# The Journal of International Advanced Otology



In Memoriam: Two Eminent Otologists

Vol.16 • Issue 1 • April 2020

The Journal of International Advanced Otology is fully sponsored and owned by



turopean Academy of Otology & Neuro-Otolog



Indexed in
Publimed

**SCI EXPANDED** 

Member of









### **EDITOR**

O. Nuri Özgirgin Bayındır Hospital, Ankara, Turkey

### **ASSOCIATE EDITORS**

Manohar Bance University of Cambridge, Cambridge, UK

Arun Gadre Geisinger Medical Center, Danville, PA, USA

Arata Horii Niigata University, Niigata City, Japan

Ja-Won Koo Seoul National University Bundang Hospital, Seongnam-si, Kore

Luiz Fernando Lourençone University of Sao Paulo, Sao Paulo, Brasil

Bülent Satar

University of Health Sciences, Gülhane Medical School, Ankara, Turkey

Robby Vanspauwen Sint-Augustinus Antwerp European Institute For ORL, Wilrijk, Belgium

The Journal of International Advanced Otology is fully sponsored and owned by





Address for correspondence Mailing address: 2610 Antwerp, Oosterveldlaan 24, Belgium URL: www.advancedotology.org E-mail: jiao@advancedotology.org

The Journal of International Advanced Otology (J Int Adv Otol) Copyright © All rights reserved. ISSN 1308-7649 E ISSN 2148-3817 Founded by MSOA



### The Journal of International Advanced Otology

### ADMINISTRATIVE ADVISORY BOARD

Manohar Bance

Dalhousie University, Halifax Nova Scotia, Canada

Maurizio Barbara

Sapienza University, Sant'Andrea Hospital, Rome, Italy

Chunfu Dai

University of Shangai, Shangai, China

Rubens de Brito

University of Sao Paulo, Sao Paulo, Brazil

Arnaud Deveeze

Clinique Clairval, Marseille, France

**Neil Donnelly** 

Spire Cambridge Lea Hospital, Cambridge, UK

Arun Gadre

Geisinger Medical Center, Danville, PA, USA

Karl-Bernd Huttenbrink

University of Koln, Köln, Germany

Ja-Won Koo

Seoul National University Bundang Hospital,

Seongnam-si, Korea

Hiromi Kojima

Jikei University, Tokyo, Japan

Thomas Lenarz

Medizinische Hochschule Hannover, Hannover, Germany

Jacques Magnan

Causse Ear Clinic, Beziers, France

Manoj Manikoth

Chinmaya Womens College, Kannur, India

Jeff Mulder

Radboud University Hospital, Nijmegen, The

Netherlands

Gerry O'Donoghue

Queens Medical Centre, Nottingham, UK

F. Erwin Offeciers

Sint-Augustinus Hospital University, Wilrijk, Belgium

Stephen O'Leary

University of Melbourne, Melbourne, Australia

Milan Profant

Department of Otorhinolaryngology, Bratislava University, Bratislava, Slovakia

Blake Papsin

University of Toronto, Toronto, Canada

**Angel Ramos** 

University Hospital Insular, Las Palmas, Spaim

Jay Rubinstein

UW Medicine's Head and Neck Surgery Center,

Washington D.C., USA

Shakeel Saeed

University College London, London, United Kingdom

Bülent Satar

GATA Medical School, Ankara, Turkey

Samuel Selesnick

Weill Cornell Medical College, New York, USA

**Thomas Somers** 

Sint-Augustinus Hospital University, Wilrijk, Belgium

Holger Sudhoff

Bielefeld Academic Teaching Hospital, Muenster University, Bielefeld, Germany

Per Cave Thomasen

Gentofte University Hospital, Hellerup, Denmark

Franco Trabalzini

University of Siena, Siena, Italy

Robby Vanspauwen

Department of Ear Nose Throat, Sint-Augustinus Antwerp European Institute For ORL, Wilrijk,

Belgium

**EDITORIAL CONSULTANTS** 

Fatthi Abdel Baki

University of Alexandria, Alexandria, Egypt

Mehmet Ada

University of İstanbul, İstanbul, Turkey

Songül Aksoy

Department of Audiology, Hacettepe University School of Medicine, Ankara, Turkey

Mesut Akyol

Yıldırım Bayazıt University, Ankara, Turkey

Cünevt Alper

University of Pittsburg, Pennsylvania, USA

Fazıl Necdet Ardıç

Pamukkale University, Denizli, Turkey

Miguel Aristegui

Hospital General Universitario Gregorio Maranon, Madrid, Spain

**Bernard Ars** 

University of Antwerp, Antwerp, Belgium

Nenad Arsovic

Belgrade Otorhinolaryngology Clinic, Belgrade, Serbia

Asım Aslan

Celal Bayar University, Manisa, Turkey

Ahmet Ataş

İstanbul University, İstanbul, Turkey

Paul Avan

Université d'Auvergne, Clermont-Ferrand, France

Manohar Bance

Dalhousie University, Halifax Nova Scotia, Canada

Maurizio Barbara

Sapienza University, Sant'Andrea Hospital, Rome, Italy

Saba Battelino

University Medical Centre, Ljubljana, Slovenia

Yıldırım Bayazıt

Medipol University, İstanbul, Turkey

Aziz Belal

Alex Ear Center, Alexandria, Egypt

Ricardo Bento

University of Sao Paulo, Sao Paulo, Brazil

Daniele Bernardeschi

GH Pitié Salpêtrière, Paris, France

Dirk Beutner

HNO-Universitätsklinik Köln, Köln, Germany

Anirban Biswas

Neurotology Center, Kalkota, India

Bruce Black

Royal CHildren's Hospital, Brisbane, Australia

Srecko Branica

University of Zagreb, Zagreb, Croatia

**Robert Briggs** 

Royal Victorian Eye and Ear Hospital, Melbourne,

Australia

Augusto Casani

Pisa University, Pisa, Italy

Carlos Cenjor Español Concepcion, Madrid, Spain

Fundacion Jimenez Diaz - Clinica Nuestra Senora

**Udi Cinamon** 

Edith Wolfson Medical Center, Cholon, Israel

Marcel Cosgarea

University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania

Vincent Cousins

The Alfred Hospital, Melbourne, Australia

Sebahattin Cüreoğlu

University of Minnesota, Minneapolis, USA

Onur Celik

Celal Bayar University, Manisa, Turkey

University of Shangai, Shangai, China

Vincent Darrouzet

Hopital Pellegrin, Bordeaux, France

Rubens de Brito

University of Sao Paulo, Sao Paulo, Brazil

## The Journal of International

Angel Ramos de Miguel

Las Palmas University, Las Palmas de Gran Canaria, Spain

Olivier Dequine

University of Toulouse, Toulouse, France

Antonio della Volpe

Santobono Paediatric Hospital, Naples, Italy

Arnaud Deveeze

Clinique Clairval, Marseille, France

İrfan Devranoğlu

İstanbul University, İstanbul, Turkey

Aarno Dietz

Kuopio University Hospital, Kuopio, Finland

Norbert Dillier

University Hospital Zürich, Zurich, Switzerland

**Neil Donnelly** 

Spire Cambridge Lea Hospital, Cambridge, UK

John Dornhoffer

UAMS Medical Center Little Rock, USA

Bruce M. Edwards

University of Michigan, Ann Arbor, USA

Antonio Lopez Escamez

Universidad de Granada, Granada, Spain

Jose Favad

Saudi Aramco, Dhahran, Saudi Arabia

Roberto Filipo

Sapienza University, Rome, Italy

Peter Franz

Rudolfstiftung Teaching Hospital, Vienna, Austria

**Bernard Fraysse** 

University of Toulouse, Toulouse, France

Henning Frenzel

Universitätsklinikum Schleswig-Holstein, Lübeck, Germany

Arun Gadre

Geisinger Medical Center, Danville, PA, USA

Michael Gaihede

Aarhus University, Aarhus, Sweden

Aydan Genç

Department of Audiology Hacettepe University School of Medicine, Ankara, Turkey

Imre Gerlinger

Department of Ear Nose Throat University Pécs, Pécs, Hungary

Mislav Gjuric

SINTEZA Health Center, Zagreb, Croatia

Wilko Grolman

University of Utrecht, Utrecht, Netherlands

Enis Alpin Güneri

Dokuz Eylül University İzmir, Turkey

Jean-Philippe Guyot

University of Geneva, Geneva, Switzerland

İbrahim Hızalan

Novomet Ear Nose Throat Center, Bursa, Turkey

Margriet A. Huisman

Leiden University, Leiden, The Netherlands

Malou Hultcrantz

University of Karolinska, Stockholm, Sweden

Karl-Bernd Hüttenbrink

University of Köln, Köln, Germany

Yukiko lino

Jichi Medical University Saitama Medical Center, Saitama, Japan

Armağan İncesulu

Eskişehir Osmangazi University, Eskişehir, Turkey

Adrian James

The Hospital for Sick Children, Ontario, Canada

Herman Jenkins

University of Colorado, Aurora, USA

Daniel Jiang

St Thomas' Hospital, London, UK

Seiji Kakehata

Yamagata University, Yamagata, Japan

Mohan Kameswaran

Madras Ear Nose Throat Research Foundation,

Chennai, India

Daniel Kaplan

Ben Gurion University, Beer Sheva, Israel

Herman Kingma

University of Maastricht, Maastricht, The Netherlands

Tayfun Kirazlı

Ege University, İzmir, Turkey

Mete Kiroğlu

Çukurova University, Adana, Turkey

Hiromi Koiima

Jikei University, Tokyo, Japan

Nazım Korkut

İstanbul University, İstanbul, Turkey

Sergey Kosyakov

Russian Medcal Academy for Postgraduate

Education, Moscow, Russia

Rudi Kuhweide

A.Z. St.-Jan Brugge A.V., Bruges, Belgium

Roland Laszig

University of Freiburg, Freiburg, Germany

Thomas Lenarz

Medizinische Hochschule Hannover, Hannover,

Germany

Thomas Linder

University of Luzern, Luzern, Switzerland

Simon Lloyd

University of Manchester, Manchester, UK

Jacques Magnan

Causse Ear Clinic, Beziers, France

Mans Magnusson

University of Lund, Lund, Sweden

Marco Mandala

University of Siena, Siena, Italy

Manuel Manrique

University of Pamplona, Pamplona, Spain

Salah Mansour

Lebanese University, Beirut, Lebanon

Daniele Marchioni

University of Verona, Verona, Italy

Paul Merkus

VU University Medical Center Amsterdam,

Amsterdam, The Netherlands

Hidemi Miyazaki

Kyosai Hospital, Tokyo, Japan

Constantino Morera

University of Valencia, Valencia, Spain

Badr Eldin Mostafa

Ain-Shams University, Cairo, Egypt

Jef Mulder

Radboud University Hospital, Nijmegen, The

Netherlands

Marcus Neudert

Technische Universität Dresden, Dresden, Germany

**Thomas Nikolopoulos** 

University of Athens, Athens, Greece

**Daniel Nuti** 

Universita degli Studi di Siena, Siena, Italy

Gerry O'Donoghue

Queens Medical Centre, Nottingham, UK

Stephen O'Leary

University of Melbourne, Melbourne, Australia

Onur Odabaşı

Adnan Menderes University, Aydın, Turkey

F. Erwin Offeciers

Sint-Augustinus Hospital University, Wilrijk, Belgium

Seung Ha Oh

Seoul National University Hospital, Seoul, South

Korea

Levent Olgun

İzmir Bozyaka Hospital, İzmir, Turkey

Carlos A. Oliveira

University of Brasília Medical School, Brasilia, Brazil

Ewa Olszewska

Medical University of Bialystok, Bialystok, Poland

## The Journal of International

Eva Orzan

Audiology and Otorhinolaryngology Institute for Maternal and Child Health IRCCS "Burlo Garofolo",

Levent Naci Özlüoğlu Başkent University, Ankara, Turkey

Blake Papsin

University of Toronto, Toronto, Canada

Ronen Perez

Shaare Zedek Medical Center, Jerusalem, Israel

Nicolas Perez Fernandez University of Navarra, Navarra, Spain

Stefan Plontke

University Hospital Halle, Saale, Germany

Department of Otorhinolaryngology University of Bratislava, Bratislava, Slovakia

Nicola Quaranta

University of Bari, Bari, Italy

**Angel Ramos** 

University Hospital Insular, Las Palmas, Spaim

Giampietro Ricci

University of Perugia, Perugia, Italy

John Rutka

Toronto General Hospital, Toronto, Canada

Ayşe Sanem Sahli

Department of Audiology Hacettepe University School of Medicine, Ankara, Turkey

Masafumi Sakagami

Hyogo College of Medicine, Hyogo, Japan

Issam Saliba

University of Montreal, Quebec, Canada

Mario Sanna

Gruppo Otologico, Piacenza, Italy

Pascal Senn

University of Geneve, Geneve, Switzerland

Avi Shupak

Technion - Israel Institute of Technology, Haifa, Israel

Henryk Skarzynski

World Hearing Center, Warsaw, Poland

Ad Snik

University of Nijmegen, Nijmegen, The Netherlands

**Thomas Somers** 

Sint-Augustinus Hospital University, Wilrijk, Belgium

Holger Sudhoff

Bielefeld Academic Teaching Hospital, Muenster University, Bielefeld, Germany

Witold Szyfter

Poznan University of Medical Sciences, Poznan, Poland

Bülent Şerbetçioğlu

Dokuz Eylül University, İzmir, Türkiye

Haruo Takahashi

University of Nagasaki, Nagasaki, Japan

Rinze A. Tange

University of Utrecht, Utrecht, The Netherlands

George Tavartkiladze

National Research Centre for Audiology and Hearing

Rehabilitation, Moscow, Russia

Per Caye Thomasen

Gentofte University Hospital, Hellerup, Denmark

Michael Tong

The Chinese University of Hong Kong, Hong Kong,

China

Tetsuya Tono

Miyazaki Medical College, Miyazaki, Japan

**Vedat Topsakal** 

University of Utrecht, Utrecht, The Netherlands

Franco Trabalzini

University of Siena, Siena, Italy

**Eric Truy** 

University of Lyon, Lyon, France

Nina Bozanic Urbancic

University Medical Centre Ljubljana, Ljubljana,

Slovenia

Cem Uzun

Trakya University, Edirne, Turkey

Paul Van de Hevning

University of Antwerp, Antwerp, Belgium

Frederic Venail

CHU Montpellier, Montpeiller, France

Christophe Vincent

Lille University Hospital, Lille, France

Magnus von Unge

Akershus Universitetssykehus, Nordbyhagen,

Norway

Ashley Wackym

Ear and Skull Base Institute, Portland, Oregon, USA

Stephen Wetmore

University West Virginia Medical Center,

Morgantown, USA

Sertaç Yetişer

Anadolu Hospital, İstanbul, Turkey

Orhan Yılmaz

Clinic of Otorhinolaryngology, University of Health

Sciences Dışkapı Yıldırım Beyazıt Training and

Research Hospital, Ankara, Turkey

**Robin Youngs** 

Gloucestershire Royal Hospital, Gloucestershire, UK

Diego Zanetti

University of Milano, Milano, Italy



**Publisher** İbrahim KARA

**Publication Director** Ali ŞAHİN

**Editorial Development** Gizem KAYAN

**Finance and Administration** Zeynep YAKIŞIRER ÜREN

**Deputy Publication Director** Gökhan ÇİMEN

**Publication Coordinators** 

Betül ÇİMEN **İrem SOYSAL** Arzu YILDIRIM Deniz KAYA Gülnur MERCAN Bahar ALBAYRAK

**Project Coordinators** 

Doğan ORUÇ Sinem KOZ

**Graphics Department** 

Ünal ÖZER Deniz DURAN Beyzanur KARABULUT

Address: Büyükdere Cad. No: 105/9 34394 Mecidiyeköy Şişli, İstanbul, Turkey Phone: +90 212 217 17 00 Fax: +90 212 217 22 92

E-mail: info@avesyayincilik.com



### **Aims and Scope**

The Journal of International Advanced Otology (J Int Adv Otol) is an international, peer reviewed, open access publication that is fully sponsored and owned by the European Academy of Otology and Neurotology and the Politzer Society. The journal is published triannually in April, August, and December and its publication language is English.

The scope of the Journal is limited with otology, neurotology, audiology (excluding linguistics) and skull base medicine.

The Journal of International Advanced Otology aims to publish manuscripts at the highest clinical and scientific level. J Int Adv Otol publishes original articles in the form of clinical and basic research, review articles, short reports and a limited number of case reports. Controversial patient discussions, communications on emerging technology, and historical issues will also be considered for publication.

Target audience of J Int Adv Otol includes physicians and academics who work in the fields of otology, neurotology, audiology and skull base medicine.

The editorial and publication processes of the journal are shaped in accordance with the guidelines of the International Committee of Medical Journal Editors (ICMJE), World Association of Medical Editors (WAME), Council of Science Editors (CSE), Committee on Publication Ethics (COPE), European Association of Science Editors (EASE), and National Information Standards Organization (NISO). The journal is in conformity with the Principles of Transparency and Best Practice in Scholarly Publishing (doaj.org/bestpractice).

The Journal of International Advanced Otology is indexed in Science Citation Index Expanded, PubMed/MEDLINE, Pubmed Central, Index Copernicus, EBSCO, PROQUEST, and SCOPUS.

Processing and publication are free of charge with the journal. No fees are requested from the authors at any point throughout the evaluation and publication process. All manuscripts must be submitted via the online submission system, which is available at www.advancedotology.org. The journal guidelines, technical information, and the required forms are available on the journal's web page.

J Int Adv Otol is funded by revenue generated by advertising as well as the support of the European Academy of Otology and Neurotology and the Politzer Society. Advertisement images are published only upon the Editor-in-Chief's approval.

Statements or opinions expressed in the manuscripts published in the journal reflect the views of the author(s) and not the opinions of the European Academy of Otology and Neurotology, Politzer Society, editors, editorial board, and/or publisher; the editors, editorial board, and publisher disclaim any responsibility or liability for such materials.

Journal of International Advanced Otology is an open access publication and the journal's publication model is based on Budapest Open Access Initiative (BOAI) declaration. Journal's archive is available online, free of charge at www.advancedotology.org. Journal of International Advanced Otologys's content is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Printed copies of the journal are distributed to the members of the European Academy of Otology and Neurotology and the Politzer Society, free of charge.

Editorial Office: Prof. Dr. O. Nuri Ozgirgin

Address: Bayındır Hospital, Söğütözü, Ankara, Turkey

Tel: +90 312 287 90 00 - int: 7811 Fax: +90 312 284 42 76 e-mail: ozgirgin@icloud.com

**Publisher: AVES** 

Address: Büyükdere Cad. 105/9 34394 Mecidiyeköy, Şişli, İstanbul

Phone: +90 212 217 17 00 Fax: +90 212 217 22 92 Web page: avesyayincilik.com E-mail: info@avesyayincilik.com

The journal is printed on an acid-free paper.







### **Instructions to Authors**

### Context

Journal of International Advanced Otology (J Int Adv Otol) is an international, peer reviewed, open access publication that is fully sponsored and owned by the European Academy of Otology and Neurotology and the Politzer Society. The journal is published triannually in April, August, and December and its publication language is English.

The scope of the Journal is limited with otology, neurotology, audiology (excluding linguistics) and skull base medicine.

The Journal of International Advanced Otology aims to publish manuscripts at the highest clinical and scientific level. J Int Adv Otol publishes original articles in the form of clinical and basic research, review articles, short reports and a limited number of case reports. Controversial patient discussions, communications on emerging technology, and historical issues will also be considered for publication.

### **Editorial and Publication Process**

The editorial and publication processes of the journal are shaped in accordance with the guidelines of the International Council of Medical Journal Editors (ICMJE), the World Association of Medical Editors (WAME), the Council of Science Editors (CSE), the Committee on Publication Ethics (COPE), the European Association of Science Editors (EASE), and National Information Standards Organization (NISO). The journal conforms to the Principles of Transparency and Best Practice in Scholarly Publishing (doaj.org/bestpractice).

Originality, high scientific quality, and citation potential are the most important criteria for a manuscript to be accepted for publication. Manuscripts submitted for evaluation should not have been previously presented or already published in an electronic or printed medium. The journal should be informed of manuscripts that have been submitted to another journal for evaluation and rejected for publication. The submission of previous reviewer reports will expedite the evaluation process. Manuscripts that have been presented in a meeting should be submitted with detailed information on the organization, including the name, date, and location of the organization.

### **Peer-Review Policy**

Manuscripts submitted to the Journal of International Advanced Otology will go through a double-blind peer-review process. Each submission will be reviewed by at least two external, independent peer reviewers who are experts in their fields in order to ensure an unbiased evaluation process. The editorial board will invite an external and independent editor to manage the evaluation processes of manuscripts submitted by editors or by the editorial board members of the journal. The Editor in Chief is the final authority in the decision-making process for all submissions.

### **Ethical Principles**

An approval of research protocols by the Ethics Committee in accordance with international agreements (World Medical Association Declaration of Helsinki "Ethical Principles for Medical Research Involving Human Subjects," amended in October 2013, www.wma.net) is required for experimental, clinical, and drug studies and for some case reports. If required, ethics committee reports or an equivalent official document will be requested from the authors. For manuscripts concerning experimental research on humans, a statement should be included that shows that written informed consent of patients and volunteers was obtained following a detailed explanation of the procedures that they may undergo. For studies carried out on animals, the measures taken to prevent pain and suffering of the animals should be stated clearly. Information on patient consent, the name of the ethics committee, and the ethics committee approval number should also be stated in the Materials and Methods section of the manuscript. It is the authors' responsibility to carefully protect the patients' anonymity. For photographs that may reveal the identity of the patients, signed releases of the patient or of their legal representative should be enclosed.



### Plagiarism

Journal of International Advanced Otology is extremely sensitive about plagiarism. All submissions are screened by a similarity detection software (iThenticate by CrossCheck) at any point during the peer-review and/or production process. Even if you are the author of the phrases or sentences, the text should not have unacceptable similarity with the previously published data.

When you are discussing others' (or your own) previous work, please make sure that you cite the material correctly in every instance.

In the event of alleged or suspected research misconduct, e.g., plagiarism, citation manipulation, and data falsification/fabrication, the Editorial Board will follow and act in accordance with COPE guidelines.

### Preprint

Journal of International Advanced Otology does not consider preprint publications as prior publication. In other words, authors are allowed to present and discuss their findings on a non-commercial preprint server before submission to a journal.

Authors must provide the journal with the pre-print server deposition of their article accompanying its DOI during initial submission.

If the article is published in the Journal of International Advanced Otology, it is the responsibility of the authors to update the archived preprint and link it to the published version of the article.

### Authorship

Each individual listed as an author should fulfill the authorship criteria recommended by the International Committee of Medical Journal Editors (ICMJE - www.icmje.org). The ICMJE recommends that authorship be based on the following 4 criteria:

- 1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work;
- 2. Drafting the work or revising it critically for important intellectual content; AND
- 3. Final approval of the version to be published; AND
- 4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

In addition to being accountable for the parts of the work he/she has done, an author should be able to identify which co-authors are responsible for specific other parts of the work. In addition, authors should have confidence in the integrity of the contributions of their co-authors.

All those designated as authors should meet all four criteria for authorship, and all who meet the four criteria should be identified as authors. Those who do not meet all four criteria should be acknowledged in the title page of the manuscript.

Authors are required to provide their contributions to the manuscript in the Copyright Agreement and Authorship Form which can be downloaded at http://www.advancedotology.org/eng. If the editorial board suspects a case of "gift authorship," the submission will be rejected without further review. As part of the submission of the manuscript, the corresponding author should also send a short statement declaring that he/she accepts to undertake all the responsibility for authorship during the submission and review stages of the manuscript.



### **Declaration of Interest**

Journal of International Advanced Otology requires and encourages the authors and the individuals involved in the evaluation process of submitted manuscripts to disclose any existing or potential conflicts of interests, including financial, consultant, and institutional, that might lead to potential bias or a conflict of interest. Any financial grants or other support received for a submitted study from individuals or institutions should be disclosed to the Editorial Board. To disclose a potential conflict of interest, the ICMJE Potential Conflict of Interest Disclosure Form should be filled in and submitted by all contributing authors. Cases of a potential conflict of interest of the editors, authors, or reviewers are resolved by the journal's Editorial Board within the scope of COPE and ICMJE guidelines.

The Editorial Board of the journal handles all appeal and complaint cases within the scope of COPE guidelines. In such cases, authors should get in direct contact with the editorial office regarding their appeals and complaints. When needed, an ombudsperson may be assigned to resolve cases that cannot be resolved internally. The Editor in Chief is the final authority in the decision-making process for all appeals and complaints.

### Copyright and License

Journal of Interventional Advanced Otology requires each submission to be accompanied by a Copyright License Agreement (available for download http://www.advancedotology.org). When using previously published content, including figures, tables, or any other material in both print and electronic formats, authors must obtain permission from the copyright holder. Legal, financial and criminal liabilities in this regard belong to the author(s). By signing the Copyright License Agreement, authors retain copyright of their work and agree that the article, if accepted for publication by the Journal of Interventional Advanced Otology, will be licensed under a Creative Commons Attribution-Non Commercial 4.0 International License (CC BY-NC).

### Disclaimer

Statements or opinions expressed in the manuscripts published in the Journal of International Advanced Otology reflect the views of the author(s) and not the opinions of the editors, the editorial board, or the publisher; the editors, the editorial board, and the publisher disclaim any responsibility or liability for such materials. The final responsibility in regard to the published content rests with the authors.

### MANUSCRIPT PREPARATION

The manuscripts should be prepared in accordance with ICMJE-Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals (updated in December 2019 - http://www.icmje.org/icmje-recommendations.pdf). Authors are required to prepare manuscripts in accordance with the CONSORT guidelines for randomized research studies, STROBE guidelines for observational original research studies, STARD guidelines for studies on diagnostic accuracy, PRISMA guidelines for systematic reviews and meta-analysis, ARRIVE guidelines for experimental animal studies, and TREND guidelines for non-randomized public behavior.

Manuscripts can only be submitted through the journal's online manuscript submission and evaluation system, available at www.advancedotology.org. Manuscripts submitted via any other medium will not be evaluated.

Manuscripts submitted to the journal will first go through a technical evaluation process where the editorial office staff will ensure that the manuscript has been prepared and submitted in accordance with the journal's guidelines. Submissions that do not conform to the journal's guidelines will be returned to the submitting author with technical correction requests.

Authors are required to submit the following:

- · Author Contribution and Copyright Agreement Form,
- ICMJE Potential Conflict of Interest Disclosure Form (should be filled in by all contributing authors) during the initial submission. These forms are available for download at www.advancedotology.org.



### Preparation of the Manuscript

Title page: A separate title page should be submitted with all submissions and this page should include:

- The full title of the manuscript as well as a short title (running head) of no more than 50 characters,
- Name(s), affiliations, highest academic degree(s), and ORCID IDs of the author(s),
- · Grant information and detailed information on the other sources of support,
- · Name, address, telephone (including the mobile phone number) and fax numbers, and email address of the corresponding author,
- · Acknowledgment of the individuals who contributed to the preparation of the manuscript but who do not fulfill the authorship criteria.

**Abstract:** An abstract should be submitted with all submissions except for Letters to the Editor. The abstract of Original Articles should be structured with subheadings (Objective, Methods, Results, and Conclusion). Please check Table 1 below for word count specifications.

**Keywords:** Each submission must be accompanied by a minimum of three to a maximum of six keywords for subject indexing at the end of the abstract. The keywords should be listed in full without abbreviations. The keywords should be selected from the National Library of Medicine, Medical Subject Headings database (https://www.nlm.nih.gov/mesh/MBrowser.html).

### **Manuscript Types**

**Original Articles:** This is the most important type of article since it provides new information based on original research. The main text of original articles should be structured with Introduction, Methods, Results, Discussion, and Conclusion subheadings. Please check Table 1 for the limitations for Original Articles.

Statistical analysis to support conclusions is usually necessary. Statistical analyses must be conducted in accordance with international statistical reporting standards (Altman DG, Gore SM, Gardner MJ, Pocock SJ. Statistical guidelines for contributors to medical journals. Br Med J 1983: 7; 1489-93). Information on statistical analyses should be provided with a separate subheading under the Materials and Methods section and the statistical software that was used during the process must be specified.

Units should be prepared in accordance with the International System of Units (SI).

**Editorial Comments:** Editorial comments aim to provide a brief critical commentary by reviewers with expertise or with high reputation in the topic of the research article published in the journal. Authors are selected and invited by the journal to provide such comments. Abstract, Keywords, and Tables, Figures, Images, and other media are not included.

**Review Articles:** Reviews prepared by authors who have extensive knowledge on a particular field and whose scientific background has been translated into a high volume of publications with a high citation potential are welcomed. These authors may even be invited by the journal. Reviews should describe, discuss, and evaluate the current level of knowledge of a topic in clinical practice and should guide future studies. The main text should contain Introduction, Clinical and Research Consequences, and Conclusion sections. Please check Table 1 for the limitations for Review Articles.

Case Reports: There is limited space for case reports in the journal and reports on rare cases or conditions that constitute challenges in diagnosis and treatment, those offering new therapies or revealing knowledge not included in the literature, and interesting and educative case reports are accepted for publication. The text should include Introduction, Case Presentation, Discussion, and Conlusion subheadings. Please check Table 1 for the limitations for Case Reports.

Letters to the Editor: This type of manuscript discusses important parts, overlooked aspects, or lacking parts of a previously published article. Articles on subjects within the scope of the journal that might attract the readers' attention, particularly educative cases, may



also be submitted in the form of a "Letter to the Editor." Readers can also present their comments on the published manuscripts in the form of a "Letter to the Editor." Abstract, Keywords, and Tables, Figures, Images, and other media should not be included. The text should be unstructured. The manuscript that is being commented on must be properly cited within this manuscript.

Table 1. Limitations for each manuscript type

Type of manuscript	Word limit	Abstract word limit	Reference limit	Table limit	Figure limit
Original Article	3000	250 (Structured)	35	6	7 or total of 15 images
Review Article	5000	250	50	6	10 or total of 20 images
Case Report	1200	200	15	No tables	10 or total of 20 images
Letter to the Editor	500	No abstract	5	No tables	No media

### **Tables**

Tables should be included in the main document, presented after the reference list, and they should be numbered consecutively in the order they are referred to within the main text. A descriptive title must be placed above the tables. Abbreviations used in the tables should be defined below the tables by footnotes (even if they are defined within the main text). Tables should be created using the "insert table" command of the word processing software and they should be arranged clearly to provide easy reading. Data presented in the tables should not be a repetition of the data presented within the main text but should be supporting the main text.

### Figures and Figure Legends

Figures, graphics, and photographs should be submitted as separate files (in TIFF or JPEG format) through the submission system. The files should not be embedded in a Word document or the main document. When there are figure subunits, the subunits should not be merged to form a single image. Each subunit should be submitted separately through the submission system. Images should not be labeled (a, b, c, etc.) to indicate figure subunits. Thick and thin arrows, arrowheads, stars, asterisks, and similar marks can be used on the images to support figure legends. Like the rest of the submission, the figures too should be blind. Any information within the images that may indicate an individual or institution should be blinded. The minimum resolution of each submitted figure should be 300 DPI. To prevent delays in the evaluation process, all submitted figures should be clear in resolution and large in size (minimum dimensions:  $100 \times 100$  mm). Figure legends should be listed at the end of the main document.

All acronyms and abbreviations used in the manuscript should be defined at first use, both in the abstract and in the main text. The abbreviation should be provided in parentheses following the definition.

When a drug, product, hardware, or software program is mentioned within the main text, product information, including the name of the product, the producer of the product, and city and the country of the company (including the state if in USA), should be provided in parentheses in the following format: "Discovery St PET/CT scanner (General Electric, Milwaukee, WI, USA)"

All references, tables, and figures should be referred to within the main text, and they should be numbered consecutively in the order they are referred to within the main text.

Limitations, drawbacks, and the shortcomings of original articles should be mentioned in the Discussion section before the conclusion paragraph.

### References

Both in-text citations and the references must be prepared according to the Vancouver style. While citing publications, preference should be given to the latest, most up-to-date publications. Authors are responsible for the accuracy of references. Journal titles should



be abbreviated in accordance with the journal abbreviations in Index Medicus/ MEDLINE/PubMed. If an ahead-of-print publication is cited, the DOI number should be provided. When there are six or fewer authors, all authors should be listed. If there are seven or more authors, the first six authors should be listed followed by "et al." In the main text of the manuscript, references should be cited using Arabic numbers in square brackets superscripts. The reference styles for different types of publications are presented in the following examples.

Journal Article: Rankovic A, Rancic N, Jovanovic M, Ivanović M, Gajović O, Lazić Z, et al. Impact of imaging diagnostics on the budget – Are we spending too much? Vojnosanit Pregl 2013; 70: 709-11.

**Book Section:** Suh KN, Keystone JS. Malaria and babesiosis. Gorbach SL, Barlett JG, Blacklow NR, editors. Infectious Diseases. Philadelphia: Lippincott Williams; 2004.p.2290-308.

Books with a Single Author: Sweetman SC. Martindale the Complete Drug Reference. 34th ed. London: Pharmaceutical Press; 2005.

Editor(s) as Author: Huizing EH, de Groot JAM, editors. Functional reconstructive nasal surgery. Stuttgart-New York: Thieme; 2003.

Conference Proceedings: Bengisson S. Sothemin BG. Enforcement of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sept 6-10; Geneva, Switzerland. Amsterdam: North-Holland; 1992. pp.1561-5.

Scientific or Technical Report: Cusick M, Chew EY, Hoogwerf B, Agrón E, Wu L, Lindley A, et al. Early Treatment Diabetic Retinopathy Study Research Group. Risk factors for renal replacement therapy in the Early Treatment Diabetic Retinopathy Study (ETDRS), Early Treatment Diabetic Retinopathy Study Kidney Int: 2004. Report No: 26.

Thesis: Yılmaz B. Ankara Üniversitesindeki Öğrencilerin Beslenme Durumları, Fiziksel Aktiviteleri ve Beden Kitle İndeksleri Kan Lipidleri Arasındaki İlişkiler. H.Ü. Sağlık Bilimleri Enstitüsü, Doktora Tezi. 2007.

Manuscripts Accepted for Publication, Not Published Yet: Slots J. The microflora of black stain on human primary teeth. Scand J Dent Res. 1974.

**Epub Ahead of Print Articles:** Cai L, Yeh BM, Westphalen AC, Roberts JP, Wang ZJ. Adult living donor liver imaging. Diagn Interv Radiol. 2016 Feb 24. doi: 10.5152/dir.2016.15323. [Epub ahead of print].

Manuscripts Published in Electronic Format: Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis (serial online) 1995 Jan-Mar (cited 1996 June 5): 1(1): (24 screens). Available from: URL: http://www.cdc.gov/ncidodlEID/cid.htm.

### **REVISIONS**

When submitting a revised version of a paper, the author must submit a detailed "Response to the reviewers" that states point by point how each issue raised by the reviewers has been covered and where it can be found (each reviewer's comment, followed by the author's reply and line numbers where the changes have been made) as well as an annotated copy of the main document. Revised manuscripts must be submitted within 30 days from the date of the decision letter. If the revised version of the manuscript is not submitted within the allocated time, the revision option may be canceled. If the submitting author(s) believe that additional time is required, they should request this extension before the initial 30-day period is over.

Accepted manuscripts are copy-edited for grammar, punctuation, and format. Once the publication process of a manuscript is completed, it is published online on the journal's webpage as an ahead-of-print publication before it is included in its scheduled issue. A PDF proof of the accepted manuscript is sent to the corresponding author and their publication approval is requested within 2 days of their receipt of the proof.



### **Contents**

### **Obituary**

1 | Remembering Professor Ugo Fisch

Thomas Linder

### **Original Articles**

3 Comparison of the Surgical Techniques and Robotic Techniques for Cochlear Implantation in Terms of the Trajectories Toward the Inner Ear

Vedat Topsakal, Marco Matulic, Masoud Zoka Assadi, Griet Mertens, Vincent Van Rompaey, Paul Van de Heyning

8 | The Relationship between Electrical Stapedius Reflex Thresholds and Behaviorally Most Comfortable Levels in Experienced Cochlear Implant Users

Ayça Çiprut, Çağlayan Adıgül

13 | The Use of the Internet and Social Media by Individuals with Ménière's Disease: An Exploratory Survey of Finnish Ménière Federation Members

Vinaya Manchaiah, Ilmari Pyykkő, Nora Pyykkő

- 18 | The Role of Mobile Phone Camera Recordings in the Diagnosis of Meniere's Disease and Pathophysiological Implications Mete Kıroğlu, Muhammed Dağkıran
- 24 Assessment of Vestibular Function in Adults with Prelingual Hearing Loss Using c/oVEMP Tests Oya Tanyeri, M. Volkan Akdoğan, Evren Hızal, A. Fuat Büyüklü
- 28 | The Effectiveness of Medical Prophylactic Treatment on Vestibular Migraine and Its Effect on the Quality Of Life Onur Çelik, Gökçe Tanyeri Toker, Görkem Eskiizmir, Armağan İncesulu Nevin Şahin Süyür
- 34 | Correlation between Surgical Outcome and Stage of Acquired Middle Ear Cholesteatoma: Revalidation of the EAONO/JOS Staging System

Fazıl Necdet Ardıç, Erdem Mengi, Funda Tümkaya, Cüneyt Orhan Kara, Ferda Bir

- 40 Clinical Characteristics of Patients with Cochlear Fistulas Caused by Chronic Otitis Media with Cholesteatoma Woongsang Sunwoo, Sang-Youp Lee, Jeon Seong, Young Eun Han, Min-Hyun Park
- 47 | Intratympanic Steroid Treatment of Bell's Palsy in Patients with Comorbid Disease: A Preliminary Report Deniz Demir, Sena Genç, Mehmet Güven, Mahmut Sinan Yılmaz, Ahmet Kara, Ünal Erkorkmaz
- 53 Cochlear Patency after Translabyrinthine and Retrosigmoid Vestibular Schwannoma Surgery Huibert Frans van Waegeningh, Elke Loos, Tony Van Havenbergh, Thomas Somers
- 58 Long-Term Outcomes from Blind Sac Closure of the External Auditory Canal: Our Institutional Experience in Different Pathologies

Fatemeh Hassannia, Mordechai Kraus, Michael J Bergin, Khalid Al Zaabi, John Alexander Rutka

- 63 Grading of the Position of the Mastoid Tegmen in Human Temporal Bones A Surgeon's Perspective Anup Singh, Rishikesh Thakur, Rajeev Kumar, Hitesh Verma, David Victor Kumar Irugu
- 67 | The Effect of Auricular Graft Donor Site on Morbidity and Cosmetic Appearance in Cartilage Tympanoplasties Aydın Hüseyinoğlu, Cem Uzun, Ahmet Koder, Recep Yağız, Erol Benlier, Erdoğan Bulut
- 73 | Hearing Aid Uptake in Children with Unilateral Microtia and Canal Atresia: A Comparison between a Tertiary Center and Peripheral Centers

Todd Kanzara, Alasdair Ford, Elizabeth Fleming, Su De



- 77 | Examining the Early Period Effect of Nilotinib on Hearing: An Experimental Study Adem Bora, Kasım Durmuş, Hatice Terzi, Emine Elif Altuntaş
- 87 Assessment of Hidden Hearing Loss in Normal Hearing Individuals with and Without Tinnitus
  Eyyup Kara, Kübra Aydın, A. Alperen Akbulut, Sare Nur Karakol, Serkan Durmaz, H. Murat Yener, E. Deniz Gözen, Halide Kara
- 93 Effects of the Conductive Component of Hearing Loss on Speech Discrimination Ability Takaomi Kurioka, Hajime Sano, Shogo Furuki, Taku Yamashita
- 98 | Malignant Otitis Externa: Causes for Various Treatment Responses
  Nenad Arsovic, Nemanja Radivojevic, Snezana Jesic, Snezana Babac, Ljiljana Cvorovic, Zoran Dudvarski

### Reviews

- 104 | Literature Review on the Distribution of Spiral Ganglion Cell Bodies inside the Human Cochlear Central Modiolar Trunk Anandhan Dhanasing, Claude N. Jolly, Gunesh Rajan, Paul van de Heyning
- 111 | Inner-Ear Disorders Presenting with Air–Bone Gaps: A Review
  Alfonso Scarpa, Massimo Ralli, Claudia Cassandro, Federico Maria Gioacchini, Antonio Greco, Arianna Di Stadio, Matteo Cavaliere,
  Donato Troisi, Marco de Vincentiis, Ettore Cassandro
- 117 | Chondromyxoid Fibroma of the Mastoid: A Rare Entity with Comprehensive Literature Review Ahmed Elsamanody, Maaike Van den Aardweg, Alexander Smits, Stefan Willems, Vedat Topsakal

### **Case Reports**

- 123 The Sensitivity of the cVEMP Test in Detecting A Superior Semicircular Canal Dehiscence and the Influence of a Coexisting Incudal Lysis: A Case Report
  - $Morgana\ Sluydts, Anja\ Bernaerts, Bert\ De\ Foer, Andrzej\ Zarowski, Joost\ van\ Dinther,\ Robby\ Vanspauwen,\ Erwin\ Offeciers$
- 127 | Transient Vertigo with Horizontal Nystagmus to Loud Noise and Pressure: Utricular Hydrops or Vestibular Atelectasis? Fatemeh Hassannia, Simon D. Carr, John A. Rutka
- 130 | Different Audiologic Outcomes in Twins with Congenital Cytomegalovirus Infection
  Cecilia Botti, Silvia Palma, Maria Federica Roversi, Daniele Monzani, Alberto Berardi, Elisabetta Genovese
- 134 | Primary Liposarcoma with Cholesteatoma in Mastoid Mitsuo P. Sato, Kazuya Saito, Takeshi Fujita, Toru Seo, Katsumi Doi
- 138 | Vestibular Impairment in Hemifacial Spasm Syndrome: A Case Report Luz Barona, Claudio Krstulovic, Bartolome Bejarano, Nicolas Perez
- 141 | A Rare Case of Bifurcated Chorda Tympani Ken Kasahara, Makoto Hosoya, Naoki Oishi, Kaoru Ogawa

### Letter to the Editor

145 | Efficacy of Epley Maneuver on Quality of Life of Elderly Patients with Subjective BPPV Mehmet Emre Sivrice



Editorial DOI: 10.5152/iao.2020.310320

### How Much Covid-19 Will Change the World

The world is experiencing extraordinary days since December 2019. COVID-19 virus ignited in Wuhan (China) aggressively took over all continents. Currently, the otologic manifestations of the virus are not yet known. Still, the precautions come with the use of steroids as it is the primary treatment modality in many otologic conditions.

In an effort to reduce exposure to the virus, most of us are now only partly involved with the clinical work in our hospitals, and the downtime can be an opportunity to catch-up on the recent publications. Additionally, as the time available to complete scientific studies and make them ready for publication increases due to the pandemic, journals may see a rise in submission numbers.

While every measure is being taken against the pandemic, discussions began on the kind of changes the world can expect to see in the aftermath. These extraordinary times once more validated our need for equal, fast, and easy access to scientific information. Easy online access to recent studies on COVID-19 has created great awareness on the pandemic very quickly, and the dynamics to limit the spread, control the clinical progress, and treatment of the infection have been remarkable even when there have been only a few months since the disease initiated. Currently, more than 1500 articles are listed in PubMed on the topic, and many of them are open access.

Open access publishing will be prominent following the pandemics regarding financial, social, and political impacts. We will be able to assess its importance better once this is over. I also think easy online access will only speed up the decline of print publication going forward.

Stay healthy,

Nuri Özgirgin Editor in Chief