Cachexia

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Why in News?

New research links cancer cachexia to disrupted brain–liver signalling, redefining it as a neuro-metabolic disorder.

- **Cachexia –** It is a complex; ***chronic metabolic syndrome*** associated with cancer.
- **Prevalence –** It affects up to **80% patients** with advanced cancers and accounts for a sizeable fraction of cancer deaths.
- **Nature –** Unlike starvation, cachexia involves *increased energy expenditure and metabolic breakdown* of muscle and fat driven by tumour–host biology.
- **Symptoms**
  - Persistent loss of body weight.
  - Loss of appetite (anorexia).
  - Progressive muscle wasting and weakness.
  - Reduced response to chemotherapy and radiotherapy.
- **Causes – Tumour-driven inflammation –** Disrupts normal brain–liver nerve signalling through the vagus nerve.
- **Liver metabolic reprogramming –** Altered neural signals ***suppress HNF4α (a key regulator of liver metabolism)***, leading to appetite loss, systemic inflammation and muscle wasting.
- **Progression Stages –** Early metabolic imbalance with appetite loss.
- Progresses into liver metabolic dysfunction.
- Systemic inflammation and muscle breakdown.
- Advanced wasting with severe loss of weight and strength.
- **Diagnosis –** Regular monitoring of body weight along with assessment of muscle mass and strength.
- Evaluation of appetite and nutritional status.
- Metabolic and biochemical assessment.

- **Treatment – Early Recognition –** Cachexia should be identified as early as possible, as slowing progression is easier than reversing advanced wasting.
- **Integrated Care –** Treatment should focus on the whole patient, not just tumour control, combining multiple supportive strategies.
- **Anti-Inflammatory Support –** Inflammation needs to be addressed, though targeting single cytokines alone has shown limited success.
- **Targeted Nutrition –** Nutritional support is necessary to maintain function, even though feeding alone cannot reverse cachexia.
- **Physical Activity –** Exercise, where feasible, helps preserve muscle strength and functional capacity.
- **New treatment possibilities – Neuro-modulation (experimental) –** Interrupting abnormal vagus nerve signalling, including electrical stimulation, has reduced weight and muscle loss in animal models.
- **Liver-directed therapy (experimental) –** Preventing loss of HNF4α (a key regulator of liver metabolism) or restoring hepatic metabolic programmes has limited wasting in preclinical studies.

References

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