



## AperTO - Archivio Istituzionale Open Access dell'Università di Torino

## Does Helicobacter pylori infection increase the risk of adult-onset asthma?

This is a pre print version of the following article:	
Original Citation:	
Availability:	
This version is available http://hdl.handle.net/2318/1647804	since 2018-10-31T17:37:39Z
Published version:	
DOI:10.1007/s10096-017-3004-x	
Terms of use:	
Open Access	
Anyone can freely access the full text of works made available as under a Creative Commons license can be used according to the t of all other works requires consent of the right holder (author or p protection by the applicable law.	"Open Access". Works made available erms and conditions of said license. Use ublisher) if not exempted from copyright

(Article begins on next page)

1	Davide Giuseppe	Ribaldone,1	Giorgio Saracco, <sup>2</sup>	Rinaldo	Pellicano <sup>3</sup>
---	-----------------	-------------	-------------------------------	---------	------------------------

- 3 Does *Helicobacter pylori* infection increase the risk of adult-onset asthma?

5 Department(s) and institution(s)

- <sup>6</sup> <sup>1</sup>MD, Gastroenterology U, General and Specialist Medicine Department, Città della
- 7 Salute e della Scienza of Turin, C.so Bramante 88, 10126 Turin, Italy, <sup>2</sup>PhD,
- 8 Department of Medical Sciences, University of Torino, 10126 Torino, Italy, <sup>3</sup>MD,
- 9 Department of Gastroenterology, Molinette Hospital, Turin, Italy
- 11 Corresponding Author: Dr. Davide Giuseppe Ribaldone, General and Specialist
- 12 Medicine Department, Città della Salute e della Scienza of Turin, C.so Bramante 88,
- 13 10126 Turin, tel 00390116335208, fax 00390116336752, Italy. E-mail:
- 14 davrib\_1998@yahoo.com
- 16 Davide Giuseppe Ribaldone ORCID iD 0000-0002-9421-3087
- 17 Rinaldo Pellicano ORCID iD 0000-0003-3438-0649

- ----

32	Abstract
33	N\A
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	
65	

66	Keywords: allergic diseases, asthma, hygiene, Helicobacter pylori, therapy	
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		

100 Sir,

101 in a recent large (1664 cases, 6656 controls) population-based cohort retrospective study 102 Wang et al. analyzed the possible link between *Helicobacter pylori* (*H. pylori*) infection and 103 adult-onset asthma [1]. Both cases and controls were followed starting from *H. pylori* 104 diagnosis to the date of asthma diagnosis or to the end of follow-up. The incidence proportion 105 of asthma was considerably higher in *H. pylori* infection group than in uninfected subjects 106 (log–rank test; p < 0.001) [1].

Late life-onset asthma differs from early life-onset asthma, because it is probably non-atopic and is accompanied by a prompt decrease in lung function [2]. Hence, there is a need to investigate on potential triggers and, in this context, infectious agents evoke a great interest.

- 110 In a recent meta-analysis, including a sample of 8852 subjects, the prevalence of *H. pylori*
- 111 infection in the asthma population was 33.6% (518 of 1542), versus 37.6% (2746 of 7310) in
- 112 the control population, without statistical difference (relative risk of *H. pylori* infection in the

asthma population = 0.87, 95% CI:0.72-1.05, p = 0.15, random effects model) [3].

How to explain the opposite results obatined by Wang et al.? The authors analyzed the incidence of asthma, after a follow-up of seven year, in subjects with a new diagnosis of *H*. *pylori* infection. *H. pylori* infection is acquired in the first years of life and persists lifelong [4]. In clinical pratice, after the diagnosis *H. pylori* infection is treated to achieve its eradication [4]. The authors did not report data about a possible *H. pylori* treatment during the follow-up [1]. Hence, it is possible that someone could underwent to eradication treatment and this would influence the outcome of the study. Another aspect to consider is that the methods for assessing *H. pylori* infection vary in sensitivity and specificity, which may result in misclassification of exposure to the bacteria: focusing on methodologies employed, some may indicate a previous contact with the microorganism (serological tests) while others an infection under way (<sup>13</sup>C-urea breath test, histology, stool antigen test) [4]. The authors did not report data about the methods used to detect *H. pylori* infection [1].

Finally, both *H. pylori* infection and asthma have been associated with low socioeconomic status during childhood [4, 5]. Hence, in the multivariate analysis it is appropriate to adjust for socioeconomic factors as potential confounding factors. In the work by Wang et al. socioeconomic status has not been considered [1].

130 In conclusion, further prospective longitudinal studies, with detailed clinical history and

131 diagnostic methods, are needed to prove a link between *H. pylori* infection and the incidence

132 of asthma.

133

134

135	Compliance with ethical standards
136	
137	Funding None to declare
138	
139	Conflict of Interest None to declare
140	
141	Ethical approval The study was conducted in accordance with ICHGood Clinical Practice
142	guidelines, the Declaration of Helsinki, and local laws and regulations.
143	
144	Informed consent Informed consent due to the observational study have been obtained in the
145	cited studies
146	
147	
148	
149	
150	
151	
152	
153	

## 154 **References**

155	1. Wang YC, Lin TY, Shang ST, Chen HJ, Kao CH, Wu CC, Yang TY (2017) Helicobacter
156	pylori infection increases the risk of adult-onset asthma: a nationwide cohort study. Eur J
157	Clin Microbiol Infect Dis. doi: 10.1007/s10096-017-2972-1
158	2. Ilmarinen P, Tuomisto LE, Kankaanranta H (2015) Phenotypes, risk factors, and
159	mechanisms of adult-onset asthma. Mediat Inflamm 2015:514868
160	3. Ribaldone DG, Fagoonee S, Colombini J, Saracco G, Astegiano M, Pellicano R (2016)
161	Helicobacter pylori infection and asthma: Is there a direct or an inverse association? A
162	meta-analysis. World Journal of Meta-Analysis 4:63-68
163	4. Pellicano R, Ribaldone DG, Fagoonee S, Astegiano M, Saracco GM, Mégraud F (2016)
164	A 2016 panorama of Helicobacter pylori infection: key messages for clinicians.
165	Panminerva Med 58:304-317.
166	5. Chen E, Shalowitz MU, Story RE, Ehrlich KB, Manczak EM, Ham PJ, Le V, Miller GE
167	(2017) Parents' childhood socioeconomic circumstances are associated with their
168	children's asthma outcomes. J Allergy Clin Immunol 2017:S0091-6749(17)30031-3
169	