INTRODUCTION

‘Chronopharmacology is the investigative science that elucidates the biological rhythm dependencies of medication’[1]. This signifies the investigation of the effects of drugs on biological timing and the effect of circadian rhythm on the pharmacokinetics of the drug. In this study, insulin was the drug under investigation.

AIMS

1. The possibility of a relation between timely administration of short acting exogenous insulin 20-30 minutes before meals, and effective glycaemic control.
2. The possibility of a relation between the timely administration of intermediate or long acting exogenous insulin and effective glycaemic control.
4. The possibility of improvement in the glycaemic profile of Group 2 patients after counselling on regular timed insulin administration and/or the possibility of changing the insulin type/insulin regime appropriately.

RESULTS

• Participants with Timed administration of the short acting insulin display a better glycaemic profile than those with Untimed administration (p value 0.0005) - Figure 1.
• Participants with Timed administration of the Intermediate or Long acting insulin display a better glycaemic profile than those with Untimed administration (p value 0.000) - Figure 2.
• Participants who do not experience the Dawn Phenomena display a better glycaemic profile than those who do (p value 0.021) - Figure 3.
• Participants who experience the Somogyi Phenomena display a better glycaemic profile than those who do not (p value 0.016) - Figure 4.
• Participants in Group 2 who were given counselling display a better HbA1C level after both three (p value 0.0195) and 6 months (p value 0.037) - Figure 5 and Figure 6 respectively.

CONCLUSION

The study has confirmed that administering exogenous insulin being short acting, intermediate or long acting in a regular and timely manner in Type I diabetics results in a better glycaemic profile and better overall glucose levels. Conclusive evidence showed the presence of both Dawn and Somogyi phenomena in the studied Type I diabetic patients. Counselling Type I diabetic patients on the administration of insulin in a regular and timed manner in relation to their daily meals resulted in better blood glucose control which in turn will reflect in less long term complications of diabetes.

Reference

Phase 1

Group 1: Participants who administer insulin in a timely manner
Group 2: Participants who do not administer insulin in a timely manner

Monitoring Using CGMS over a 72 hour period

Phase 2

Group 2: Patients who do not administer insulin in a timely manner

METHOD

Funding: University of Malta Research Grant: RP03-03

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