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Technologists Poster Session 1

Tuesday October 13, 2009 08:00h - 09:30h
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TP022
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A software for automatic calculation of red cell survival

J. L. Gómez-Perales[1], A. García-Mendoza[2], **R. Rodríguez Aguilar**[1], J. A. Furest Pérez[1];
[1]Nuclear Medicine Service, Hospital Universitario Puerta del Mar, Cádiz, SPAIN,
[2]Nuclear Medicine Service, Hospital Universitario San Cecilio, Granada, SPAIN.

Introduction: Red cell survival studies are performed in large number in hospitals throughout the world. The object of red cell survival studies is to obtain estimates of the rates of red cell production and destruction. The calculation of the time taken for half the label to leave the circulation ($T_{1/2}$) and the percentage of red cell destroyed a day, are not very complex but annoying and time-consuming. **Objective**: The goal of this project is to develop a computing facility to automatically calculate the parameters of red cell survival studies. **Materials and methods**: Cr-51 is eluted at a rate which significantly affects estimates of mean red-cell lifespan. The average rate of chromium elution is of the order of 1% per day, which is of the same magnitude as the normal rate of red-cell destruction. Accordingly, variations in the rate of elution in different individuals may seriously affect the accuracy of estimates of mean red-cell lifespan when survival is normal or only slightly reduced. Elution is fairly constant in normal subjects and an appropriate correction factor f can be applied, which can be calculated by $f = 0.0125\,t + 1.0178$ if t in days or $f = 0.0005\,t + 1.0178$ if t in hours. For developing a software incorporating the calculations of f, $T_{1/2}$ and the percentage of red cell destroyed a day, we have used Visual Basic 6.0 and Visual Studio Installer. **Results**: We have developed a form which allows an easy calculation of red cell survival studies. This form relies on a database to store, manage and retrieve the data of red cell survival studies. Moreover the form offers the possibility of printing a detailed report of each study. This form is included in a software called Nucleolab, which is freely available at http://serfa.radiofarmacia.org/?m=27 **Conclusion**: The software we have developed has an easy-to-use interface, that makes the calculation complexity of erytrokinetic studies completely hidden for the user, saving you the time that you previously spent on these laborious calculations and reducing the risk of error.

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