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It's time to consider propranolol as an anti-cancer drug, researchers say

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Propranolol, a beta-blocker commonly prescribed to treat irregular heart rates and other conditions, has significant anti-cancer properties, say researchers in a new clinical study published in *ecancermedicalscience*.

The Repurposing Drugs in Oncology (ReDO) project, an international collaboration between the Anticancer Fund, Belgium, and US based GlobalCures, says that existing and widely-used non-cancer drugs may represent a relatively untapped source of novel therapies for cancer.

Historically, pharmaceutical companies devote little time to "repurposing" existing drugs. The ReDO project hopes to change that, raising awareness by publishing a series of articles in ecancer to share evidence for using these therapies in cancer medicine.

Propranolol is the latest in a series of drugs that could offer cheap, safe and effective solutions to cancer. It's available globally in generic form and is on the WHO List of Essential Medicines - particularly in angiosarcoma, a rare form of heart cancer.

"The evidence to date in angiosarcoma is especially compelling," says study author Pan Pantziarka, PhD, of the Anticancer Fund, Belgium. "Here is a rare disease with high unmet needs that is unlikely to attract investment from the commercial drug development sector. Propranolol offers these patients evidence of efficacy and with little or no toxicity."

"Existing animal and human data on the use of propranolol to treat

cancer is tantalizing and merits rapid and careful evaluation in a number of tumour types," adds study author Vikas P. Sukhatme of Global Cures, Harvard Medical School, USA.

The paper also highlights the potential of propranolol to act on multiple points of the metastatic cascade - particularly in the peri-operative setting. Post-surgical metastatic spread is a widespread clinical phenomenon, and tackling this has huge potential to lead to improved outcomes.

"There is good in vivo evidence that propranolol, alone and in combination with other agents, impacts this process," says Pantziarka. "Reducing metastatic spread ultimately saves lives."

Gauthier Bouche, Medical Director of the Anticancer Fund, points out that propranolol has already been repurposed to treat childhood benign tumours.

"An effective treatment against infantile hemangioma had existed since the 1960s but we only discovered this in 2008 when careful clinicians found it serendipitously. Every day I ask myself: 'what else can propranolol offer to patients with unmet needs?' I think there is a lot, and we shouldn't have to wait another forty years to find out."

More information: Pan Pantziarka et al, Repurposing Drugs in Oncology (ReDO)—Propranolol as an anti-cancer agent, *ecancermedicalscience* (2016). DOI: 10.3332/ecancer.2016.680

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