A.V.V.M. Sri Pushpam College (Autonomous)

Poondi– 613 503, Thanjavur-Dt, Tamilnadu

(Affiliated to Bharathidasan University, Tiruchirappalli – 620 024)

3.7.1 Number of Collaborative activities per year for research/ faculty exchange/ student exchange/ internship/ on –the-job training/ project work

Collaborating Agency:

Mr. S. Elango Assistant Professor of Mathematics, AAMEC, Kovilvenni

Dr. A. VENKATESH
Assistant Professor
PG. & Research Department of Mathematics
A V V M Sri Pushpam College (Autonomous)
Poondi-613 503.
Thanjavur-Dt, Tamil Nadu, India.

Mr. S. ELANGO
Assistant Professor
Department of Mathematics
Anjalai Ammal Mahalingam Engg. College
Kovilvenni
Tiruvarur (Dt), Tamil Nadu, India

Date: 06.06.2016

LINKAGE
For the year 2016-2020

Between

1. Dr. A VENKATESH
   Assistant Professor
   PG & Research Department of Mathematics
   A V V M Sri Pushpam College (Autonomous),
   Poondi – 613 503

&

2. Mr. S. ELANGO
   Assistant Professor
   Department of Mathematics
   Anjalai Ammal Mahalingam Engg. College
   Kovilvenni , Tiruvarur (Dt).

Considering the significance of the noble cause for the student community, we have come forward to collaborate with each other to exchange research knowledge, expertise and library facilities to the process of scientific research and education in the field of Mathematics The parties (mentioned above as 1. & 2.) have had preliminary discussion in this matter and have ascertained areas of broad consensus. The parties now therefore agreed to enter in writing these avenues of consensus, under a flexible linkage, and this project aims to fill the gap between knowledge demand and subject expertise related to the mentioned field.

Joint Responsibilities

- Sharing of library resources, database etc.,
- Joint Publication of research articles, books, magazines, bulletins etc ,
- Jointly organizing conferences, seminars, symposia and workshops.
- Submitting joint proposals for research funding from agencies like UGC, CSIR, DST and TNSCST.

Dr. A. VENKATESH

Dr.A.VENKATESH,M.Sc.,M.Phil.,PGDCA.,Ph.D.,
Assistant Professor of Mathematics
A V V M Sri Pushpam College (Autonomous)
Poondi - 613 503, Thanjavur Dt.

Mr. S. ELANGO
Assistant Professor
Department of Mathematics
Anjalai Ammal Mahalingam Engg College
kovilvenni.

A FUZZY MATHEMATICAL MODEL FOR THE EFFECT OF THYROTROPIN RELEASING HORMONE

A. Venkatesh

Assistant Professor of Mathematics,
A. V. V. M. Sri Pushpam College, Poondi,
Thanjavur (Dt), Tamilnadu, India

e-mail: a_venkatesh03@yahoo.co.in

S. Elango

Assistant Professor of Mathematics,
Anjalai Ammal Mahalingam Engineering College
Thiruvarur (Dt), Tamilnadu, India

e-mail: elangosakthi55@gmail.com

Abstract— A fuzzy mathematical model using delta shock was developed and used this model to calculate the expected mean and variance of Growth Hormone level in the given time interval after Thyrotropin Releasing Hormone treatment. The results showed that after Thyrotropin Releasing Hormone treatment, the Growth Hormone level is raised in patients.

Keywords: Thyrotropin Releasing Hormone , Growth Hormone, Delta shock model.

2010 Mathematics Subject Classification: 97Mxx, 93A30, 60A86

I. INTRODUCTION

The δ – shock model has a potential application in various fields such as inventory, insurance and system reliability. Many authors have investigated various shock models based on different assumptions. Bai et al [1] discussed the latest developments of the single component δ – shock model. Also Wang and Zhang [2] and Tang and Lam [3] obtained the optimal replacement policies for several shock models. Li et al [4] proposed two models according to whether or not the first shock can cause system failure. Chitrakala Rani [5] discussed Maintenance model using shock model and its applications. Li and Huang [6] studied a δ-shock model consisting of n components. The developments of the δ – shock model are mostly based on homogeneous Poisson process. In this paper, the expected mean and variance of Growth Hormone (GH) level in Pre-Clinical Acromegaly patients after Thyrotropin Releasing Hormone treatment was calculated in the given time interval by using fuzzy delta shock model.

Thyrotropin-releasing hormone (TRH) is best known for its role in the thyroid hormone axis. TRH was found in axons terminating on hypothalamic neurons, and in other regions of the brain[7,8]. Thyrotropin-releasing hormone (TRH) is a tripeptide hormone that is primarily produced in the paraventricular nucleus of the hypothalamus and represents the most proximal member of the hypothalamic-pituitary-thyroid (HPT) axis. TRH was also found in axons terminating on hypothalamic neurons, and in other regions of the brain [9]. The major recognized function of TRH is the maintenance of thyroid hormone (TH) homeostasis, *via* regulation of thyroid-stimulating hormone (TSH) secretion [10,11]. However, TRH also regulates the release of other hormones, for example, prolactin, growth hormone, vasopressin, and insulin [12,13]. Acromegaly is caused primarily by Pituitary growth hormone secreting tumors. It is usually recognized because of characteristic manifestation with enlargement of the facial features, hands, and feet. TRH induced GH release would be caused by the abnormal induction or sensitization of TRH receptors on pituitary somatotroph adenoma cells. The administration of TRH stimulates GH levels in acromegly patients. The effects of TRH on GH levels were examined in acromegly patients.

II. FUZZY δ - SHOCK MODEL

In a δ – shock model, the system fails when the time lag between two successive shocks falls into some critical region decided by δ, a positive constant[14]. Such a δ – shock model is different from traditional shock models because system failure only depends on the time lag. Consider a special case of δ – shock model. In this case, the system is subject to external shocks that arrive according to a poison process with rate λ. Let X_n ($n = 0,1,2,....$) represent the time interval between the $(n-1)^{th}$ shock and n^{th} shock. If $X_n \geq \delta$, the system can recover before the nth shock arrives, and does not fail. If $X_n < \delta$, the system fails.

The general setup in shock models is a family $\{A_n, B_n\}$, $n = 0, 1, 2, ...\infty$, of two dimensional random variable, where A_n represents the magnitude of the effect on the system from the nth shock. Models are considered depending on whether B_n represents the time interval

A FUZZY MATHEMATICAL ANALYSIS FOR THE EFFECT OF TRH USING ACCEPTANCE SAMPLING PLANS

S.ELANGO [1] A.VENKATESH [2]
G. SIVAKUMAR [3]

[2]Research Scholar, Research and Development Center,
Bharathiyar University,
Assistant Professor of Mathematics
Anjalai Ammal Mahalingam Engg. college
kovil venni,Thiruvarur (DT).Tamilnadu, India
elangosakthi55@gmail.com
[2,3] Assistant professor of mathematics
A.V.V.M Sri Pushpam College
Poondi, Thanjavur (Dt), India
a_venkatesh03@gmail.com

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Abstract

In the present study we were studied the effect of Thyrotropin Hormone in hypothyroidism in an adult during TRH treatment by using fuzzy acceptance sampling based on fuzzy gamma distribution and fuzzy generalised exponential distribution. And we show that after TRH treatment there is an increase in Thyroid stimulated Hormone level. Also the results showed that for this Model gamma acceptance sampling plan is better than fuzzy GE acceptance sampling plan.