The stomach cancer pooling (STOP) project: a global… : European Journal of Cancer Prevention

The stomach cancer pooling (STOP) project: a global consortium of epidemiological studies of gastric cancer, updated to 2021

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The assessment of risk factors in cancer etiology is necessary for defining optimal preventive strategies, as well as for identifying high risk individuals, and it is therefore relevant for medical practice and cancer prevention. The Stomach cancer Pooling (StoP) Project is a consortium of epidemiological studies of gastric cancer (GC), established in year 2012. The StoP Project aims to examine the role of lifestyle, environmental and genetic determinants of GC through pooled analyses of subject-level data. The consortium is the major GC dataset globally, including original data from 35 studies – with case–control study design, including 5 nested case–control within cohort studies – conducted in the Americas, Asia and Europe (Table 1), for a total of about 13,500 cases and 32,000 controls, and it is continuously expanding. To date, the StoP Project contributed a detailed quantification of the risk of GC associated to several factors, including cigarette smoking (relative risk, RR, of 1.32 for heavy vs. never smokers), alcohol drinking (RR=1.48 for heavy vs. never drinkers), socio-economic status (RR=0.60 for high vs. low education), selected dietary factors (RR=1.30 for high vs. low meat intake; RR=0.65 for high vs. low vegetables consumption; RR=0.80 for high vs. low citrus fruit; RR=0.67 for high vs. low polyphenols intake) and occupational exposures (RR=1.70 for miners; RR=1.30 for construction workers; RR=1.33 for agricultural and animal husbandry workers; RR=1.41 for blacksmiths and machine-tool operators). Planned future developments are to analyze the role of rare exposures on GC risk and to examine risk factors in understudied patient subgroups (e.g., young onset GC, gastric cardia cancer, etc.); to integrate additional studies from East Asia; to develop a genome-wide modeling of polygenic risk score in GC; to include survival analyses and to apply machine learning methods in GC risk prediction and prognostication.

Table 1 - Studies included in the StoP Project (at 13-05-2021)

#	Study area(s)	Period	Study type	Reference
1	Milan, Italy	1985-1997	Case-control, hospital-based	(La Vecchia *et al.*, 1995)
2	Harbin, China	1987-1989	Case-control, hospital-based	Hu (Deandrea *et al.*, 2010)
3	Milan, Italy	1997-2007	Case-control, hospital-based	(Pelucchi *et al.*, 2009)
4	Rome, Italy	2006-ongoing	Case-control, hospital-based	(De Feo *et al.*, 2012)
5	4 areas, Italy	1985-1987	Case-control, population-based	(Buiatti *et al.*, 1989)
6	Athens, Greece	1981-1984	Case-control, hospital-based	(Lagiou *et al.*, 2004)
7	8 provinces, Canada	1994-1997	Case-control, population-based	(Mao *et al.*, 2002)
8	Taixing, Jiangsu, China	2000	Case-control, population-based	(Mu *et al.*, 2005)
9	Moscow, Russia	1996-1997	Case-control, hospital-based	(Zaridze *et al.*, 1999)
10	Ardabil, Iran	2004-2005	Case-control, population-based	(Pourfarzi *et al.*, 2009)
11	Ardabil, Iran	2005-2007	Case-control, population-based	(Pakseresht *et al.*, 2011)
12	Shanghai, Qingdao, China	1991-1993	Case-control, population-based	(Setiawan *et al.*, 2005)
13	Yangzhong, China	1995	Case-control, population-based	(Setiawan *et al.*, 2001)
14	New York, USA	1992-1994	Case-control, hospital-based	(Zhang *et al.*, 1999)
15	New York, USA	1980-1990	Case-control, hospital-based	Unpublished data
16	Porto, Portugal	1999-2006	Case-control, population-based	(Lunet *et al.*, 2007)
17	2 counties, Sweden	1998-2010	Cohort, nested case-control (SMC study)	(Harris *et al.*, 2013)
18	Ardabil, Iran	2001-2004	Case-control, hospital-based	(Derakhshan et al., 2008)
19	2 counties, Sweden	1998-2010	Cohort, nested case-control (COSM study)	(Harris et al., 2013)

#	Study area(s)	Period	Study type	Reference
20	10 provinces, Spain	2008-2012	Case-control, population-based	(Castaño-Vinyals et al., 2015)
21	5 counties, Sweden	1989-1995	Case-control, population-based	(Ye *et al.*, 1999)
22	Valencia, Spain	1995-1999	Case-control, hospital-based	(Santibanez et al., 2012)
23	Mexico City, Mexico	2004-2005	Case-control, population-based	(Hernández-Ramírez et al., 2009)
24	Mexico City, Mexico	1989-1990	Case-control, population-based	(López-Carrillo et al., 1994)
25	3 areas, Mexico	1994-1996	Case-control, hospital-based	(López-Carrillo et al., 2003)
26	Sao Paulo, Brazil	1991-1994	Case-control, hospital-based (Brazilian residents)	(Nishimoto et al., 2002)
27	Sao Paulo, Brazil	1991-1994	Case-control, hospital-based (Japanese residents)	(Hamada et al., 2002)
28	Nagano, Japan	1998-2002	Case-control, hospital-based	(Machida-Montani et al., 2004)
29	Riga, Latvia	2007-ongoing	Case-control, hospital-based	(Leja et al., 2017)
30	Nebraska, USA	1988-1993	Case-control, population-based	(Ward et al., 1997)
31	Greece	1994-1999	Cohort, nested case-control (EPIC study)	(Psaltopoulou et al., 2008)
32	Finland	1985-1988	Cohort, nested case-control (ATBC study)	(Ann Epidemiol 1994; 4:1-10)
33	6 states, USA	1995-1996	Cohort, nested case-control (AARP study)	(Schatzkin et al., 2001)
34	Multicentric, Brazil	2016-2020	Case-control, hospital-based	None available yet
35	Lithuania	2005-2017	Case-control, genetic data only	(Dargiene et al, 2018)