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Art is medicine: Combating Parkinson's disease with creativity, positivity and movement

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People with Parkinson's disease (PD) benefit from engaging in activities that promote creativity, relaxation and positivity. The Art Cart's Smile Trough Art Workshop is specifically designed to help those with PD explore their creativity by targeting areas that are unique to this population. Our program includes modified equipment (easels, paint brushes, palates, etc.) which has shown to meet the needs of PD participants more successfully than traditional art equipment. For the workshops we design activities that will help this population combat the symptoms of PD such as tremors, rigidity of limbs, micrographia and loss of fine motor control. While our paint dries, we encourage our participants to follow along and participate in exercises that encourage strengthening of fine motor movement. After the culmination of each workshop, participants have the opportunity to provide their feedback regarding the impact the art workshop had on them through a survey. As anticipated, those with PD who participated in our Smile Through Art Workshop left with a heightened level of mood and an increased interest in exploring their creativity. Thus far, 12 workshops have been programmed for the PD population in Massachusetts, targeting a total of 26 participants. Nine (9) of the 12 workshops were offered through a continuous weekend program. Thus, it is believed that engaging in art and promoting a healthy environment is beneficial and leaves those with PD and their caregivers with a heightened quality of life.

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Nilotinib effects in Parkinson's disease and dementia with Lewy body

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Cancer and neurodegeneration include a group of diseases that are mechanistically distinct but may share common therapeutic targets. Autophagy is a common quality control mechanism shared by mitotic and post-mitotic cells and it can be exploited to accelerate clearance of unwanted oncogenes and reduce accumulation of toxic proteins in cancer and neurodegeneration respectively. Tyrosine kinase inhibition is a therapeutically relevant strategy that can induce autophagy. Our laboratory investigates TKIs that activate autophagy and are FDA-approved for cancer, thus significantly reducing research and development efforts and cost by re-purposing. In neurodegeneration, the non- receptor tyrosine kinase ABL is activated. Nilotinib and bosutinib are second generation BCR-ABL and SRC (short for Sacoma)-ABL inhibitors, respectively, that are therapeutically used for individuals with leukemia. A fraction of nilotinib and bosutinib crosses the blood-brain barrier (BBB), inhibits ABL and facilitates autophagic misfolded protein clearance, leading to neuroprotection and improved cognition and motor behavior. Mice treated with a much lower dose of these drugs (< 25% of the typical leukemia dose) show significant motor and cognitive improvement and degradation of misfolded proteins, leading to normal cell survival. We evaluated the effects of low doses of Nilotinib, on safety and pharmacokinetics in Parkinson's disease dementia or dementia with Lewy body. Twelve subjects were randomized into 150 mg (N=5) or 300 mg (N=7) groups and received oral daily doses of nilotinib for 24 weeks. The primary objectives were safety and tolerability; pharmacokinetics and target engagement were secondary, while clinical outcomes were exploratory. This study shows that 150 mg and 300 mg daily doses of nilotinib are safe and well tolerated in advanced Parkinson's disease. Nilotinib is detected in the CSF and seems to engage the target via Abl inhibition. Parkinson-related CSF biomarker, including homovanillic acid is significantly increased, DJ-1 is reduced and α-synuclein is stable between baseline and 24-week nilotinib treatment. Exploratory cell death biomarkers including neuron specific enolase and tau are also reduced. Motor and cognitive performance suggests stabilization of clinical outcomes. These data support the potential of TKIs in the treatment of PD.

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