

## Different Methods of Treatment of Secretory Otitis Media in Children; A Meta-Analytical Study

M.M.Abdelrazik, A.F.Ghalab and M.S.Elsayed

Otorhinolaryngology Dept., Faculty of Medicine, Benha Univ., Benha, Egypt

E-Mail: Mohamed Samy@gmail.com

### Abstract

Otitis media with radiation is the main source of hearing misfortune in youngsters. It's assessed that 80% of youngsters have had a scene of OME by the age of 10 years. This paper looks to build up, through the accessible writing, the examination between various strategies for treatment of secretory otitis media in youngsters to preclude the best strategy for treatment, through deliberate survey and meta-investigation. This efficient audit was directed on kids with secretory otitis media everywhere on the world. Studies that included kids matured 0 to 12 years with repetitive or reciprocal AOM were qualified. Four examinations were incorporated from 2005 to 2014 with complete cases 1169 cases 582 in clinical gathering and 587 in fake treatment announced Complications after treatment . There was a measurably critical heterogeneity in the investigations (I2 69%, P 0.02). Utilizing the arbitrary impacts model, the result results uncovered that fake treatment was unimportantly not quite the same as clinical in regards to inconveniences after treatment. there were three investigations included from 2014 to 2019 with all out cases 362 cases 193 in Surgery with tube addition and 169 without tube detailed Tympanic Membrane Normal after treatment . There was a measurably critical heterogeneity in the examinations (I2 87%, P 0.0005). Utilizing the irregular impacts model, the result results uncovered that Surgery with tube addition was inconsequential not the same as without tube with respect to Tympanic Membrane Normal after treatment. In serous otitis media with emanation—where, in spite of its chronicity and the disappointment of clinical therapy, manifestations are less serious than in the mucoid sort, it very well might be prudent to utilize a less obtrusive careful measure, for example, myringotomy without the inclusion of grommet tubes.

### 1. Introduction

Otitis media is perhaps the most well-known illnesses during adolescence for which youngsters visit specialists and get anti-toxins before ten years of age [1].

Otitis media with emission (OME) is characterized as the presence of liquid (serous or mucoid) in the center ear parted without the indications and indications of disease like otalgia and pyrexia [2].

Otitis media with radiation is the main source of hearing misfortune in kids. It's assessed that 80% of youngsters have had a scene of OME by the age of 10 years (as a rule before the age of 3 years), with 2 pinnacles, first at 2 years old years and the second at the age of 5 [3].

Tympanostomy cylinders can reestablish ordinary hearing when they are effectively positioned and stay patent and forestall repeat of OME [4].

Numerous surgeries are compelling in the control of OME as Adenoidectomy, Myringotomy and Mastoid antrum ventilator tube [5]. Kids beyond 4 years old years going through ordinary adenoidectomy (curettage) and tympanostomy tube situation have an altogether lower OME repeat rate and essentially less cylinder positions than youngsters not treated by adenoidectomy [6].

Oral anti-toxin, oral or nasal corticosteroid, Antihistamines, decongestants and Mucolytics have little effect on the retrotympanic emission and doesn't improve medium-term or long haul hearing [7].

Self-insufflation or inflatable tubal insufflation (for example Otovent) techniques have a spot in the administration of provocative otitis with emission in helpful youngsters beyond 4 8 years old [8].

This paper looks to set up, through the accessible writing, the correlation between various strategies for treatment of secretory otitis media in kids to preclude the

best strategy for treatment, through deliberate survey and meta-investigation.

### 2. Patient and method

This audit was viewed as test studies and partner considers. We was bar case reports, letters, remarks, publications, cross-sectional, and case-control and case arrangement.

Mediations of interest incorporated those identified with correlation of various techniques for treatment of secretory otitis media in kids.

The essential result of interest is auditing Studies that incorporated the presence of the tympanic layer, hearing evaluation and goal or entanglements of secretory otitis media.

Search system was intended to incorporate both manual and electronic information accessible. Electronic quests was include looking through information bases of PubMed (from Jan. 2005 till July 2020), EMBASE, CINAHL and Cochrane information base looking through catchphrases and terms recorded underneath:

Otitis media with radiation, Child, Tympanostomy tubes, Cholesteatoma"

Likewise, full duplicates of articles of accessible clinical diaries and other distributed examinations recognized by the pursuit, conversation with a few specialists master in the field and distributed case reports, considered to meet the incorporation standards, in light of their title, conceptual and subject descriptors, was acquired for information amalgamation.

Modified works of articles distinguished utilizing the hunt technique above was seen, and articles that seem to satisfy the consideration standards was recovered in full. Information on in any event one of the result estimates

should be remembered for the investigation. Information was freely extricated by two analysts and cross-checked.

All measurable examination for pooling the investigations was performed on the STATA factual Software, discharge 14.0 (Stata Crop. 2015, College Station, Texas, USA).

### 3. Results

Four examinations were incorporated from 2005 to 2015 with complete cases 734 cases 369 in anti-infection gathering and 365 in sterile gathering detailed tympanic layer ordinariness after treatment. There was instatistically critical heterogeneity in the investigations (I2 39%, P 0.18). Utilizing the irregular impacts model, the result results uncovered that anti-infection agents was irrelevantly not the same as sterile with respect to tympanic layer ordinariness after treatment (mean, 95% CI: 0.73, 1.62) Z=0.41, (p0.68)

Three examinations were incorporated from 2005 to 2015 with absolute cases 634 cases 319 in anti-infection gathering and 315 in sterile gathering revealed Symptomatic help after treatment . There was genuinely critical heterogeneity in the investigations (I2 88% , P 0.0003 ). Utilizing the arbitrary impacts model, the result results uncovered that anti-toxins was irrelevantly unique in relation to disinfectant with respect to Symptomatic help after treatment (mean, 95% CI: 0.33, 3.84) Z=0.18, (p0.86)

Three investigations were incorporated from 2008 to 2020 with absolute cases 269 cases 136 in anti-infection gathering and 133 in corticosteroids bunch revealed tympanic film ordinariness after treatment . There was instatistically huge heterogeneity in the investigations (I2 0% , P 0.54 ). Utilizing the arbitrary impacts model, the result results uncovered that anti-toxins was unimportantly not the same as corticosteroids with respect to tympanic film ordinariness after treatment (mean, 95% CI: 0.65, 1.78) Z=0.28, (p0.78)

Six examinations were incorporated from 2006 to 2020 with complete cases 433 cases 223 in anti-infection gathering and 130 in corticosteroids bunch detailed Symptomatic alleviation after treatment . There was genuinely critical heterogeneity in the examinations (I2 74% , P 0.002). Utilizing the arbitrary impacts model, the result results uncovered that anti-toxins was irrelevantly unique in relation to corticosteroids with respect to Symptomatic help after treatment (mean, 95% CI: 0.53, 3.26) Z=0.58, (p0.56)

Two examinations were incorporated from 2006 to 2015 with all out cases 184 cases 92 in anti-microbial gathering and 92 in corticosteroids bunch announced antagonistic occasions after treatment . There was genuinely critical heterogeneity in the investigations (I2 77% , P 0.04). Utilizing the arbitrary impacts model, the result results uncovered that anti-microbials was irrelevantly not quite the same as corticosteroids with respect to antagonistic occasions after treatment (mean, 95% CI: 0.36, 12.17) Z=0.82, (p0.41)

Four examinations were incorporated from 2005 to 2019 with all out cases 404 cases 257 in clinical gathering and 14

in careful gathering revealed tympanic film ordinariness after treatment . There was a measurably huge heterogeneity in the examinations (I2 94% , P 0.00001 ). Utilizing the irregular impacts model, the result results uncovered that careful was irrelevantly not quite the same as clinical with respect to tympanic layer ordinariness after treatment (mean, 95% CI: 0.01,6.20) Z=0.88, (p0.38) three investigations were incorporated from 2010 to 2019 with complete cases 339 cases 230 in clinical gathering and 109 in careful gathering announced Symptomatic help after treatment. There was measurably irrelevant heterogeneity in the investigations (I2 0% , P 0.37). Utilizing the irregular impacts model, the result results uncovered that careful was altogether not the same as clinical with respect to Symptomatic help after treatment (mean, 95% CI: 0.12,0.42) Z=4.74, (p0.0001) two examinations were incorporated from 2012 to 2014 with all out cases 421 cases 292 in clinical gathering and 129 in careful gathering revealed Recurrence after treatment . There was a genuinely critical heterogeneity in the examinations (I2 77% , P 0.04 ). Utilizing the arbitrary impacts model, the result results uncovered that clinical was altogether not quite the same as careful with respect to Recurrence after treatment (mean, 95% CI: 1.09,11.69) Z=2.10, (p0.004)

Three examinations were incorporated from 2014 to 2019 with all out cases 362 cases 193 in Surgery with tube addition and 169 in without tube announced Tympanic Membrane Normal after treatment. There was a measurably critical heterogeneity in the investigations (I2 87%, P 0.0005). Utilizing the irregular impacts model, the result results uncovered that Surgery with tube addition was inconsequential not the same as without tube with respect to Tympanic Membrane Normal after treatment (mean, 95% CI: 0.17,6.78) Z=0.09, (p0.93)

Five investigations were incorporated from 2009 to 2019 with all out cases 730 cases 503 in Surgery with tube inclusion and 227 in without tube announced Recurrence after treatment. There was genuinely huge heterogeneity in the examinations (I2 77%, P 0.002). Utilizing the arbitrary impacts model, the result results uncovered that Surgery with tube inclusion was unimportantly unique in relation to without tube with respect to Recurrence after treatment (mean, 95% CI: 0.41, 3.79) Z=0.38, (p0.70)

Three examinations were incorporated from 2009 to 2019 with absolute cases 320 cases 176 in Surgery with tube inclusion and 144 in without tube announced Complications after treatment . There was a measurably in huge heterogeneity in the investigations (I2 0% , P 0.77 ). Utilizing the irregular impacts model, the result results uncovered that Surgery with tube addition was fundamentally not the same as without tube with respect to Complications after treatment (mean, 95% CI: 2.91, 17.75) Z=4.27, (p0.0001).

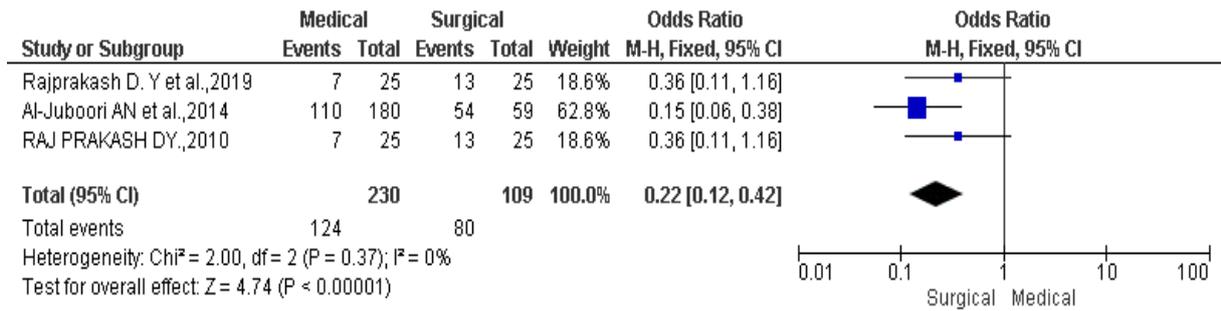


Fig (1) Forest plot for Symptomatic relief after medical treatment.

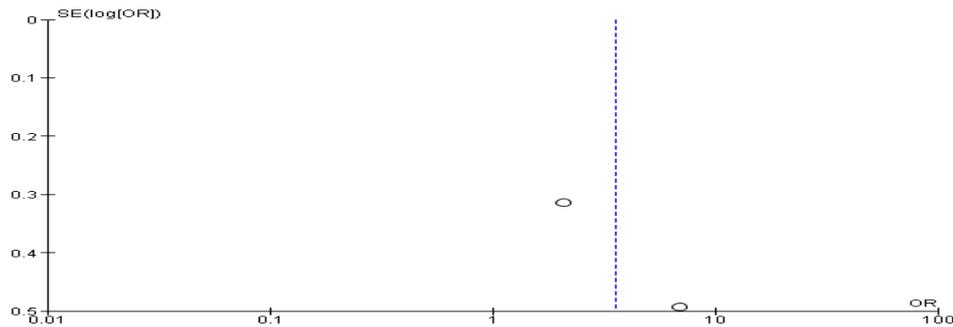


Fig (2) Funnel plot for Recurrence after medical treatment.

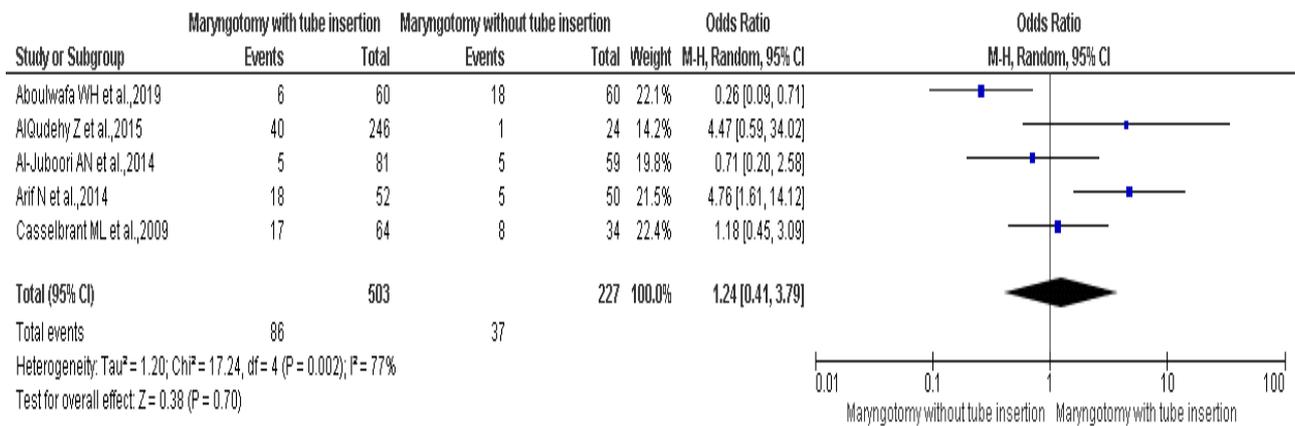


Fig (3) Forest plot for Recurrence after surgical management.

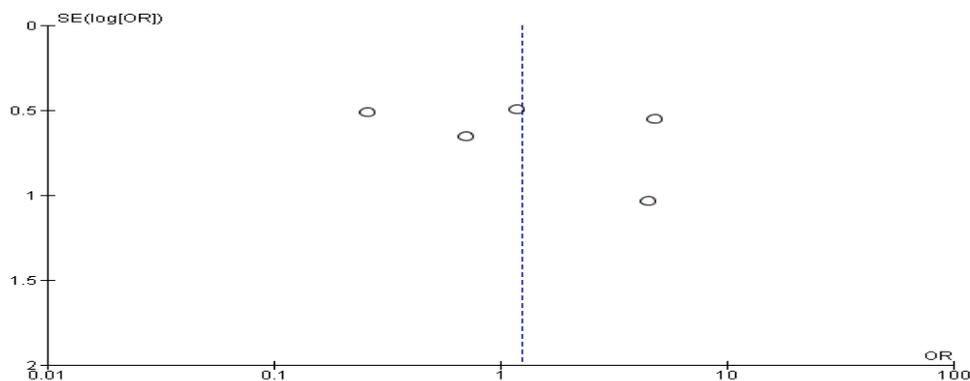


Fig (4) Funnel plot for Recurrence after surgical management.

#### 4. Discussion

The most well-known clinical introduction of OME is conductive hearing misfortune with normal conduction edge stretching around 27 decibels. Clinical treatment which incorporates anti-infection agents, decongestants and antihistamines ought to be allowed for a very long time for unconstrained resolutions. Careful treatment is regularly considered by otolaryngologists if center ear emanations endure for over 3 months [9].

The consequences of this meta-examination uncovered that three investigations were incorporated from 2010 to 2019 with complete cases 339 cases 230 in clinical gathering and 109 in careful gathering announced Symptomatic alleviation after treatment . There was a measurably irrelevant heterogeneity in the investigations (P 0.37). Utilizing the arbitrary impacts model, the result results uncovered that careful was essentially unique in relation to clinical with respect to Symptomatic help after treatment (p0.0001).

In an orderly survey of Browning et al., [10] to look at the adequacy of grommet addition versus myringotomy or clinical measures in youngsters with OME, either in randomized patients or in randomized ears, it was discovered that the mean hearing level increase was roughly 12 dB more in grommet ears than in control ears in an investigation of randomized patients and around 10 dB more in grommet ears than in control ears in an investigation of randomized ears. The analysts referenced, notwithstanding, that this consultation acquire diminishes with time and gets practically identical and almost equivalent to the meeting gain of immaculate controls on moderate measures or myringotomy alone. This examination reported that the consultation acquire 3 months after the activity was almost the equivalent in the two gatherings, with no measurable contrast.

In addition, the investigation of Yousaf et al., [11] revealed that clinical treatment was reshaped in 60 ears and 22 ears got freed from MEE. Listening to improved in 7 of 10 patients however the emission didn't resolve totally in cases with hypersensitive sickness.

Tos et al., [12] announced that unconstrained improvement of secretory otitis media (SOM) is normal. Type B tympanometry improves in 78% to 88% of ears after clinical treatment.

In our metanalysis, two investigations were incorporated from 2012 to 2014 with complete cases 421 cases 292 in clinical gathering and 129 in careful gathering revealed Recurrence after treatment . There was a genuinely huge heterogeneity in the investigations (I2 77%, P 0.04). Utilizing the irregular impacts model, the result results uncovered that clinical was essentially not quite the same as careful with respect to Recurrence after treatment (mean, 95% CI: 1.09,11.69) Z=2.10, (p0.004).

In concurrence with our discoveries, the investigation of Arif et al., [9] revealed that Statistical test demonstrated huge contrast in repeat pace of the sickness in the two gatherings ( p value= 0.0029<0.05), in another review case arrangement of Yaman et al., (13) in which

patients who had tympanostomy tube addition, An aggregate of 91 kids (169 ears) were looked into. Ears of kids isolated into three gatherings as per maintenance season of tympanostomy tubes. Gathering I: tympanostomy tube maintenance time under a half year. Gathering II: tympanostomy tube maintenance time a half year to a year. Gathering III: tympanostomy tube maintenance time a year or more, and detailed that OME repeat rate after cylinder expulsion was 20.7% in the examination, The correlation of the three gatherings showed that repeat rates were higher in gathering I (36.54%), than in gathering II (17.74%) and in gathering III (9.1%), There were measurably huge contrasts in repeat rates between bunch I and gathering III, and between bunch I and II (p < 0.05, p < 0.05). Be that as it may, the distinction in repeat rates between bunch II and gathering III was measurably not critical (p > 0.05).

The board of otitis media with emanation (OME) is as yet an uncertain issue. Albeit attentive holding up acquired fame, it may not be appropriate in the agricultural nations where clinical and careful therapies are being utilized all the more speedily, in our metanalysis; Three examinations were incorporated from 2005 to 2014 with all out cases 740 cases 375 in clinical gathering and 365 in fake treatment detailed Tympanic film typical after treatment . There was a genuinely huge heterogeneity in the examinations (I2 92% , P 0.00001 ). Utilizing the arbitrary impacts model, the result results uncovered that clinical was irrelevantly unique in relation to fake treatment with respect to Tympanic film typical after treatment (mean, 95% CI: 0.94,11.90) Z=1.87, (p0.06)

At last, paying little heed to the administration proposed, the presence of the tympanic film and hearing should be routinely surveyed. Youngsters should be followed until complete and enduring goal of OME to try not to miss potential complexities of OME.

#### References

- [1] Z.Tarjanyi, G.Montsko, P.Kenyeres. free and total cortisol levels are useful prognostic markers in critically ill patients:a prospective observational study, european J., endocrinology, Vol.171, PP.751-759,2014.
- [2] V.M.P.Balbao, M.M.A.Costa , M.Castrot evaluation of adrenal function in critically ill children, clinical endocrinology, Vol.81, PP.559-565,2014.
- [3] S.Sam, T.Corbridget, B.Mokhlesit. cortisol levels and mortality in sever sepsis, clinical endocrinology, Vol.60, PP.29-35,2004.
- [4] D.Bonifacic , M.Aralica , V.Sotosek. values of vanillyl mandelic acid and homovanillic acid in the Urine as potential prognostic biomarkers in ischaemic stroke patients, biomarkers, Vol.22 (8), PP.790-797,2017.
- [5] S.A.Naved, S.Siddiqui, F.H.Khan. APACHE-II score correlation with mortality and length of stay in an intensive care unit. J.,the College of

- Physicians and Surgeons Pakistan, Vol. 21(1), PP.4,2011.
- [6] C.F.Pizarro, E.J.Troster. Adrenal function in sepsis and septic shock. *J Pediatr (Rio J)*, Vol. 83, PP.155–162,2007.
- [7] J.J.Ligtenberg, J.G.Zijlstra. Relative adrenal insufficiency syndrome. In: Vincent J-L, ed. *Yearbook of Intensive Care and Emergency Medicine*. Berlin Heidelberg: Springer-Verlag. vol.8, PP.492-498,2002.
- [8] S.Barco, I.Gennai, G.Reggiardo. Urinary homovanillic and vanillylmandelic acid in the diagnosis of neuroblastoma: report from the Italian Cooperative Group for Neuroblastoma. *Clin Biochem*, Vol.47, PP.848-852,2014.
- [9] L.A.Dossett, L.A.Redhage, R.G.Sawyer, A.K. May. 2009. Revisiting the validity of APACHE-II in the trauma ICU: improved risk stratification in critically injured adults. *Injury*, Vol.40, PP.993-8,2009.
- [10] G.Karagüzel, S.Atay, O.Değer. The effects of three specific conditions related to critical care on adrenal function in children. *Intensive care medicine*, Vol.38(10), PP.1689-1696,2012.
- [11] A. Riutta, P. Ylitalo, S.Kaukinen. Diurnal variation of melatonin and cortisol is maintained in non-septic intensive care patients. *Intensive care medicine*, Vol.35(10), PP.1720,2009.
- [12] D.Bonifačić, M.Aralica, V.Sotošek Tokmadžić. Values of vanillylmandelic acid and homovanillic acid in the urine as potential prognostic biomarkers in ischaemic stroke patients. *Biomarkers*, Vol. 22(8), PP.790-797,2017.
- [13] G.Van den Berghe. Endocrine evaluation of patients with critical illness. *Endocrinology and Metabolism Clinics of North America*, Vol.32, PP.385-410,2003.