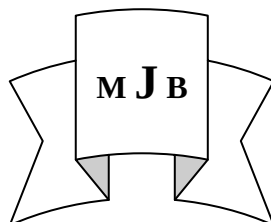


Boric Acid with Iodine Powder Verses Local Antibiotic in the Treatment of Chronic Suppurative Otitis Media

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Abstract

94 patients with CSOM divide in to 3 groups 1st group treated with aural toilet (AT) only, 2nd group aural toilet + quinolone (Ciprofloxacin) drop locally, 3rd group aural toilet+ BI(Boric acid iodine) powder locally . The results were 13%, 63%, 87% respectively. Conclusion: AT+BI powder is more effective as a local antiseptic treatment for CSOM than AT+ local antibiotic (quinolone) drop.

Keywords: CSOM, Boric acid- Iodine powder, Quinolone, ciprofloxacin drop

الخلاصة

تضمنت هذه الدراسة ٩٤ مريض يعانون من التهاب الاذن الوسطى القيحي المزمن حيث تم تقسيمهم الى ثلاثة مجاميع. المجموعة الاولى تم معالجتها بواسطة الغسل الاذني فقط، المجموعة الثانية عولجت بالغسل الاذني+ قطرات موضعية من السبروفلاكساسين، المجموعة الثالثة عولجت باستعمال الغسل الاذني+ مسحوق موضعي من اليود مع حامض البوريك. كانت النتائج ١٣%، ٦٣%، ٨٧% على التوالي. الاستنتاج: الغسل الاذني+ خليط مسحوق اليود مع حامض البوريك هو الاكثر تأثيرا كعمق موضعي في علاج المرضى الذين يعانون من التهاب الاذن الوسطى القيحي المزمن مقارنة مع العلاج بواسطة الغسل الاذني+ قطرات من السبروفلاكساسين.

Introduction

Chronic suppurative otitis media (CSOM) as a complication of acute otitis media characterized by chronic otorrhea from perforated tympanic mem. (ie, lasting >6-12 wk) and conductive deafness of varying severity, it may be attic perforation (atticantral CSOM) with or without cholesteatoma, or central perforation (tubotympanic CSOM). Both types may carry serious complications (intracranial and extracranial). The treatment aims are to eradicate infection, prevent complications, heal the tympanic membrane, and improve

hearing. Treatment options include dry mopping, ear wicking, gentle syringing, or suctioning; systemic antibiotics; and topical treatment with either antiseptics or antibiotics, sometimes with steroids. The treatment plan for cholesteatoma always includes tympanomastoid surgery with medical treatment as an adjunct, while medical treatment may be helpful for the other perforations and that is, Ear toilet + local AB or Antiseptic drop and or systemic Antibiotic depend on C/S.(pseudomonas and staph. aurogenosaproetus spp., E.coli bacteria spp is commonly isolated[1], Local

treatment ,was local AB or antiseptic. Local AB -aminoglycosides drops used previously & not recommended now because of its ototoxicity, or to use Quinolone drop (broad spectrum against most of gram+ & gram-bacteria) and less ototoxic.

One way of affecting the growth of bacteria is by changing its pH level. Bacteria, like all living organisms, prefer a certain pH balance. Most bacteria like neutral conditions (pH value of 7) and will not grow in a media with a pH below 4.5, it effects bacterial enzymes, and the bacteria became unable to produce their capsules thus they are susceptible to phagocytosis Boric acid-iodine powder in ratio (0,75-1% iodine mixed with 99% of boric acid) [8] is an old method was used in the management of CSOM as antiseptic, done by insufflations of this powder inside of middle ear through the external meatus by pump syringe .Boric acid, is a (white, crystalline solid of chemical formula H_3BO_3 sparingly soluble in water) is a known to be antibacterial, antiviral, and antifungal in addition to the antimicrobial effect of iodine. Boric acid is weak acid will act with iodine when added to alkaline media inside moist middle ear (wax, pus cells, water and other debris and inflammatory residents) results in liberation of active oxygen, water and BI or free iodine, which by itself , one

of the best bactericidal substance, in addition to changing the acidity of the middle ear and its effect on the bacteria,. A Cochrane Review published in 1998 (Acuin *et al.* 2004) concluded that topical treatment with antibiotics or antiseptics is more effective than systemic antibiotics, aural toilet alone, or no treatment at all.

In this study the treatment options include, gentle syringing with normal saline, suctioning, and topical treatment with either antiseptics(BI) or antibiotics (QUINOLONE) and we try to prove that BI is superior in its effect on CSOM

Materials and Methods

94 Cases of CSOM from the OP of Al Husian teaching hosp. in Al – Semawa and Kerbala cities ;investigations had been done for them include ear swab for C/S(culture and sensitivity), CT.(Computerized tomography) of temporal bone and PTA (Pure Tone Audiometry) for assesing hearing before and after treatment. They were divided in to 3 groups ;15 cases subjected to aural toilet(AT) only (removal of the granulation tissues and derbies from middle ear+ washing with normal saline); 40cases to (AT + ciprofloxacin ear drop); 39 cases to (AT+ BI powder)every other day for 15 days and fallowed up for 2 months.

Results

Orthoscopic Examination	CT.(Computerized tomography)
atticoantral perforation	7 cases had collesteatoma
8 attic per.+ 25central perf.	33 signs of mastoiditis
central perf.	54 clear mastoid

Culture and sensitivity:

1-pseudomonouse spp. in 48%
2-staphylococcus aurogenosa in 26%
3-Proteus spp. 8%
4-E.coli 7

5-others 11%

Group 1: Discharge stopped 2 (central per.)

Discharges stopped and return later 3(1 attic + 2 central)

10 cases not respond.

Group2: Discharge stopped 25 cases (one attic+24 central)

Discharges stopped & return later 9(3 attic+2 central)

No response 6 (4 attic with chollisteatoma +2 central)

Group3: Discharge stopped 33 cases (central per)

Discharge stopped & return later (3 attic per.)

No response (3 attic with chollisteatoma)

	No response	stopped & return	Discharge stopped	PTA improvement
GROUP 1	10/15=66% central	3=21% 1 attic + 2 central	2/15=13% central per	0
GROUP 2	6/40=15% 4 attic with chollisteatoma +2 central	9=22% 3 attic +6central	25/40=63% one attic+24 central	7=18%
GROUP 3	3/39=7.5% 3 attic with chollisteatoma	2=6.5% 2 attic per	34/39=87% 33central per+one attic	16=40%

Attic with cholesteatoma 7 patients no response to local treatment

Attic without cholesteatoma 8 Ps. Success rate was one BI -- one AB

Central per. 79 PS. Success rate 33 BI -- 24 AB

All patients with cholesteatoma not respond to local treatment . 80% Of the pt. with central perf. Not respond ear toilet alone . 25% Of the pt. with central perf. Not respond ear toilet + quinolone. Most of the cases with central per. Respond to local treatment very well (100% BI, 75% AB). Attic per. results is disappointing , may be due to small numbers of cases in the study. Most of the attic per. that respond to the treatment were marginal with granulation & had short history of otorrhoea (3-4 Ms). Most of the cases with central per., discharge stopped after the third to fourth session of BI , except that with small per. took longer . while that attic stopped after 5-6 session with BI treatment and take 3-4 days longer with AB. 13 of the cases with small central per. get complete healing of the tympanic mem. After

treatment with BI after about one month.

Discussion

Aural toilet and topical AB or Antiseptic appear effective (recurrence prevention and hearing improvement) need further study. Topical treatment is more effective at clearing aural discharge than systemic therapy, [8] probably due to the higher local concentrations of antibiotic achieved. Topical quinolones are effective compared to no drug treatment or topical antiseptics only; however, evidence for their superiority over other topical antibiotics is only indirect. [10] In the UK, ciprofloxacin or ofloxacin ear (and eye) drops are unlicensed but widely used by ENT specialists to treat CSOM as a safer alternative to topical aminoglycosides. [11]

In this study we found that Aural toilet increase the success rate of improvement & decrease the time & finance of the treatment by removing the debris & desquamated epithelia

which are good nutrient for the bacteria & leaving the middle ear as raw area for fitting bacteria with the AB or BI & Treatment failure is usually due to failure to penetrate the debris rather than bacterial resistance., attic perforation & chronic mastoiditis with or without cholesteoma

13 of the cases with small central per. get complete healing of the tympanic mem. After treatment with BI after about one month, we think that the acidity & pure oxygen that is elaborated from the reactions stimulate the growth of the edge of the perforation & promote healing.

The use of AB was for three weeks to stop otorrhea& prevent recurrence while it took 3-4 visits every other day with BI, so it is less expensive & short period PTA results are very good for group 2&3 because of the removal of the infection & the debris, it is better for group 3 due healing of the TM.

Most of the cases with central per. Respond to local treatment very well (100%BI, 75%AB) that might be the drug reach the infected area easily and in high concentration. discharge stopped after the third to fourth session, except that with small per. took longer .while that attic stopped after 5-6 session with BI treatment and take 3-4 days longer with AB. The results was disappointing, may be due to few no. of cases in the study& or due to cholesteoma & chronic mastoiditis were local treatment could not reach the area of infection

Most of the attic per .that respond to the treatment were marginal with granulation & had short history of otorrhea (3-4Ms) & that was might be due to the infection was more localized in the middle ear cleft and did not reached the mastoid.

Conclusion

In CSOM, Aural toilet increase the success rate of improvement & decrease the time & finance of the treatment. Treatment failure is usually due to failure to penetrate the debris rather than bacterial resistance.,& to also attic perforation & chronic mastoiditis with or without cholesteoma we had found ear toilet & topical boric acid –iodine powder insufflation for one week to be more effective than ear toilet & ciprofloxacin ear drops for 2-4 weeks , for both resolution of discharge and improvement in hearing& financially.& we might get complete healing of the tympanic mem.too,We also found significantly fewer adverse events of ear pain, irritation, and bleeding with N/S syringe washing and & suction , with **BI** than ciprofloxacin.

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