

# GENERALITIES ON PARANEOPLASTIC SYNDROMES IN BRONCHOPULMONARY CANCER

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**Abstract:** Paraneoplastic syndromes are nonspecific clinical and biological manifestations that appear in patients with malignant neoplasia. Those manifestations may precede the tumour symptomatology, may appear concomitantly with this one or may pursue it. In general, paraneoplastic syndromes have a great importance, because are present in 15% of the patients with cancer and 70% of the patients with bronchopulmonary cancer may present one of the syndromes during the evolution of the disease. The paraneoplastic syndromes appear only if there is a malignant tumour. The symptomatology of the paraneoplastic syndromes is varied and polymorph, each syndrome presenting a specific clinical and biological picture.

**Cuvinte cheie:** sindrom paraneoplazic, cancer bronhopulmonar, manifestari clinice și biologice

**Rezumat:** Sindroamele paraneoplazice sunt manifestări clinice și biologice nespecifice care apar la bolnavii cu neoplazii maligne. Aceste manifestări pot preceda simptomatologia tumorii, pot să apară concomitent cu aceasta sau pot să o urmeze. În general, sindroamele paraneoplazice au mare importanță, deoarece sunt prezente în până la 15% dintre pacienții cu diagnosticul de cancer, și până la 70% dintre pacienții cu cancer bronhopulmonar pot prezenta unul dintre aceste sindroame pe parcursul evoluției bolii. Pentru ca sindroamele paraneoplazice să apară, este neapărat necesar ca în organismul bolnavului să se dezvolte o tumoră malignă. Simptomatologia sindroamelor paraneoplazice este variată și polimorfă, fiecare sindrom exteriorizându-se printr-un tablou clinic și biologic aparte.

## SCIENTIFIC ARTICLE OF BIBLIOGRAPHIC SYNTHESIS

### Short History

The first report of a paraneoplastic syndrome was made in 1825 by Trousseau and described the growing incidence of the venous thrombosis in patients with cancer, since then it has been proved with a large frequency the existent relationship between tumors and particular paraneoplastic syndromes. (43,59)

In 1928 it has been described by Brown for the first time, the Cushing Syndrome in a patient with hirsutism, diabetes mellitus, arterial hypertension, adrenal hypoplasia, and small cell pulmonary cancer. (8, 22, 28)

In 1942 Guichard described leukemias that appeared in some types of cancers and called them paraneoplasia. In 1957 Schwartz and Bartter described a syndrome that consists of hyponatremia of dilution and renal loss of sodium in 2 patients with bronchopulmonary cancers. Bouden in 1962 gave the name to the paraneoplastic syndromes. (26)

The area of the paraneoplastic syndromes has constantly evolved and nowadays contains more fields from the chapters of medical pathology.

### Definitions. Generalities.

Neoplastic syndromes are biological and clinical nonspecific manifestations that appear in patients with malignant neoplasia. Those disturbances are not caused by the direct, mechanical, local action of the tumor on the organ and tissue in which it develops, it is not in a direct rapport with the local action of the metastasis of the primitive tumor. Those manifestations may precede the symptomatology of the tumor, may disappear simultaneously with this one or may follow her. Usually, these syndromes disappear with the removal of the

tumor and reappear in case of tumor recidive and metastasis. (3,5) Paraneoplastic syndromes associated to the bronchopulmonary cancer are numerous and extremely varied. They are produced through the secretion of ectopic hormones by the tumoral tissue. The producing of ectopic hormones or its precursors that are peptides is characteristic to all types of cancer but, in the bronchopulmonary cancer the incidence of the clinical manifestations correlated with the secretion of ectopic hormones is relatively high. It appears that the clinical syndromes may appear only if the neoplastic tissue is capable of metabolising the polipeptides precursors in bioactive hormones. (5)

Paraneoplastic manifestations appear more frequently in the small cells pulmonary carcinoma and rarely in the epidermoid carcinoma and adenocarcinoma, but there is no ectopic hormones secretion specific for a certain histologic type. (5)

### Clinical formes

Are very numerous and may be classified as follows:

1. Paraneoplastic syndromes with clinical manifestations: endocrine, metabolics, neurologics, muscular, osteo-articular, cutaneous, cardiovascular, hematologic, renale, hepatic, digestive, sarcoid reactions.
2. Biological manifestations without clinical expression: the apparition of isoenzymes, substances with an embryonic character, biochemical manifestations, immune manifestations.
3. Syndromes and symptoms that appear during the acute phase of evolution of malignant tumors (weight loss, muscular atrophy, dehydration, prolonged fever, itchininess).

The most frequent paraneoplastic syndromes present in the bronchopulmonary cancer are:

Systemic manifestations: anorexia, cachexy, fever,

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## CLINICAL ASPECTS

depression of the immunity, ortostatic hypotension.

Endocrino metabolic syndromes: (12% from the patients): Ectopic secretion of ACTH (Cushing syndrome); inappropriate secretion of ADH with hyponatremia (Schwartz-Bartter syndrome); hipercalcemia and hypophosphatemia; hyperthyroidism; ginecomasty; acromegaly.

Neuro miopatic syndromes (1% of the patients): Polimiositis-dermatomiositis; miastenic syndrome (Eaton-Lambert); peripheral neuropathies; subacute cerebellar degenerescens, encefalopathy (cerebral encephalitis, limbic encephalitis, cerebral encefalitis, mioclonia-opsoclonia).

Conjunctive and bone tissue manifestations: digital hipocratism; pulmonary hypertrophic osteoarthropathy; Sclerodermy;

Vascular manifestations: migratory trombophlebitis; non-bacterial thrombotic endocarditis, hemathologic manifestations (1-8% of the cases): anemy (simple, hemolytic); medullary aplasia; leukemoid reaction or leukoeritroblastic; IDC; hypofibrinogenemia;

Other manifestations: membranous glomerulopathy; Acanthosis nigricans

**PROGNOSIS:** The prognosis of the paraneoplastic syndromes is in general the same with the prognosis of the causing tumour. The syndromes disappear with the removal of the tumor and reappear with the recidive of the tumor. The presence of the paraneoplastic syndrome darkens more the prognosis, the sum of its symptomatology worsening the clinical aspect and the evolution of the cancer and sometimes complicating and making difficult the possibilities of treatment. Usually, the paraneoplastic syndromes have a severe evolution, nonfavorable, than similar syndromes that appear in patients without maligne tumours.

**TREATMENT:** The treatment addresseses, directly to the paraneoplastic syndrome and heads against the maligne neoplasia that conditioned its apparition, in general, the treatment is of the maligne tumor having as effect the atenuation or the dissipation of the paraneoplastic manifestations.

But, there are cases that need a pathogenic or symptomatic treatment for the paraneoplasia besides the treatment for tumour or its metastasis.

It has been showed that the maligne neoplasia may be modified fundamentaly without its disappareance, but with the disappareance of the paraneoplastic syndrome.

There are cases in which the treatment of the paraneoplasia may influence indirectly the neoplasia or with a citostatic treatment, the palliation of the paraneoplastic syndromes may be obtained, without the significant tumor influence (29).

Sometimes, citostatic treatment has no evident action on the tumor, but produces a significantly diminishing subjective symptomatology and improves general condition.

On the whole, every case of paraneoplastic syndrome has a treatment against the tumor and a treatment against the paraneoplastic syndrome. This treatment is different with the clinical picture of the paraneoplasia.

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