

Correlation Study Between Serum Serotonin Level and Dyspepsia Disorder

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Abstract

Dyspepsia is gastrointestinal disorder the commonly causes by alcohol drinking, fast eat, spicy food and other causes, characterized by uncomforted and pain feeling in area of stomach specially in upper portion. Serotonin is hormone derived from tryptophan has role as neurotransmitters in central nerves system actin various regions in human body special in gut, that it act to regulation of motility in gut. This study included selection of 34 individuals classified into group1 (17 individuals) with dyspepsia disorder and group 2 (17 individuals) healthy persons. For both groups measured level of serotonin in serum, then compared between them by T-test statistic method and P-value. Current study explained reduce of serotonin hormone level at group 1 comparison with group 2. Also, this study concluded the SH act as regulation of gastrointestinal functions and any it's reduction at level can cause many gut disorders usually cause dyspepsia disorder.

Keywords: Dyspepsia, Indigestion and Serotonin Hormone

1. Introduction

Dyspepsia define as condition in which a person suffer from pain in the abdominal region accompanied by hearten and difficulty in digestion food (also called indigestion). The common causes of Dyspepsia are alcohol drinking, fast eat, spicy food and other causes [1]. Dyspepsia diagnosis depend on history of patient then clinical examination, but to determination of causes sent patient to laboratory investigation such as blood and stool tests. Also can use radiology examinations to confirm this diagnosis such as ultrasound and endoscopy examinations. The first option to treatment of dyspepsia is antacids drugs such as Proton pump inhibitors (PPIs) drugs, that reduce acid production and indigestion condition [2].

Serotonin Hormone (SH) is hormone synthesized from special amino acid called tryptophan, tryptophan is classify as essential amino acid that it can not product from endogenously in human body but come from diet like chicken, fish, and eggs [3]. SH appear many regulation roles such as regulation of mood, digestion and emotions, due to it act as neurotransmitters in neural system. At gastrointestinal level, SH play important role at secretion inhibit of gastric acids via endogenous enterogastrone [4]. On the other hand, the SH support mucus secretion specially in the gastric and colon. Reduction of SH in the body cause depression and excess it can cause happiness condition [5].

The current study focus on role serotonin hormone in regulation of gastrointestinal function, while it has important role intestinal motility that help to remove indigestion condition.

2. Materials and Methods

The present study designed for involved tow groups:-

Group 1: included 17 individuals with dyspepsia patients

Group 2: included 17 healthy individuals as controls

35-42 years were ages the all individuals that involved in current study. Also All individuals taken your agree to

included in this study that done in Baghdad city / Iraq. After diagnosis dyspepsia, drawn of blood samples of all included individuals then separation directly without any addition by centrifugation to obtain pure serum. This serum sample used to assessment of serum serotonin hormone level via ELISA technique for all individuals.

At other hand, used T-test statistic analysis method to obtain comparison between previous two groups according to serotonin level. P-value less than 0.05 refer to significant value.

The current study explaining reduce of serum SH level in group 1 (dyspepsia group) that compare with group 2 (healthy group), SH level expression by mean \pm SD statistic method with P-value. SH level in dyspepsia group was 73.2 ± 1.05 , and in healthy group was 133.1 ± 0.99 , P-value was <0.05 , table 1 and figure 1.

P-value	Healthy group (No. =17(Mean + SD	Dyspepsia group (No. =17(Mean + SD	Parameter
< 0.05*	133.1 + 0.99	73.2 + 1.05	SH level (ng/ml)
*Significant value			

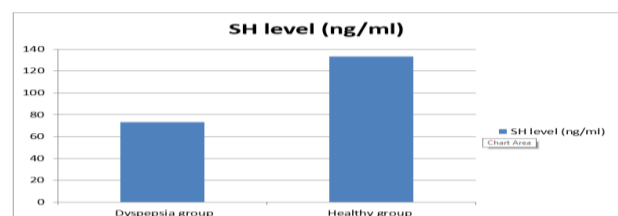


Figure 1: Comparison of SH level in serum between Dyspepsia and healthy groups according to mean \pm standard deviation (SD)

3. Discussion and Conclusion

Dyspepsia is gastrointestinal disorder characterized by uncomforted and pain feeling in area of stomach specially in upper portion, the pain may be present or not at some cases. This features of dyspepsia couple with fully feeling

after eating and this disorder can occur at the all age. Serotonin hormone (SH) is peptide hormone synthesis from tryptophan has role as neurotransmitters in central nerves system actin various regions in human body special in gut, that it act to regulation of motility in gut [6].

The enteric nervous system (ENS) has role in gut functions such as absorption and motility, therefore ENS can act independent of brain, so called abdominal brain. SH secreted by enterochromaffin cells in intestine as responses to stimulation factor such as chemical or mechanical factors [7]. The mucosal projections of primary afferent neurons act to arrive information to the central nerves system then come responses like peristaltic and secretory reflexes by mucosal projections, but the myenteric projections responsible to giant contractions. This actions are regulate the gastrointestinal motility and all of this mechanicals mediated by SH because it act as neurotransmitters at this mechanism. On other hand, the reduce SH can lead to failure of this mechanism in gut and can cause various disorders [8].

The current study demonstrate decrease of SH level that couple with dyspepsia disorder and the present study results agree with GUZEL, Tomasz 2022 that also confirm SH reduction in dyspepsia patients [9].

This study concluded the SH act as regulation of gastrointestinal functions and any it's reduction at level can cause many gut disorders usually cause dyspepsia disorder.

4. References

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