بسم الله الرحمن الرحيم


# شبكة المعلومـــات الجامعية

# التوثيق الالكتروني والميكروفيلم


شبكة المعلومات الجامعية

# جامعة عين شمس

## التوثيق الالكتروني والميكروفيلم

## ﴿ قـسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات


## يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

**To be kept away from dust in dry cool place of**
**15 – 25c and relative humidity 20-40 %**


# بعض الوثائق الأصلية تالفة


# بالرسالة صفحات

# لم ترد بالأصـــل

# Intratympanic injections
# Review & updates

Essay
Submitted for partial fulfillment of master degree in
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بسم الله الرحمن الرحيم
قَالُوا سُبْحَانَكَ لا عِلْمَ لَنَا
إِلاَّ مَا عَلَّمْتَنَا إِنَّكَ أَنتَ
الْعَلِيمُ الْحَكِيمُ
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# Abstract

Each technique has its associated advantages and disadvantages, and the surgeon must decide which technique to use in concordance with the patient’s disease and expectations. In the future, new medications likely will be developed to treat certain types of inner ear disease, including SSNHL, tinnitus, and various forms of vertigo. These medications can be administered by direct chemical perfusion of the inner ear.



Key word: Intratympanic , injections , Otolaryngology

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# *Abbreviations*

- **IT……Intratympanic**
- **RW… ……Round window**
- **RWM: ….....Round window membrane**
- **ABR:……Auditory Brainstem Response**
- **ST…….Scala tympani**
- **SV .....Scala vestibuli**
- **CSF.....Cerebrospinal fluid**
- ESS**…….....E**ndolymphatic sac surgery
- MD……**M**eniere's disease
- AIED **.....A**utoimmune inner ear disease
- SSNHL….....**S**udden sensorineural hearing loss

# Introduction:

Intratympanic (IT) injection is a promising, relatively new therapy for a variety of inner ear conditions that offers many potential benefits over the systemic administration of medications. IT injection allows the local application of medications directly to the inner ear by absorption across an intact round window (RW) membrane. Use of IT injections avoids the necessity for systemic administration, which is important with medications having serious side effects, such as corticosteroids. It may also yield a higher concentration of medication in the inner ear **(Barrs, 2004)**.

The delivery of medication to the inner ear through the transtympanic route dates back to 1935, when Barany reported his treatment of tinnitus with middle-ear delivery of lidocaine. In the **1950s Schuknecht** reported his use of streptomycin in Meniere's disease (MD), and **Sakata et al. (1982)** published their results with steroids treatment of cochlear tinnitus by blocking with 4% lidocaine and Decadron infusion **(Seidman and Vivek, 2004).**

Recent research has discovered the anatomy and physiology of the RW and provided important information on the inner ear pharmacokinetics and pharmacodynamics of drugs administered intratympanically. Although aminoglycosides and steroids have been most thoroughly studied, many other classes of pharmaceuticals, including other antibiotics, and topical anesthetics, have therapeutic potential in the inner ear and will probably be the subject of future studies **(Banerjee and Parnes, 2004).**

The different methods of chemical perfusion of the inner ear in the form of transtympanic injection with a tuberculin syringe, the use of a pressure equalizing tube, the RW micro catheter **(Weisskopf et al., 2001)**, and the Silverstein Microwick allow the local application of medications directly to the inner ear by absorption across an intact RW membrane **(Silverstein et al., 2001)**.

IT steroids are increasingly used in the treatment of inner ear disorders, especially in patients with sudden sensorineural hearing loss (SSNHL) who have failed systemic therapy with minimal morbidity **(Haynes et al., 2007)**.

In SSNHL methylprednisolone injection provides more significant hearing improvement for patients that failed with previous high dose systemic corticosteroid administration than systemic corticosteroid treatment alone. So it may be the first-step medical treatment of idiopathic SSNHL alone or at least may be combined with the systemic corticosteroid administration **(Plaza & Herraiz, 2007)**.

IT treatment of tinnitus with corticosteroids or gentamycin should be considered as an option of treatment in selected tinnitus patient alone or in combination with standard modalities of management such as tinnitus retraining therapy, masking, and hearing aid amplification. Some Meniere`s disease patients with tinnitus may experience tinnitus improvement following IT steroids. This treatment may be considered in such patients with good hearing, while gentamycin is effective in eliminating or reducing