**Results:** From the clinical study of 119 MDS patients, we observed that strong expression of all three NEDDylation pathway proteins correlated with longer survival time. Patients with low expression of USP10 had a better outcome (p = 0.02, respectively). No correlation was observed with MDS type (WHO 2016), IPSS-R risk group, or overall survival.

**Conclusions:** Our findings suggest that the NEDDylation pathway may play a significant role in the development and prognosis of myelodysplastic syndrome. Further studies are needed to confirm these observations and to explore the potential therapeutic implications of targeting the NEDDylation pathway.

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**Background:** NOX66 is currently being developed for the treatment of breast cancer. It is a small molecule inhibitor of ENOX2, which is overexpressed in breast cancer cells. Our previous work showed that NOX66 inhibits PI3K pathway and leads to decreased AKT activation, resulting in decreased colony-forming ability of breast cancer cells.

**Methods:** We performed a phase 1 safety and signalling study with NOX66 in breast cancer patients. The study included 19 patients with metastatic breast cancer enrolled between March and September 2017. The patients were divided into three cohorts: Cohort 1 (n = 8) received 400mg NOX66 daily, Cohort 2 (n = 8) received 800mg NOX66 daily, and Cohort 3 (n = 3) received 1600mg NOX66 daily. Each patient received NOX66 for up to seven months.

**Results:** Data presented is for Cohort 2. The study showed that NOX66 is well tolerated as monotherapy and in combination with other therapies. The most common adverse events were fatigue and nausea. The study also revealed that NOX66 inhibited the PI3K pathway, leading to decreased AKT activation and increased apoptosis.

**Conclusions:** NOX66 is a promising candidate for the treatment of breast cancer due to its ability to inhibit the PI3K pathway and to induce cell death in breast cancer cells.