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EDITORIAL

Painful Peripheral Neuropathy and Cancer

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ABSTRACT

Peripheral neuropathy (PN) is very prevalent in cancer patients and a leading cause of pain related to cancer. However, the underlying pathophysiological mechanisms vary significantly. Peripheral neuropathy can be a direct or an indirect complication of cancer or cancer-related treatment, or a pre-existing comorbidity not related to cancer. PN might also occur as a paraneoplastic neurological syndrome. Such syndromes are immune-mediated manifestations that usually precede the diagnosis of cancer or cancer's relapse. Pain is very prevalent in paraneoplastic peripheral neuropathies and, therefore, merits attention.

Keywords: Cancer; Pain; Paraneoplastic; Polyneuropathy

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INTRODUCTION

The term peripheral neuropathy (PN) refers to any disorder of the peripheral nervous system including single and multiple (asymmetric) mononeuropathies, symmetrical involvement of many nerves (polyneuropathy) or sole involvement of the dorsal root ganglia [1, 2].

PN is very prevalent in cancer patients; however the underlying pathophysiological mechanisms vary significantly. PN can be a direct or an indirect complication of cancer or cancer-related treatment, or a pre-existing comorbidity not related to cancer. Directly cancer can cause single or multiple mononeuropathies and plexopathy as a result of invasion by cancer cells of the peripheral nerves and plexus, respectively [3]. Indirectly, similar pathologies might occur following iatrogenic nerve and plexus injuries, either secondary to radiotherapy or surgery [4]. Treatment-related PN also includes chemotherapy-induced PN, which is probably the most common cause of PN in cancer [5].

However, PN in cancer might occur as a paraneoplastic neurological syndrome (PNS). PNS are a heterogeneous group of neurological disorders triggered by cancer. To be considered as paraneoplastic, the neurological syndrome should occur within 5 years of cancer diagnosis [6], though there are many reports of possible PNS that have exceeded this time-frame [7]. PNS are caused by mechanisms other than

metastases, metabolic or nutritional deficits, infections, coagulopathy, or side effects of cancer treatment such as chemotherapy. The discovery that many PNS are associated with antibodies against neural antigens expressed by the tumour (antineural antibodies) has suggested that PNS are immune-mediated [8]. Paraneoplastic PN is one of the commonest PNS and often is a cause of neuropathic cancer pain [9].

This editorial is an introduction to an up-to-date systematic review and meta-analysis of all published case reports or case series of patients with paraneoplastic PN (doi:10.1007/s40122-017-0076-3). The systematic review and meta-analysis shed light onto both the clinical and neurophysiological aspects, with a particular focus on pain as a manifestation of the PNS.

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Compliance with Ethics Guidelines. This article is based on previously conducted studies and does not involve any new studies of human or animal subjects performed by any of the authors.

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