creases the allostatic load due to constant homeostatic challenges impacting both interoceptive and exteroceptive neural pathways (the latter expressing more marked interpersonal dynamic variability) involved in perception of stressful events predisposes to an unfavourable outcome with a significant increase in the mortality of breast cancer patients. [2] In a model of streptozocin induced diabetes in mice, stress responsiveness was impaired with generation of cortisol, ACTH and CRH plateau curves across time with a obviously decreased magnitude of secretion of the endogenous glucocorticoid per comparison with healthy controls, after induction of restraint. [3] Albeit the association between flattened diurnal cortisol rhythmicity with poor prognosis in breast cancer patients, [4] only recently Lauriola and colleagues have shown that ligand-bound glucocorticoid receptor is able to downregulate signalling downstream to EGFR, with the retrospective analysis of biological specimens of breast cancer patients revealing that those ones with decreased glucocorticoid receptor expression were associated with a poorer prognosis. [5]

Herein, taking altogether in account, we established a protocol to address the role of glucocorticoid signalling upon TGF-β_1 induced transient epithelial to mesenchymal transition (EMT) in mammary cells (MCF10A), concerning that interestingly, TGF-β_1 plasma levels are higher in diabetics in comparison with healthy controls. Pathological EMT is associated with metastatic dissemination, involving the loss of epithelial phenotype and acquisition of mesenchymal characteristics. [6] Control excipient treated cells were compared with TGF-β_1 standalone, TGF-β_1 + 100nM dexamethasone, TGF-β_1 + 100 nM dexamethasone + 5 μM RU486 (potent glucocorticoid receptor antagonist) and 100nM dexamethasone singly. Our immunofluorescence analysis showed that MCF10A cells treated with TGF-β_1 acquired a fibroblastoid morphology with loss of epithelial markers (E-cadherin, β-catenin) and up-regulation of mesenchymal ones (vimentin). Controls displayed a cortical pattern of F-actin disposition, with TGF-β_1 treated ones revealing a reorganization of the cytoskeleton with abundant stress fibres. Once again, simultaneous treatment with TGF-β_1 and dexamethasone partially reversed the phenotypical transdifferentiation with a marked decrease in stress fibres. In all the experiments, treatment with TGF-β_1 + dexamethasone + RU486 exacerbated the phenotypical switch, and in regard to the cytoskeleton, rather than stress fibres, the lamellipodia and filopodia extension was also clearly noted. Generically, dexamethasone reverted the ability of TGF-β_1 to induce the phenotypical switch and also the topological alterations observed with the EMT phenomenon.

In synthesis, our results support a cross-regulation between glucocorticoid receptor and TGF-β_1 signalling pathways. Lifelong increase in allostatic load (such as in diabetes) and impaired response to stress may act as a contributing factor for pathological EMT and, thus, tumor metastasis.

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16 – Consumption of Sweetened Beverage in Children and its Relation with Metabolic Syndrome: Needs Assessment and Health Education

Teixeira D[1,3*], Cunha S[1,3*], Vieira M[1,4], Dores RA[2], Prudêncio C[1,4]
[1]Ciências Químicas e Biomoléculas, Centro de Investigação em Saúde e Ambiente, Escola Superior de Saúde do Instituto Politécnico do Porto, Portugal
[2]Ciências Sociais e Humanas, Escola Superior de Saúde do Instituto Politécnico do Porto, Portugal
[3]Departamento de Biología Funcional y Ciencias de la Salud, Universidad de Vigo, España
[4]i3S - Instituto de Investigação e Inovação em Saúde, Universidade do Porto, Portugal
**The authors contributed equally to this study*

Introduction: The intake of sugar-sweetened beverage (SSB) has been associated with obesity, type 2 diabetes, cardiovascular diseases and dental caries. Thus, an increased consumption of SSB may potentiate metabolic syndrome (MS). [1] The consumption of SSB has increased amongst children. [2] The promotion of health education at parents/tutors level may lead to a decrease in SSB intake by children, with an improvement in their quality of life in medium-long term and, consequently, diminished costs for public health. [3]

Objectives: The objective of the present study was to study the intake of SSB in children. Additionally, we aim to sensitize parents/tutors for the risks of high SSB intake, namely in the development of MS.

Materials and Methods: In this study participated 24 parents of 29 children from a primary school in Northern Portugal. The children's dietary intake was measured using a food frequency questionnaire completed by the parents. The questionnaires were used to assess the consumption habits of SSB. Additionally, the questionnaires collected demographic (age, gender, marital status, education level, number of children) and socio-economic (annual household income) data.

Results: In this study, the data showed that 29% of children consume fruit-flavored drinks without sweeteners, 38% fruit-flavored drinks with sweeteners, 92% soft and 13% diet drinks. Among the SSB, coca-cola and ice tea were identified as the most consumed. Our results demonstrate that 46% of our participants consume such drinks between 2-4 times a week. Regarding to the period of consumption, drinks are consumed on a weekly basis, especially during the afternoon.

Discussion/Conclusion: The occurrence of metabolic disorders is starting at an earlier age, leading to an increase of MS in children and young adults. Our results showed that nearly 50% of the participants consumed frequently SSB. Thus, a health education approach directed to children and parents/tutors may reduce the consumption of SSB and, consequently, diminish the incidence of MS in children and young adults.

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