

vol. n.
62/1

Cited in Index Medicus / Medline
NLM ID 921440 (Pub-Med)

March
2021

Supplemento 2

Atti

2° edizione

Giornate della ricerca scientifica
e delle esperienze professionali dei giovani

Società Italiana di Igiene, Medicina Preventiva e Sanità Pubblica (SIItI)

17-18 dicembre 2020

JOURNAL OF PREVENTIVE MEDICINE AND HYGIENE



The Journal has been accredited,
on occasion of the 17th December
2004 Meeting of the Executive
and Scientific SIItI Councils, by the
Italian Society of Hygiene, Preventive
Medicine and Public Health

PACINI
EDITORE
MEDICINA

JOURNAL OF PREVENTIVE MEDICINE AND HYGIENE

<http://www.jpmmh.org>

Editor

Pietro Crovari, *Department of Health Sciences, University of Genoa, Italy*

Co-Editors

Roberto Gasparini, *Department of Health Sciences and Interuniversity Research Centre on Influenza and other infections, University of Genoa, Italy*

Giancarlo Icardi, *Department of Health Sciences and Interuniversity Research Centre on Influenza and other infections, University of Genoa, Italy*

International Editorial Board

Gabriella Agazzotti, *Department of Diagnostic, Clinical and Public Health Medicine, University of Modena and Reggio Emilia, Modena, Italy*

Daniela Amicizia, *Department of Health Sciences, University of Genoa, Italy*

Roy Anderson, *FRS FMedSci, London Centre for Neglected Tropical Disease Research, Department of Infectious Disease Epidemiology, School of Public Health Faculty of Medicine, United Kingdom*

Italo Francesco Angelillo, *Department of Experimental Medicine, Second University of Naples, Italy*

Filippo Ansaldi, *Department of Health Sciences, University of Genoa, Italy*

Paolo Bonanni, *Department of Health Sciences, University of Florence, Italy*

Rosa Cristina Coppola, *Department of Public Health, University of Cagliari, Italy*

Maria Luisa Cristina, *Department of Health Sciences, University of Genoa, Italy*

Francesco D'Agostini, *Department of Health Sciences, University of Genoa, Italy*

Silvio De Flora, *Department of Health Sciences, University of Genoa, Italy*

Àngela Dominguez, *Department de Salut Pública Facultat de Medicina, University of Barcelona, Spain*

Paolo Durando, *Department of Health Sciences, Postgraduate School in Occupational Medicine, University of Genoa and Occupational Medicine Unit, IRCCS AOU San Martino IST, Genoa, Italy*

Giovanni Gabutti, *Department of Medical Sciences, University of Ferrara, Italy*

Alberto Izzotti, *Department of Health Sciences, University of Genoa, Italy*

Silvia Majori, *Dep. Diagnostics and Public Health, University of Verona. Section of Hygiene and Preventive, Environmental and Occupational Medicine*

Nicola Nante, *Department of Molecular and Developmental Medicine, University of Siena, Italy*

Paolo Orlando, *Department of Health Sciences, University of Genoa, Italy*

Donatella Panatto, *Department of Health Sciences and Interuniversity Research Centre on Influenza and Other Infections, University of Genoa, Italy*

Vana Papaevangelou, *Pediatric Infectious Diseases Third Department of Pediatrics General University Hospital Attikon, Athens, Greece*

Gabriele Pelissero, *Department of Preventive, Occupational and Community Medicine, University of Pavia, Italy*

Mario Ramirez, *Instituto de Microbiologia Faculdade de Medicina, University of Lisboa, Portugal*

Rino Rappuoli, *GlaxoSmithKline, Siena Italy*

Laura Sticchi, *Department of Health Sciences, University of Genoa, Italy*

Fiona Timmins, *School of Nursing and Midwifery, Trinity College, Dublin, Ireland*

Pierre Van Damme, *Faculty of Medicine and Health Sciences Centre for the Evaluation of Vaccination Vaccine & Infectious Disease Institute, University of Antwerp, Belgium*

Alessandro Remo Zanetti, *Department of Biomedical Sciences for Health, University of Milan, Italy*

Editorial Staff

Daniela Amicizia, *Department of Health Sciences and Interuniversity Research Centre on Influenza and Other Infections, University of Genoa, Italy*

Piero Luigi Lai, *Department of Health Sciences and Interuniversity Research Centre on Influenza and Other Infections, University of Genoa, Italy*

Donatella Panatto, *Department of Health Sciences and Interuniversity Research Centre on Influenza and Other Infections, University of Genoa, Italy*

Section Editors

e-Health: Alexander Domnich

Environmental Hygiene: Maria Luisa Cristina

Health Care Management: Giancarlo Icardi

Health Promotion: Donatella Panatto, Giacomo Lazzeri

Health Technology Assessment: Roberto Gasparini

History of Medicine and Ethics: Mariano Martini

Hospital Hygiene: Maria Luisa Cristina

Infectious Diseases: Daniela Amicizia, Cecilia Trucchi

Molecular Epidemiology: Sebastiano La Maestra

Non Communicable Diseases: Alberto Izzotti

Nosocomial Infections: Filippo Ansaldi

Nursing: Loredana Sasso, Annamaria Bagnasco

Occupational Medicine and Hygiene: Paolo Durando, Guglielmo Dini

Pharmacoeconomics: Donatella Panatto

Prevention by Antivirals and Antibiotics: Claudio Viscoli

Public Health Laboratory Methods: Laura Sticchi

The International Board is under revision.

© Copyright by Pacini Editore Srl, Pisa, Italy

Managing Editor: Patrizia Alma Pacini

Publisher: Pacini Editore Srl, Via Gherardesca 1, 56121 Pisa, Italy

Published online March 2021

Authorization Tribunal of Genoa, Italy n. 507 - 10/6/1960

Journal registered at "Registro pubblico degli Operatori della Comunicazione" (Pacini Editore srl registration n. 6269 - 29/8/2001).



Società Italiana di Igiene,
Medicina Preventiva e Sanità Pubblica

2° EDIZIONE “GIORNATE DELLA RICERCA SCIENTIFICA E DELLE ESPERIENZE PROFESSIONALI DEI GIOVANI”

17-18 Dicembre 2020

<https://fadsiti.it/giornatedellaricercascientifica>

95% CI: 1.06-1.15). In stratified analyses, we found similar risk for outdoor and indoor LAN exposure, but higher risk for premenopausal women, normal weighted and with positive estrogen receptor status. The dose-response meta-analysis, which could be performed only in studies investigating outdoor LAN exposure, showed a linear relation up to 40 nW/cm²/sr after which a plateau seemed to be reached, especially in premenopausal women.

CONCLUSIONS

Overall, in this first dose-response meta-analysis of the relation between LAN exposure and breast cancer risk, we found a positive association, particularly in selected subgroups.

REFERENCES

- [1] Sun YS, Zhao Z, Yang ZN, Xu F, Lu HJ, Zhu ZY, Shi W, Jiang J, Yao PP, Zhu HP. Risk factors and preventions of breast cancer. *Int J Biol Sci* 2017;13:1387-97.
- [2] Lei S, Fan P, Wang M, Zhang C, Jiang Y, Huang S, Fang M, He Z, Wu A. Elevated estrogen receptor beta expression in triple negative breast cancer cells is associated with sensitivity to doxorubicin by inhibiting the PI3K/AKT/mTOR signaling pathway. *Exp Ther Med* 2020;20:1630-6.
- [3] White AJ, Keller JP, Zhao S, Carroll R, Kaufman JD, Sandler DP. Air pollution, clustering of particulate matter components, and breast cancer in the Sister Study: a US wide cohort. *Environ Health Perspect* 2019;127:107002.
- [4] Goldberg MS, Villeneuve PJ, Crouse D, To T, Weichenenthal SA, Wall C, Miller AB. Associations between incident breast cancer and ambient concentrations of nitrogen dioxide from a national land use regression model in the Canadian National Breast Screening Study. *Environ Int* 2019;133:105182.
- [5] Filippini T, Torres D, Lopes C, Carvalho C, Moreira P, Naska A, Kasdagli MI, Malavolti M, Orsini N, Vinceti M. Cadmium exposure and risk of breast cancer: a dose-response meta-analysis of cohort studies. *Environ Int* 2020;142:105879.
- [6] Gaudet HM, Christensen E, Conn B, Morrow S, Cressey L, Benoit J. Methylmercury promotes breast cancer cell proliferation. *Toxicol Rep* 2018;5:579-84.
- [7] Adani G, Filippini T, Wise LA, Halldorsson TI, Blaha L, Vinceti M. Dietary intake of acrylamide and risk of breast, endometrial, and ovarian cancers: a systematic review and dose-response meta-analysis. *Cancer Epidemiol Biomarkers Prev* 2020;29:1095-106.
- [8] IARC. Painting, firefighting, and shiftwork. 2010/01/01 ed. Iarc Working Group on the Evaluation of Carcinogenic Risks to Humans, editor. Lyon: IARC 2010, pp. 9-764.
- [9] Straif K, Baan R, Grosse Y, Secretan B, El Ghissassi F, Bouvard V, Altieri A, Benbrahim-Tallaa L, Coglianov V; WHO International Agency For Research on Cancer Monograph Working Group. Carcinogenicity of shift-work, painting, and fire-fighting. *Lancet Oncol* 2007;8:1065-6.
- [10] Samuelsson LB, Bovbjerg DH, Roecklein KA, Hall MH. Sleep and circadian disruption and incident breast cancer risk: An evidence-based and theoretical review. *Neurosci Biobehav Rev* 2018;84:35-48.
- [11] Lai KY, Sarkar C, Ni MY, Cheung LWT, Gallacher J, Webster C. Exposure to light at night (LAN) and risk of breast cancer: a systematic review and meta-analysis. *Sci Total Environ* 2021;762:143159.
- [12] Wu Y, Gui SY, Fang Y, Zhang M, Hu CY. Exposure to outdoor light at night and risk of breast cancer: a systematic review and meta-analysis of observational studies. *Environ Pollut* 2021 Jan 15;269:116114.
- [13] Ritonja J, McIsaac MA, Sanders E, Kyba CCM, Grundy A, Cordina-Duverger E, Spinelli JJ, Aronson KJ. Outdoor light at night at residences and breast cancer risk in Canada. *Eur J Epidemiol* 2020;35:579-89.
- [14] Xiao Q, James P, Breheny P, Jia P, Park Y, Zhang D, Fisher JA, Ward MH, Jones RR. Outdoor light at night and postmenopausal breast cancer risk in the NIH-AARP diet and health study. *Int J Cancer* 2020;147:2363-72.
- [15] Filippini T, Hatch EE, Rothman KJ, Heck JE, Park AS, Crippa A, Orsini N, Vinceti M. Association between outdoor air pollution and childhood leukemia: a systematic review and dose-response meta-analysis. *Environ Health Perspect* 2019;127:46002.

Atrial fibrillation and other risk factors for early-onset dementia: an Italian case-control study

TOMMASO FILIPPINI¹, GIORGIA ADANI¹, CATERINA GARUTI¹, MARCELLA MALAVOLTI¹, GIULIA VINCETTI², GIOVANNA ZAMBONI², MANUELA TONDELLI², CHIARA GALLI³, MANUELA COSTA³, ANNALISA CHIARI³, MARCO VINCETTI¹

¹ Environmental, Genetic and Nutritional Epidemiology Research Center (CREAGEN), Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia;

² Center for Neurosciences and Neurotechnology, Department of Biomedical, Metabolic, and Neural Sciences, University of Modena and Reggio Emilia, and Neurology Unit, Modena Policlinico-University Hospital; ³ Neurology Unit, Modena Policlinico-University Hospital, and Primary care Department, Modena Local Health Authority

INTRODUCTION

Early-onset dementia (EOD) is defined by onset of dementia symptoms before the age of 65, regardless of the underlying dementia syndrome. EOD has a significant impact on patients and their families, particularly when including young children [1], as well as on patient employment and income [2]. The most frequent EOD diagnosis is Alzheimer's dementia, followed by frontotemporal dementia and vascular dementia [3]. Despite genetic susceptibility may play an etiologic role for EOD, known gene mutations may explain only less than 10% of EOD cases. Therefore, other factors as environmental and occupational exposures, as well as lifestyle and dietary habits might be involved [4-7]. In the present study, we aimed at investigating the role of cardiovascular risk factors in EOD etiology in an Italian population.

MATERIALS AND METHODS

We carried out a case-control study in Modena, Northern Italy. We recruited EOD cases referred to the Cognitive Neurology Centers at the Modena Policlinico-University Hospital and Carpi Hospital, providing specialized EOD care for the whole territory of the province, in the period October 2016-October 2019. Inclusion criteria were: dementia diagnosis with symptom onset before the age of 65, dementia as the principal cause of disability, and residence in the province of Modena. Subjects with coexisting diagnoses of pervasive developmental disorders or major psychiatric disorders, or cognitive impairment in the context of another neurological disorders (e.g., multiple sclerosis or cerebrovascular disease with severe motor disability) were excluded. As a referent population, we recruited the caregivers of dementia patients irrespective of age at onset. Each subject received a questionnaire tailored to record anamnestic and lifestyle factors potentially related to dementia onset [8,9]. In particular, we

assessed medical history related to other clinical conditions in order to investigate their association with EOD. We used crude and adjusted multivariate unconditional logistic regression models to estimate odds ratio (OR) and 95% confidence intervals (CI) of EOD associated with the investigated factors. We included sex, age (years) and educational attainment (years of education) in the multivariable model as potential confounders and effect modifiers.

RESULTS

The final study sample encompassed 112 participants, including 58 (male/female: 25/33) EOD patients and 54 (male/female: 23/31) controls. Mean age at EOD diagnosis was 59 (standard deviation: 5) years with clinical diagnosis of Alzheimer's dementia (55%), frontotemporal dementia spectrum (33%), and vascular dementia (8%), and Levy body dementia (2%), and cerebral amyloid angiopathy (2%). Cases and controls achieved a high school level in 32.8 and 38.9%, respectively, while they reached college or more in 5.2 and 24.4%, respectively. Dementia risk according to medical history of common cardiovascular risk factors showed a decreased risk for diagnosis of hypertension (OR = 0.6, 95% CI: 0.3-1.4), but an increased risk for dyslipidemia (OR = 1.4, 95% CI: 0.6-3.3) and diabetes (OR = 2.8, 95% CI: 0.7-11.2). Conversely, substantial null association was found with history of carotid artery plaques and cardiac valvular disorders. When assessing history of previous major cardiovascular diseases, we found no association with myocardial infarction (no cases reported a positive history), but a positive one with cerebrovascular disease (OR 4.0, 95% CI: 0.4-39.1) and with atrial fibrillation (OR = 2.1, 95% CI: 0.4-12.1).

CONCLUSIONS

In this study, we investigated the relation between known cardiovascular risk factors medical history of cardiovascular disease and EOD risk. We found some evidence of a possible relation between dyslipidemia and diabetes, while among major cardiovascular diseases, only cerebrovascular diseases and atrial fibrillation suggested a positive association.

Funding

This study was supported by the grant "Dipartimenti di Eccellenza 2018-2022, MIUR, Italy" awarded to the Department of Biomedical, Metabolic and Neural Sciences and by a grant from the Airalzh ONLUS & Coop Italia.

REFERENCES

- [1] Sikes P, Hall M. The impact of parental young onset dementia on children and young people's educational careers. *Br Educ Res J* 2018;44:593-607.
- [2] Sakata N, Okumura Y. Job loss after diagnosis of early-onset dementia: a matched cohort study. *J Alzheimers Dis* 2017;60:1231-5.
- [3] Chiari A, Vinceti G, Adani G, Tondelli M, Galli C, Fiondella L, Costa M, Molinari MA, Filippini T, Zamboni G, Vinceti M. Epidemiology of early onset dementia and its clinical presentations in the province of Modena, Italy. *Alzheimers Dement* 2021;17:81-8.
- [4] Fenoglio C, Scarpini E, Serpente M, Galimberti D. Role of genetics and epigenetics in the pathogenesis of Alzheimer's disease and frontotemporal dementia. *J Alzheimers Dis* 2018;62:913-32.
- [5] Jarmolowicz AI, Chen HY, Panegyres PK. The patterns of inheritance in early-onset dementia: Alzheimer's disease and frontotemporal dementia. *Am J Alzheimers Dis Other Demen* 2015;30:299-306.
- [6] Adani G, Filippini T, Garuti C, Malavolti M, Vinceti G, Zamboni G, Tondelli M, Galli C, Costa M, Vinceti M, Chiari A. Environmental risk factors for early-onset Alzheimer's dementia and frontotemporal dementia: a case-control study in Northern Italy. *Int J Environ Res Public Health* 2020;17:7941.
- [7] Filippini T, Adani G, Malavolti M, Garuti C, Cilloni S, Vinceti G, Zamboni G, Tondelli M, Galli C, Costa M, Chiari A, Vinceti M. Dietary habits and risk of early-onset dementia in an Italian case-control study. *Nutrients* 2020;12:3682.
- [8] Filippini T, Fiore M, Tesauro M, Malagoli C, Consonni M, Violi F, Arcolin E, Iacuzio L, Oliveri Conti G, Cristaldi A, Zuccarello P, Zucchi E, Mazzini L, Pisano F, Gagliardi I, Patti F, Mandrioli J, Ferrante M, Vinceti M. Clinical and lifestyle factors and risk of amyotrophic lateral sclerosis: a population-based case-control study. *Int J Environ Res Public Health* 2020;17:857.
- [9] Filippini T, Tesauro M, Fiore M, Malagoli C, Consonni M, Violi F, Iacuzio L, Arcolin E, Oliveri Conti G, Cristaldi A, Zuccarello P, Zucchi E, Mazzini L, Pisano F, Gagliardi I, Patti F, Mandrioli J, Ferrante M, Vinceti M. Environmental and occupational risk factors of amyotrophic lateral sclerosis: a population-based case-control study. *Int J Environ Res Public Health* 2020;17:2882.