



Mini Review

GAINING ON LEAKY GUT AWARENESS WOULD FAVOUR OVERCOMING THE OUTBURST OF MANY SYSTEMIC INFLAMMATORY DISORDERS

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Abstract

Leaky gut is an abnormal condition of increased gut permeability leading to a relevant influx of toxins and undigested proteins into the blood stream. Many are the factors playing a pivotal role in the triggering of such pathological condition. Disbiosis, wrong diet, genetic disposition, generic gut inflammation and therapeutic drugs abuse are among the main etiological elements driving toward such low bowel hyper-permeability stage, which then subsequently result into many apparently unrelated systemic inflammatory disorders. It is very easy to understand and accept that by breaking the intestinal barrier functioning, the resultant influx of toxins and undigested molecules represent a major safety challenge to the whole organism which therefore react by triggering a number of defensive mechanisms of systemic inflammation. Though in much cases such events might be not clinically flagrant in many others, depending on intensity, duration and specific subject susceptibility, might burst out into a wide variety of systemic disorders at first sight apparently distant from gut disturbances. Not only food allergies and intolerances, but also arthritis, fibromyalgia, vascular diseases, metabolic syndrome, and neurobehavioral disorders such as depression or anxiety, are some examples of diseases in somehow already linked to leaky gut incidence.

Key words: Leaky gut, inflammatory disorders, gastrointestinal permeability.

1. Introduction

Among the several triggering factors of leaky gut, the abuse on therapeutic drugs might be playing a protagonist role [1]. In particular the indiscriminate consumption of Antibiotics [2] and Non- Steroidal Anti-Inflammatory Drugs (NSAIDs) [3]- [5] are alleged to be respectively leading toward microbiota and intestinal wall malfunctioning, which then might result into such widespread incidence of leaky gut that is being observed during lasts years.

Though it is broadly well recognized that antibiotic abuse is a nowadays major problem because of the huge increase on circulating antibiotic-resistant pathogenic strains, much less attention is given to the tremendous negative impact that antibiotic consumption causes on the homeostasis of gut microbiota [2]. Conscious of the fundamental role of gut microbiota on regulating many of the overall organism inter-regulatory pathways, it won't be difficult to foresee that, in addition to local gastrointestinal disturbances, antibiotic abuse might be importantly altering systemic homeostasis. Beyond altering the equilibrium among the many commensal strains,

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therefore favoring Pathogenic Small Intestine Bacterial Outgrowth (SIBO) which then triggers gut inflammation, microbiota dysfunction might result into a relevant imbalance of vitamins, nutrient and regulatory molecules that would be certainly reflected on many systemic disorders [6], [8].

Similarly, beyond the very well known gastric injury associated to NSAIDs, which is partially circumvented by co-administering Protein Pump Inhibitors (PPI) or by using COX-2 specific NSAIDs (COXIBs), it would be crucial to pay further careful attention to the NSAIDs derived impairment on the lower intestinal tract [3], [5]. Mitochondrial uncoupling is a well known off target mechanism common to all NSAIDs (including COXIBs), which it is supposed to be behind an abnormal increase on intestinal permeability. As matter of fact, following the administration of NSAIDs it is registered a relevant boost on intestinal permeability that leads to an abnormal inflow of enterobacteria, toxins and/or undigested molecules into the bloodstream. Such massive challenge represents an important insult to the organism, which react by triggering a commensurate local and systemic inflammatory response. At this point, influenced also by additional factors such as wrong dietary practices, psychical stress and/or genetic vulnerability, the insidious increase in gut permeability might become clinically relevant from subject to subject through a disparate range of apparently distant disorders harboring a systemic inflammatory background [9]. Shockingly, worth mentioning that very often such secondary inflammatory disorders are counteracted with an extra use of NSAIDs, without realizing that an additional induction/maintenance of leaky gut might be actually further fostering a systemic pro-inflammatory stage [9].

Indeed, in spite of the noticeable leaky gut consciousness registered on lasts years [1], much more have yet to be done. More accurate and easy to perform diagnostic tools, would be certainly a major and very valuable goal to be pursued in order to further extend the attentiveness on this subject. Nonetheless, in the mean time, with the biomarkers and diagnostic tools already available it would be possible to implement systematic and more accurate procedures to deal with this growing and insidious disorder that is hidden at the base of a myriad of many other patho-physiological conditions

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