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SELECTIVE LASER TRABECULOPLASTY – IMPLICATION FOR MEDICAMENT GLAUCOMA TREATMENT INTERRUPTION IN PREGNANT AND BREASTFEEDING WOMEN

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SUMMARY
During the period of the last six years (2010-2016), the authors performed Selective Laser Trabeculoplasty (SLT) in 32 women (64 eyes); pregnant women patients with primary open angle glaucoma were referred to the Department of Ophthalmology, First Medical Faculty, Charles University, and Central Military Hospital in Prague, Czech Republic, European Union, to perform this procedure with the goal to interrupt their antiglaucomatic treatment by means of eye drops during the pregnancy and the breastfeeding period. In other 7 cases (14 eyes), they performed the SLT with the goal to terminate the local medicament treatment before planned pregnancy. The procedure was performed on the outpatient basis, during one session, always in both eyes, after one-shot local anesthesia, following their own protocol in the range of 270° of the iridocorneal angle circumferentially, with the parameters 1.0 mJ, 80 shots, 400 µm, using the Tango laser device. All the current local antiglaucomatic treatment was after the performing of the procedure stopped. During the period of pregnancy and breastfeeding, no subjective ophthalmologic problems were neither present, nor objective worsening of visual functions was noticed. According to their own experience, the authors offer the possibility to get over the period of pregnancy and breastfeeding in women patients with primary open angle glaucoma by means of performing the selective laser trabeculoplasty, so without the risk of medicament antiglaucomatic treatment adverse effects.

Key words: glaucoma, selective laser trabeculoplasty (SLT), treatment, pregnancy, breastfeeding

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INTRODUCTION

The treatment of glaucoma in women during the period of pregnancy and breastfeeding is accompanied by fears of potential adverse effects in connection with the action of eye drops, which are a component of the therapeutic schema of this pathology. In certain cases, women consider the risk of a negative influence on the condition of health of the unborn child or breastfeeding infant to be so serious that they prefer to discontinue treatment. The fundamental consideration of the doctor – glaucomatologist in each individual case is therefore to assess the degree of this risk ensuing from continuing treatment of glaucoma for the foetus and breastfeeding infant, as well as the possible progression of glaucomatous changes in the patient, and therefore whether to reduce or discontinue therapy. One of the solutions is to replace medicamentous treatment during this important period for the woman by another method of glaucoma treatment. Selective laser trabeculoplasty appears to represent a suitable alternative.

METHODOLOGY AND RESULTS

In the period of the last 6 years (2010-2016) we have performed selective laser trabeculoplasty (SLT) on 32 women (64 eyes), who were pregnant patients with primary open-angle glaucoma, referred to our centre for the performance of this procedure with the aim of suspending their anti-glaucomatous treatment using eye drops during the period of pregnancy and breastfeeding. In a further 7 cases (14 eyes) we performed SLT with the aim of discontinuing local medicamentous therapy before a planned pregnancy. In all cases the patients were on monotherapy, without functional changes of visual functions (preperimetic stage), with only slight morphological changes (borderline findings on maximum of 2 segments upon S-OCT examination). The values of intraocular pressure measured by applanation in the first group (in already pregnant women) were within the range of 15-23 mm Hg, in the second group within the range of 11-24 mm Hg (in women planning

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pregnancy, at the earliest after 2-3 months).

We performed SLT in one session always on both eyes, in outpatient care, following one-shot local anaesthesia, according to our own protocol within the range of 270 degrees of the iridocorneal angle circumferentially, with parameters of 1.0 mJ, 80 shots, 400 µm, using a Tango laser device (11, 12, 13, 14). All the existing local therapy was discontinued after the performance of the procedure. For the sake of comfort and with regard to the current condition of health of the women in question, further care was performed by their attending ophthalmologists in outpatient care. The values of intraocular pressure in both groups of patients during the period following the laser procedure up to six months after birth were within the range of 11-20 mm Hg. In all cases, according to the reports of the ophthalmologists and also according to our documentation, no subjective ophthalmologic problems occurred during the period of pregnancy and breastfeeding, and no objective deterioration of visual functions was observed. We have no information about health complications of the born children. In the future period we are planning to obtain further information about the course of glaucoma in the women treated by this method.

DISCUSSION

In the treatment of glaucoma we choose according to the clinical course between pharmacotherapy, laser treatment and surgical intervention, and a combination of these procedures is also possible. The objective of our study is not a detailed analysis of the recommended pharmacotherapy of glaucoma during the period of pregnancy and breastfeeding. However, overall it is possible to summarise a number of facts in connection with this issue. There are very few valid studies which evaluate the influence of anti-glaucomatous agents in this group of patients. An obstacle to the performance of prospective pharmacological studies is presented above all by ethical reasons. In principle manufacturers cannot recommend the use of local anti-glaucomatous agents for pregnant and breastfeeding women. In the available package information leaflets for the pharmaceuticals and in educational materials, it is therefore possible to find only vague formulations of the type “consult your doctor or pharmacist concerning use during pregnancy”. It is not possible to expect any pronounced change in this direction, also due to the fact that the target group of pregnant and breastfeeding patients with glaucoma is too small for the economic benefit ensuing from prescription to balance the indisputable risks for pharmaceutical companies. The burden of the solution is therefore shifted onto the relevant ophthalmologist, who is responsible for providing further healthcare to the woman in this life situation.

According to the FDA, it is possible to classify anti-glaucomatous agents into 5 groups: A, B, C, D and X. In group A the medications were safe, verified by clinical trials on pregnant women, but no such medication is available in clinical practice. Group B included “relatively safe” medications, verified by trials on animals, but not on pregnant women. In group C the risk of damage to the foetus “cannot be excluded” - either no trials had been conducted on animals, or negative influence was demonstrated in tests on animals, but the medications had not been verified in pregnant women. Group D contains medications with demonstrated damage - “positive evidence”. Inclusion in group X means contraindication in pregnancy (2, 8).

Is the available literature of any assistance to us in the decision-making process? According to certain sources we could conclude that it is possible to include brimonidine in group B, and other anti-glaucomatous agents in group C. Beta-blockers may cause bradycardia and hypoglycaemia of the foetus in the later stages of pregnancy and during breastfeeding, and are not without risk even in the early phases of pregnancy. Carboanhydrase inhibitors administered locally are probably safe, in the case of general administration there is a risk of occurrence of teratoma and electrolyte imbalance. Pilocarpine is probably safe during pregnancy, but passes into the mother's milk and may cause muscle weakness, cramps and febrility of newborn infants. Brimonidine is probably safe in pregnancy, but due to the possibility of it influencing the CNS, changes of heart rhythm and hypertension, as well as the possibility of apnoea in newborn infants, it is recommended to discontinue use of the pharmaceutical at thee end of pregnancy and to exercise caution in the case of breastfeeding mothers. Prostaglandin analogues may have a contractile influence on endometrium, and increase the risk of miscarriage or premature birth (1, 3, 4, 5, 6, 7, 8, 10, 15).

Surgical treatment is indicated in pregnancy only in exceptional cases for patients with progressive worsening of glaucoma. It is possible to administer local and general anaesthesia, cycloplegic drugs and steroids, but anti-metabolites are contraindicated (2). Treatment by laser is ideal in the case of planned pregnancy, in actual pregnancy and in the period of lactation (2, 9).

In connection with the observed issue, there are also observations of a more favourable character: the incidence of glaucoma in women of reproductive age is not very common, the course of the pathology in pregnancy does not worsen in the majority of cases, during the course of pregnancy intraocular pressure rather has a tendency to decrease (3, 8).

Co-operation of an ophthalmologist, gynaecologist, obstetrician and eventually a paediatrician is necessary, and according to our experiences functions well.

CONCLUSION

The treatment of glaucoma in pregnant and breastfeeding women has its rules, but the situation can be resolved upon deliberation.

On the basis of our own experiences, in indicated cases we offer the possibility of bridging over the period of pregnancy and lactation in patients with primary open-angle glaucoma by the performance of selective laser trabeculoplasty, thus without the risk of adverse effects of medicamentous anti-glaucomatous treatment.

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LITERATURE

1. **Anne, L.C., Sameh, M., Deborah, K.:** Medical therapy in pregnancy. J Glaucoma, 14; 2005: 414–416.
2. **Coppens, G., Stalmans, I., Zeyen, T.:** Glaucoma medication during pregnancy and nursing. Bull Soc Belge Ophthalmol, 314; 2010: 33–36.
3. **Goldberg, I., Sack, J.:** Glaucoma in pregnancy. Dostupné z http://glaucoma.org.au/article-apr2001.htm - 9. 10. 2015
4. **Lustgarten, JS., Podos SM.:** Topical timolol and the nursing mother. Arch Ophthalmol, 101; 1983: 1381–1382.
5. **Mark, AR.:** Management of anesthesia for the pregnant surgical patient. Anesthesiology, 91; 1999: 1159–1163.
6. **Morsellli, PL., Boutroy, MJ., Bianchetti, G., et al.:** Placental transfer and perinatal pharmacokinetics of betaxolol. Eur J Clin Pharmacol, 38; 1990: 477–483.
7. **Olson, DM., Zaragoza DB., Shallow MC., et al.:** Myometrial activation and preterm labour: a supporting role for prostaglandin F receptor – a review. Placenta, 24; 2003 (Suppl A): 47–54.
8. **Pickering, T.:** Treating glaucoma in pregnancy. Glaucoma Today, March 2009 (March): 18-20.
9. **Safran ,MJ., Robin, AL., Pollack, IP.:** Argon laser trabeculoplasty in younger patients with primary open-angle glaucoma. Am J Ophthalmol, 97; 2002: 292–295.
10. **Sandra, MJ., Mary, M., Sharon, F.:** Managament of glaucoma in pregnancy and lactation. Surv Ophthalmol, 45; 2001: 449–454.
11. **Sičáková, S., Výborný, P.:** Selektivní laserová trabekuloplastika v léčbě glaukomu – výsledky v tříletém sledování. Čes a Slov Oftal, 66; 2010 (5): 204–208.
12. **Výborný, P., Sičáková, S.:** Selektivní laserová trabekuloplastika – nové možnosti v léčbě glaukomu. Čes a Slov Oftal, 65; 2009 (1): 8–11.
13. **Výborný, P., Sičáková, S., Flórová, Z., et al.:** The role of selective laser trabeculoplasty (SLT) in discontinuation of local anti-glaucoma therapy in pregnancy and breast-feeding.12th European Glaucoma Society Congress, 19-22 June 2016, Prague. Dostupné z: http://www.eugs.org, P5.36
14. **Výborný, P., Sičáková ,S., Flórová, Z., et al.:**The role of selective laser trabeculoplasty (SLT) in discontinuation of local anti-glaucoma therapy in pregnancy and breast-feeding. 120th Meeting of American Academy of Ophthalmology, 15–18 October 2016, Chicago USA. Dostupné z: http://www.aao.org.
15. **Wagenvoort, AM., van Vugt, JM., Sobotka, M., et al.:** Topical timolol therapy in pregnancy: is it safe for the fetus? Teratology, 58; 1998: 258–262.