**Systemic inflammatory response syndrome**

**Introduction**

Systemic inflammatory response syndrome (SIRs) is a critical condition that arise from an inflammatory reaction that has been delocalized. Within the realms of its epidemiology, survey done by Boehne, Sasse and Karch (2017) established that the incident rate of SIRs and sepsis account for more than more than 270 cases per 100 000. The SIRs incurs a considerable cost of managing mostly in the intensive care unit (ICU). The most common cause of SIRs according to an international cohort study done by Anand, Ray, Bhargava (2016) indicated that it is bacteremia, injuries, hospital invasive procedures among others. It need aggressive management to prevent it from progressing to multiple organ dysfunction.

**Disease Process**

Inflammatory response is a normal process for any tissue that has been impacted on by a given insult. An insult can be due to infection, thermal injury, it can be endogenic such as neurohumoral system, and also can be autoimmune disorder (Boehne, Sasse and Karch, 2017). More so, inflammatory process is cytokine mediated process (Anand, Ray, Bhargava, 2016). The cytokines include interlukin-1 (IL-1) and tumor necrosis factor (TNF) which are produced just after tissue incurring an insult. These cytokines causes capillary bed to be adhesive thus causing adhesion of white blood cells (Anand, Ray, Bhargava, 2016).  and permeable (Boehne, Sasse and Karch, 2017). This in turn increases extravasation white blood cells, it increases chemotaxis. In addition, leukocytosis and recruitment of tissue microphage on the injure sites increases. All this processes will end up causing the site with inflammation to be reddened because of accumulating blood, it also feel warm because of increased blood flow, edema and swelling also occurs. Patient may have sensation of pain because the inflammatory products such as bradikynin stimulates the free nerve endings which cause pain.

In the event a single site with inflammatory process is delocalized to entire body, then the condition is known as systemic inflammatory response syndrome (SIR). The spreading of an initially localized inflammatory process can be due to disorder in endothelial cells, plasmatic hemocoagulation and complement system. After of the spread of the inflammatory process and product, it can be said that it has been delocalized and dysregulated where Anand, Ray, Bhargava, (2016). term it as systemic inflammatory response. It usually affect microcirculation due to extraversion of body fluid. The third spacing of fluid end up causing systemic organ failure due to ischemia (Sarabhai and Bär, 2017). Some organs may experience bigger damage than the other due to energy need (Xu, Luo & Li, 2016). It is this systemic ischemia of organs that end up causing multiple organ dysfunction then cause death.

From the cascade of events from local inflammation which end up spreading to cause multiple organ failure and death, there are several differential diagnosis that can be made due to the manifestation. This include but not limited to sepsis, traumatic brain injury, Henoch-Sholenlein purpura, bacteremia, and volvulus. This because the above named conditions share the manifestation with systemic inflammatory response (Pągowska and Świerzko, 2016). The similarities in manifestation calls for more investigation that can refine the diagnosis to identify systemic inflammatory response syndrome. The diagnosis of SIR can be made through taking the body temperature of 38 C , heart rate of 90 beat per minute, respiration rate of 20 breath per minute and white blood cell of 12 000/ ml and some time if the immature neutrophil count us more than 10 % (Boehne, Sasse and Karch, 2017). In most systems, the diagnosis of systemic inflammatory response syndrome is made in case there is 2 or more of any of the manifestation mentioned above (Boehne, Sasse and Karch, 2017). Eosinophilia has been shown to separate sepsis and SIRs (Boehne, Sasse and Karch, 2017). It is important to note that the inflammatory process is initiated by a non-specific component.

**Conclusion**

From the disease process, it can be concluded that SIRs forms interfaces with other differential diagnosis. An example is infection. When infection or bacteremia increases its titer, it becomes sepsis then proceed to SIRs. To that effect, it disorder of worsen conditions which is systemic. It is the SIRs that will end up causing multiple organ dysfunction (MOD) when it is not managed. It is therefore more of a complication rather than an isolated pathology.

**References**

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