Early life stress aggravates chemotherapy-induced toxicity in mice

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BACKGROUND
Childhood cancer: 17/100.000 year
5-28% of minors experience adverse childhood experiences (ACE)

What if childhood cancer patients experience ACE’s?

METHODS

Test | Assessment
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Cage activity (CA) | Circadian activity pattern
Open field (OF) | Exploration
Social exploration (SE) | Social exploration
Elevated plus maze (EPM) | Fear
Social preference social novelty (SPSN) | STR1: sociability
 | STR2: social memory
Forced swim test (FST) | Depressive-like behaviour
Morris water maze
• Acquisition (Aq) | Spatial learning
• Probe Aq | Spatial memory
• Reversal | Cognitive flexibility
• Prove Reversal (Rev) | Spatial memory, cognitive flexibility

RESULTS

Spider diagram demonstrating Z-score on behavioral tests

CONCLUSIONS
First rodent study combining early life stress and chemotherapy
Mostly additive effects of early life stress on chemotherapy-induced cognitive deficits, except during spatial learning and memory
Childhood leukemia patients confronted with ACE might be at elevated risk for chemotherapy-induced cognitive deficits