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Depression Screening, a Prerequisite in Patients Undergoing Investigative Proto-Oncogene Mutation Tests

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Madam, A proto-oncogene is a normal gene that can become an oncogene due to mutations or increased expression. Proto-oncogene codes for proteins that assist regulate cell growth and differentiation through contribution in signal transduction and mitogenic signals concert, generally do it through their protein yield. Subsequent to attaining mutation, a proto-oncogene turns into a tumour inducing mediator, an oncogene. Classic proto-oncogenes are RAS, WNT, MYC, ERK. The RAS proto-oncogene (from rat sarcoma) was one of the earliest human oncogenes discovered and comprises at least three different biologically active genes as H-RAS, K-RAS and N-RAS.¹ These three genes code for the G proteins present in the plasma membrane and contribute to initiating a cascade of protein kinases, leading to activation of nuclear transcription factors and alteration of gene expression mostly at positions 12, 13 and 61. Alterations in RAS genes have been detected in a wide range of human tumours, with a total incidence of 10% to 15%. H-RAS is generally associated with bladder and kidney cancer, N-RAS in melanoma and haematological malignancies and K-RAS in gastrointestinal cancers as biliary, pancreatic, colorectal, lung and ovarian cancers. K-RAS mutations have been extensively so far and more than 3000 point mutations have been reported to date.² The most common mutations occur in codons 12 and 13, about 80% on codon 12 and 20% on codon 13. However, cancer itself and its treatment have a considerable psychological impression on patients and their families appended by various corporeal, demonstrative, mystical, social and communal upheavals.³ Cancer patients with depression have meager survival through profound interaction between psychological and

carnal glitches. Many screening tests are introduced aiming to distinguish cancer before the commencement of symptoms.⁴ The benefits of screening are in terms of cancer deterrence, prompt detection and post-treatment requirement to be evaluated against impending harm. However, subjects who have been screened for mutations have multiple chances of becoming psychologically vulnerable.⁵ It is therefore necessary to develop a profile of mental health screening as well, particularly for depression in patients with positive mutations evolving cancer. Depression should be evaluated and treated as early as possible in these patients as it is a predictor of negative survival. Therefore, it is vital to determine and treat depression in such subjects to guarantee better treatment compliance and improved survival possibilities.

Keywords: KRAS, proto-oncogene, depression, cancer, mutation.

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