DOES URBAN MARGINALITY INFLUENCE CANCER MORTALITY RATES? AN ANALYSIS OF THE MEXICO CITY METROPOLITAN AREA

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Aim: The Mexico City Metropolitan Area (MCMA) is inhabited by over 20 million people, making it one of the most populated urban centers globally. It encompasses 60 municipalities, ranging from highly urbanized to remote rural communities. Since cancer is one of the leading causes of death in Mexico, we sought to analyze if cancer-related mortality in MCMA is influenced by urban marginality status.

Methods: Cancer-related mortality data for MCMA for the years 1990 to 2012 were obtained from the National Institute of Geography and Statistics. Population estimates for each year were obtained from published statistics. A Global Marginality Index (GMI), including 9 socioeconomic indicators, was obtained for each municipality for the years 2000 and 2010. Age-adjusted cancer mortality rates and trends were calculated using joinpoint regression analysis. A multiple linear regression model was used to study the relationship between cancer mortality and GMI. A p value of less than 0.05 was considered statistically significant.

Results: Between 1990 and 2012 a total of 259,874 cancer-related deaths were reported in the MCMA, representing 19% of all cancer deaths in the country. Age adjusted cancer-specific death rates changed from 94.46/100,000 in 1990 to 82.49/100,000 in 2012, with an annual percent change (APC) of -0.7% (95% CI -0.6 to -0.8, p = 0.05). This was true both for men and women. A statistically significant relationship was found between cancer-specific deaths and GMI both for the year 2000 and 2010 (p < 0.01), with high-GMI municipalities having a higher number of deaths.

Conclusions: In 2010, around 10% of people lived in municipalities located above the mean GMI for MCMA. Cancer specific deaths were correlated with marginality status in the MCMA for the years 2000 and 2010. Our results show a stabilization of the cancer specific mortality rate in MCMA, which may be related to recently implemented healthcare programs. However, marginality continues to be a factor for poor cancer outcomes in certain populations, highlighting the fact that inequities in access to healthcare may be present within a very limited territory and representing a challenge to health systems in large metropolitan areas worldwide.

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