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CASE REPORT

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Ototopical Ceftazidime Treatment for a Lactating Woman with Recurrent Otitis Media

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Abstract

Introduction: Chronic supportive otitis media treatment combines antibiotics and surgery. The common antibiotic agent used for this situation is ciprofloxacin ear drops. The resistance of pseudomonas aeruginosa to ciprofloxacin is growing - implying treatment failure.

The Patient: A 32 year old lactating woman 2 months after birth, post cholesteatoma removal, who developed recurrent otitis media with pseudomonas, treated with ceftazidime ear drops.

Summery/Conclusion: This treatment is not accepted in Israel, yet when resistance to ciprofloxacin is growing and there is a more effective drug that can be used at lactation that was proven not to harm hearing, we could add it to our arsenal.

Keywords: Psudomonas; Ceftazidime; Cholesteatoma; Resistanc; Breast Feeding; Otitis Media

Introduction

CSMO (chronic suppurative otitis media) is defined as a chronic inflammatory process of the middle ear and the mastoid area, in which secretion from the ear through a torn tympanic membrane continues more than 6 weeks [1]. The diagnosis is orthoscopic, when there is a permanent tear at the tympanic membrane, with inflammation of the middle ear mucosa [2]. According to Qureishe, *et al.* CSMO is the most common reason for hearing loss in the western world [2].

Arguedas, *et al.* argues most of the prevalence of this disease is due to ineffective treatment of acute otitis media with multiple recurrences [1]. According to Shamwell, *et al.* The definitive treatment is surgical [3]. However In certain populations, conservative therapy is preferred. The conservative therapy consists of repeated suctions and antibiotics. Today in Israel and the USA, the only accepted antibiotic treatment is ciprofloxacin drops. Shamwell, *et al.* found that the sensitivity of pseudomonas aeruginosa is 84% to ciprofloxacin and 100% to ceftazidime. Browen, *et al.* found eftazidime to be safe for local ear administration in animals (Chinchilla) [4]. This finding supports the safe use of this drug in humans since the human ear is much less vulnerable to drug ototoxicity than the chinchilla ear.

Trujillo, *et al.* infused *ceftazidime* ear drops to chronic otitis media patients with hearing examination before treatment and one month after it [5]. They found Ceftazidime had no effect on patient's hearing.

This Case report describes a successful treatment of a resistant to quinolones Pseudomonas chronic otitis media in a breast feeding woman.

Case report

A 32 year old female, 2 months postpartum after delivery of her first healthy daughter was admitted to our clinic. She has suffered from recurrent pseudomonas aeruginosa otitis media infections for many years. In her childhood she underwent 3 tympanoplasties and two surgeries for the removal of a cholesteatoma; the first from her right ear at 1990, and the second from her left ear at 2008. She was treated yearly several times per year with ciprofloxacin drops due to recurrent episodes of otitis media.

Since the last cholesteatoma removal at 2008, there is a deep hearing loss off about 70 decibel at the left ear, which is a mixture of conductive and sensory - neural, and 60 at the right ear where the hearing loss is mostly conductive, with mild till moderate sensory – neural part. Discrimination of words is 92% at the left ear, and 100 at the right.

At the second trimester of pregnancy, she developed another episode of otitis media. Cultures yielded a resistant to Ciprofloxacin Pseudomonas aeruginosa. She was successfully treated with intra venous *ceftazidime* 2 grams, 3 times a day for 7 days, with complete eradication of the infection observed by culture. 2 months postpartum, *she developed another episode of otitis media with positive culture for Pseudomonas.*

In consultation with the teratological center at beilinson hospital, ciprofloxacin ear drops can be used in a lactating woman for 10 days, and for eradication of *pseudomonas aeruginosa,* there is a need for a treatment of 14-21 days, which will be effective only if the bacterium is not resistant to the medication. In this patient the organism already proved to be resistant to *ciprofloxacin.* In those circumstances, rose a need to look for fore another treatment.

Since long time therapy with Ciprofloxacin drops is contraindicate in breast feeding period and previous cultures demonstrated a resistant to Ciprofloxacin microbe, we decided to treat her with Ceftazidime which proved to be efficient in her previous episode during pregnancy.

Intra venous treatment during breast feeding period was extremely inconvenient to the patient, so we have decided to try and treat her topically with Ceftazidime drops.

We have prepared a 5% Ceftazidime solution mixed in normal saline, in the form of ear drops. Like suggested by Trujillo, *et al.* we administered the patient 3 drops 3 times a day for one week, after which an ear examination by an oto rhino laryngologist specialist was performed [5]. A significant improvement was observed, hence, we continued this treatment for 2 more weeks in order to achieve complete eradication. MRI a 2 months after treatment showed slight remnants of inflammation with no other findings. Hearing examination 2 month after treatment did not show any change as compared to hearing examination performed prior to treatment.

No infection recurrence was observed during a year of follow up after treatment.

Discussion

Our case report demonstrated a successful treatment of chronic suppurative otitis media with Ceftazidime ear drops.

The BROWEN study from 1989 investigated the ototoxicity of ceftazidime *in chinchilla* and found in 2 of 24 animals mild loss of *external hair cells* at the *organ of corti*. Following this result, ototopical ceftazidime is not accepted [4].

Browen, *et al.* made a study on instillation of ceftazidime to the ears of *chinchilla* in which they gave 0.5 ml of *ceftazidime* 10% to an animal with the weight of 400 -600 grams, and checked pathologically for ototoxicity, after one and 4 weeks. The instillation caused a short transient inflammation at the middle ear, with a very minor potential for permanent damage. The researchers mention that because of differences in the structure of the owl window, humans are much less vulnerable to ototoxicity of medications then chinchilla, so it is unlikely ceftazidime will produce meaningful cochlear damage in humans.

Trujillo treated human subjects with *ceftazidime* drops [5]. They gave 3 drops every 8 hours for 10-15 days; with the total of 49.95 mg. these investigators tested the hearing before treatment and one month after it. They found that ototopical *ceftazidime* treatment does not cause deterioration in the hearing.

We made a preparation of ceftazidime 5% in saline as ear drops. Like Trujillo, *et al.* we installed 3 drops 3 times a day [5]. The installation was to a woman with an average weight. In comparison to an installation of drops with 10% medication to an animal of 400 -600 grams, that Browen, *et al.* did, the dose relative to body weight we used was much smaller [4]. So if the damage Browen, *et al.* found was related to the dose relative to body mass, the chance for damage in this study was much smaller [4].

Our successful results are similar to those of Trujillo in 2006.

Ciprofloxacin is forbidden during pregnancy or lactation. The patient's treatment history included ear cultures demonstrating organisms resistant to ciprofloxacin.

Based on the above, we think that further investigating the use of ototopical Ceftazidime as an option of treatment for chronic otitis media should be performed. This treatment may serve as an alternative to the treatment of choice with Ciprofloxacin in cases of contra indication for its use or microbial resistance.

References

1. Arguedas AG, Herrera J F, Faingezieht , Mohs E (1993) Ceftazidime for Therapy of Children with Chronic Suppurative Otitis Media Without Cholesteatoma. Pediatr Infect Dis J 12: 246-8

2. Qureishi A, Lee Y, Belfield K, Birchall JP, Daniel M (2014) Update on otitis media - prevention and treatment. Infect Drug Resist 7: 15-24.

3. Shamweel A (2013) Antibiotics in chronic suppurative otitis media: A bacteriologic study. Egypt J Ear Nose Throat Allied Sci 14: 191-4.

4. Brown OE, Wright CG, Edwards LB, Meyerhoff WL (1989) The ototoxicity of ceftazidime in the chinchilla middle ear. Arch Otolaryngol Head Neck Surg 115: 940-2.

5. Trujillo MF (2006) Ototoxicity Secondary to Topical Ceftazidime in Non Holesteatomatous Children Otitis Media. Anals De Otorrinolaringologia Mexicana 51.