggests that a multidisciplinary management is desirable

Table 1: Baseline characteristics of patients before first pregnancy (N =16)

		Number of women (%)
16 women:		
- 11 spinalipoma		
- 5 myelomeningocele		
Motricity	Ambulatory Wheel chair	14 (88) 2 (12,5)
Altered sensitivity		11 (69)
Previous spinal surgery		13 (81)
Ventricular shunt		1 (6)
Urological dysfunction	Mode of voiding : - spontaneous - clean intermittent self catheterization	4 (25) 12 (75)
	Continence : - dry - mild to moderate incontinence - pad usage	9 (56) 7 (44) 6 (38)
	Previous urological surgery: - augmentation cystoplasty - intradetrusor botulinum toxin A injections - sacral neuromodulation	3 (19) 2 (13) 1 (6)
	Urodynamic parameters: - Mean maximum cystometric capacity (ml) - Mean post voided residual volume (ml) - Mean urethral closure pressure (cm H2O) - Detrusor: - overactivity - hypoactivity - Low bladder compliance	436 (305-600) 180 (20-400) 51.2 (12-135) 2 (13) 2 (13) 1 (6)
Bowel incontinence		3 (19)

Table 2: Neurourological complications and their management during pregnancy (N=20)

		Number of pregnancies (%)
Urinary tract infections	Frequency of UTI: - at least one UTI - recurrent UTI - pyelonephritis - asymptomatic bacteriuria	11 (55) 8 (40) 4 (20) 2 (10)
	Recurrent UTI in pregnancies among: - Mode of voiding: o self catheterized (N=16) o spontaneous voiding (N=4) - Cycling antibiotic prescription: o cycling antibiotic (N=13) o no cycling antibiotic (N=7)	7 (44) 4 (100) 6 (46) 5 (71)
Deterioration of the continence	- Urinary - Bowel	4 (20) 0 (0)
Deterioration of neurological deficit	- Motor - Sensory	1 (5) 3 (15)
Modification of urological management	- Initiation of clean intermittent self-catheterization - Interruption of clean intermittent self-catheterization - Modification of anticholinergic treatment	3 (15) 1 (5) 3 (15)

Table 3: Obstetrical outcomes (N=20)

		Number of pregnancies (%)
Mode of delivery	Caesarean section	15 (75)
	Vaginal delivery	5 (25)
Type of anesthesia	General	14 (70)
	Epidural anesthesia	6 (30)
Live births	N=21 (10 females, 11 males, 1 set of twins)	
	Delivery at 37 weeks or more	17 (85)
	Preterm (34-36 weeks)	3 (15)
	Birth weight <2500 g	1 (5)
	Spinal cord defect	0 (0)

References

1. Arata M, Grover S, Dunne K. Pregnancy outcome and complications in women with spina bifida. J Reprod Med. sept 2000;45(9):743-8.
2. Rietberg CC, Lindhout D. Adult patients with spina bifida cystica: genetic counselling, pregnancy and delivery. Eur J Obstet Gynecol Reprod Biol. nov 1993;52(1):63-70.
3. Blasi I, Ferrari A, Comitini G, Vinci V. Myelomeningocele and pregnancy: a case report and review of the literature. J Matern-Fetal Neonatal Med Off J Eur Assoc Perinat Med Fed Asia Ocean Perinat Soc Int Soc Perinat Obstet. juill 2012;25(7):1176-8.

Disclosures

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