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Parental perceptions of risks and benefits associated with a NICU genetic biorepository

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Aim: Due to widespread availability of archived neonatal screening samples, some investigators propose genome-wide association study designs that utilize de-identified DNA samples. The objective of this study was to determine parental perceptions of potential risks and benefits associated with future genetic biorepository studies that would utilize de-identified, archived DNA samples from NICU subjects of varying ethnicity and gestational ages.

Methods: A 12 question, IRB approved survey was distributed to the parents of graduate NICU patients. Of 283 surveys distributed, 109 surveys were completed; 107 after direct personal encounter and 2 via mail. After eliciting informed consent, direct personal contact occurred during a scheduled NICU follow up visit.

Results: 95% of directly contacted parents completed the survey, whereas only 1% of surveys distributed via mail were completed ($p < 0.001$). Of the completed surveys, 89% of the parents were comfortable with the use of their child's previously drawn, discarded samples for future genetic research. 83% reported that they would likely consent to their child's participation in a future genetic biorepository. Conversely, the point estimate of 22% of parents (95% confidence interval 14.7-31.0) would either decline to archive samples or participate in a future genetic biorepository study. Among the 83% of parents likely to consent, the following reasons were listed: perceived potential benefit to their own child (19.5%), to other children (37%), or to science (38%). Among the 17% of parents unlikely to participate, the following reasons were listed: perceived potential harm to their child (26%), potential discrimination (15%), potential privacy issues (15%) and fear of potential new information or outcomes (10%). Fischer exact test did not reveal any statistically significant differences between parental responses stratified by self-identified ethnicity or gestational age at birth.

Conclusion: Although most NICU parents will consent to a NICU genetic biorepository study, significant minorities perceive significant risks and would decline storage of their child's de-identified DNA for future genetic research. The fraction of parents who decline is comparable across a range of self-identified ethnicity and gestational ages. In order to protect all potential research subjects, prospective informed consent is a requirement for ethical study design.

Bioavailability of vitamin D in obesity: an overview

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Background: Obesity has been linked to many conditions including inflammation, fatigue, muscle and bone aches, pressure sores, and high blood pressure. Vitamin D, a steroid hormone, and leptin, a peptide hormone, are two essential factors that help target obesity in the general population. Although the association between vitamin D and obesity has been made clear through calcium regulation, the link between vitamin D and leptin still seems to be unclear.

Objective: To assess the link between low levels of vitamin D, leptin and obesity.

Results: Vitamin D has recently been linked to obesity through an inverse relationship. The content of the vitamin D₃ precursor 7-dehydrocholesterol in the skin of obese and non-obese subjects has not been reported to differ significantly. There appears to be a spike in leptin levels with decreased vitamin D levels in obesity.

Conclusion: Different aspects associated with vitamin D deficiency in obese individuals have been explored. Vitamin D insufficiency is associated with obesity due to the decreased bioavailability of vitamin D₃, instead it is deposited in adipose tissue. *In vitro* studies indicate that obesity does not affect the cutaneous production of vitamin D.

Key words: Vitamin D, Obesity, Leptin