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EDITORIAL

IMPACT OF BIRTH-WEIGHT ON ADULT MINOR ILLNESS

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There is now well-established evidence that low birthweight has important health implications beyond infancy and childhood as suggested by the fetal origins of disease theory[1]. It postulates that in utero under-nutrition leads to permanent changes to the physiology and metabolism of the body, in part explaining the higher incidence of cardiovascular illnesses,[2,3] stroke,[4] and type 2 diabetes[5] in that population. In addition, lower birthweight is associated with higher mortality rates from all causes[6] .

An area where the evidence is still in early stages is that of the link between birthweight and adult minor illnesses. These conditions include common cold and viral respiratory tract infections, headache and gastrointestinal disturbances and account for between 18-40% of the general practitioner's time[7,8]. Minor illnesses also have significant economic impact. They were estimated to cost the UK's National Health Service (NHS) $2.2 billion per year[7] and lead to significant work-absenteeism[9] . Such disease-related economic impact led not only to an emphasis on promoting self-care measures for minor ailments,[10] but also an attempt to better understand its epidemiology. Previous work by Belingham-Young[11] introduced the notion that birthweight may be related to adult minor illness. Until now, such notion only garnered limited attention and the current study by the same group filled this important knowledge gap[12].

In this cross-sectional retrospective cohort study, the authors used a minor illness checklist completed by 258 participants (219 female, 39 male) who identify themselves as having been born at term and knew their birthweight. A median split of the total scores was used to divide the participants into low and high minor illness groups. They were also grouped based on optimal (3,500 – 4,500 grams) and suboptimal birthweight (2540 – 3490 grams).

Interestingly, minor illness scores were significantly lower for those in the optimal birthweight, and there was a significant negative correlation between birthweight and minor illness score. The authors argue that their findings have significant public health implications. Health care prevention initiatives favoring individuals of suboptimal birth weights may have a positive impact on the frequency and severity of minor infection-related illnesses. As suggested by the authors, targeting influenza vaccinations towards this high risk group may be cost-effective in terms of preventing complications associated with this infection. However, they also address some of the practical challenges of broad implementation of health policies based on birthweight, as such data is often limited to the patients' chart. An Equilibrium Model is discussed that may help public health practitioners in identifying and prioritizing local implementation.

The results of this study bear particular public health importance as there is tremendous focus on curbing rising health care costs, especially as many parts of the world are faced with an increasingly aging population[13]. Yet, there are a few points worth considering. Although in part

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addressed by the authors, it would have been interesting to delve further into the pregnancy and socioeconomic background of the participants to see if other factors account for the differences in minor illness rates. This in itself may have direct public health policy implications.

Self-reporting of birthweight may have also led to some inaccuracies and further validation of the study findings in another population would greatly enhance their significance. As many neonatal intensive care units across North America and Europe routinely gather prenatal and neonatal data, further validation of the relationship between suboptimal birthweight and incidence of minor illness can be obtained. Yet, such databases would not include healthy term infants, but neonatal conditions known to influence rates of minor illnesses later in life could be excluded. Furthermore, if future retrospective studies confirm present findings, a large scale prospective trial may be warranted.

Another point that warrants careful consideration is the cutoffs used to determine suboptimal birthweight. As the authors point out, there is currently no consensus on the definition of normal birthweight. Published world health organization (WHO) data using population-based norms (from Brazil, Ghana, India, Norway, Oman, USA) place the 3rd/97th (kg) percentiles for term newborn boys and girls as 2.5/4.4 and 2.4/4.2, respectively[14]. Previously published data from Centers for Disease Control (CDC) in the United States alone placed the 3rd/97th (kg) percentiles for boys and girls as 2.4/4.4 and 2.4/4.3, respectively[15]. Furthermore it is well known that there is considerable variability in international in utero growth, although it is acknowledged that such variations may be due to factors that restrict growth, as opposed to inherent variations in growth potential[16].

Minor adult illnesses often don't receive the same attention as other clinical conditions that carry significant morbidity, yet they do cause suffering and have a significant economic and social impact by way of absenteeism and financial burden placed on the health care system. The relationship between low birthweight and minor illnesses introduced here is a very interesting premise that deserves careful attention and further investigation.

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