

Anogenital distance as a marker of in-utero hormonal exposures, and breast and prostate cancer risk. A pilot study.

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Background and aims. Several lines of evidence indicate that foetal exposures may be related with adult breast and prostate cancer. Anogenital distance is a sexually dimorphic phenotype that has been shown in animals to be related to foetal androgen action and that tracks through life. Anogenital distance has been scarcely used in human studies. A single study in adults found that shorter anogenital distance was a predictor of low sperm concentration. We evaluated the association of anogenital distance with breast and prostate cancer risk in a pilot study within a large population based case-control study in Spain (MCC-Sp).

Methods: Cases were identified at the Hospital del Mar, Barcelona and population controls were residents in the catchment area of the hospital. Anoclitoral (ACD: anus to clitoris) and anofourchetal distance (AFD: anus to fourchette) were measured in 46 breast cancers cases and 19 population controls. Anogenital distance (AGD: anus to upper penis), anoscrotal distance (ASD: anus to scrotum) were measured in 58 prostate cancer cases and 5 population controls. Odds ratios were adjusted for age, examiner, BMI (or weight and height) and parity (women).

Results: Anogenital distances were wider in males (mean AGD=120.7mm, SD=13.0; mean ASD = 35.8mm, SD=12.4) than females (mean ACD=102.5, SD=12.8; mean AFD=28.7, SD=6.6). No differences were observed for breast cancer (Odds Ratio (OR) for AGD=0.99, 95%CI 0.93-1.05; OR for AFD=1.09, 0.97-1.23). Shorter AGD (OR=0.85, 0.74-0.98) and ASD (OR=0.92, 0.84-1.01) were associated with a lower prostate cancer risk, although based on very small numbers.

Conclusions: This is the first study reporting anogenital measurements in adults in relation to cancer risk. Results are preliminary and, if confirmed, may indicate that prostate cancer is associated with lower levels of androgens in utero. The study is ongoing and results for a larger population sample will be presented.