

Deaths from ovarian cancer decline worldwide due to oral contraceptive use

September 5 2016



Intermediate magnification micrograph of a low malignant potential (LMP) mucinous ovarian tumour. H&E stain. The micrograph shows: Simple mucinous epithelium (right) and mucinous epithelium that pseudo-stratifies (left - diagnostic of a LMP tumour). Epithelium in a frond-like architecture is seen at the top of image. Credit: Nephron /Wikipedia. CC BY-SA 3.0

Deaths from ovarian cancer fell worldwide between 2002 and 2012 and are predicted to continue to decline in the USA, European Union (EU) and, though to a smaller degree, in Japan by 2020, according to new

research published in the leading cancer journal *Annals of Oncology* today.

The main reason is the use of [oral contraceptives](#) and the long-term protection against [ovarian cancer](#) that they provide, say the researchers, who are led by Professor Carlo La Vecchia (MD), from the Faculty of Medicine, University of Milan (Italy). They say the decline in [hormone replacement therapy](#) (HRT) to manage [menopausal symptoms](#) and better diagnosis and treatment may also play a role.

Using data on deaths from ovarian cancer from 1970 to the most recent available year from the World Health Organization, the researchers found that in the 28 [countries](#) of the EU (minus Cyprus due to the unavailability of data) [death rates](#) decreased by 10% between 2002 and 2012, from an age standardised [death](#) rate per 100,000 women of 5.76 to 5.19.

In the USA the decline was even greater, with a 16% drop in death rates from 5.76 per 100,000 in 2002 to 4.85 in 2012. In Canada ovarian cancer death rates decreased over the same period by nearly 8% from 5.42 to 4.95. In Japan, which has had a lower rate of ovarian cancer deaths than many other countries, the death rate fell by 2% from 3.3 to 3.28 per 100,000. Large decreases occurred in Australian and New Zealand between 2002 and 2011 (the most recent year for which data were available); in Australia the death rate declined by nearly 12% from 4.84 to 4.27, and in New Zealand they dropped by 12% from 5.61 to 4.93 per 100,000 women.

However, the pattern of decreases was inconsistent in some areas of the world, for instance in Latin American countries and in Europe. Among European countries, the percentage decrease ranged from 0.6% in Hungary to over 28% in Estonia, while Bulgaria was the only European country to show an apparent increase. In the UK, there was a 22%

decrease in death rates, which fell from 7.5 to 5.9 per 100,000 women. Other EU countries that had large decreases included Austria (18%), Denmark (24%) and Sweden (24%).

The Latin American countries tended to have lower rates of deaths from ovarian cancer. Argentina, Chile and Uruguay showed decreases between 2002 and 2012, but Brazil, Colombia, Cuba, Mexico and Venezuela all showed increases in death rates.

Prof La Vecchia said: "The large variations in death rates between European countries have reduced since the 1990s when there was a threefold variation across Europe from 3.6 per 100,000 in Portugal to 9.3 in Denmark. This is likely to be due to more uniform use of oral contraceptives across the continent, as well as reproductive factors, such as how many children a woman has. However, there are still noticeable differences between countries such as Britain, Sweden and Denmark, where more women started to take oral contraceptives earlier - from the 1960s onwards - and countries in Eastern Europe, but also in some other Western and Southern European countries such as Spain, Italy and Greece, where oral contraceptive use started much later and was less widespread.

"This mixed pattern in Europe also helps to explain the difference in the size of the decrease in ovarian cancer deaths between the EU and the USA, as many American women also started to use oral contraceptives earlier.

"Japan, where deaths from ovarian cancer have traditionally been low, now has higher rates in the young than the USA or the EU - again, reflecting infrequent oral contraceptive use."

Another researcher, Dr Eva Negri, Head of Epidemiologic Methods at the IRCCS Istituto di Ricerche Farmacologiche Mario Negri in Milan,

added: "Women in countries such as Germany, the UK and the USA were also more likely to use hormone replacement therapy to manage menopausal symptoms than in some other countries. The use of HRT declined after the report from the Women's Health Initiative in 2002 highlighted the increased risk of cardiovascular disease, as well as breast and ovarian cancer, and so this may also help to explain the fall in death rates among middle-aged and older women in these countries."

The researchers predicted the age-standardised ovarian cancer death rates for France, Germany, Italy, Poland, Spain and the UK, and for the whole of the USA, the EU and Japan up to 2020. They expect there will be a 15% decline in the USA and a 10% decline in the EU and Japan. Of the six European countries, only Spain showed a slight increase from 3.7 per 100,000 women to 3.9. "This is possibly due to the fact that women who are middle-aged or elderly now were less likely to use oral contraceptives when they were young," concluded Prof La Vecchia.

Professor Paolo Boffetta (MD), the *Annals of Oncology* associate editor for epidemiology and Associate Director for Population Sciences at the Tisch Cancer Institute of the Icahn School of Medicine at Mount Sinai in New York (USA), commented: "The findings of Professor La Vecchia and his colleagues are important as they show how past use of hormone treatments has an impact on the mortality from ovarian cancer at the population level. As our understanding of preventable causes of this major cancer progresses, early detection strategies are being developed and novel therapeutic options become available, we enhance our ability to reduce ovarian cancer mortality."

More information: "Global trends and predictions in ovarian cancer mortality", by M. Malvezzi, G. Carioli, T. Rodriguez, E. Negri and C. La Vecchia. *Annals of Oncology*. [DOI: 10.1093/annonc/mdw306](https://doi.org/10.1093/annonc/mdw306)

Provided by European Society for Medical Oncology

Citation: Deaths from ovarian cancer decline worldwide due to oral contraceptive use (2016, September 5) retrieved 27 April 2024 from <https://medicalxpress.com/news/2016-09-deaths-ovarian-cancer-decline-worldwide.html>

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