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A software for automatic calculation of tubular extraction rate

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Abstract:

Introduction: Although the renal clearance of ^{99m}Tc-MAG3 is about 60% of the ¹³¹I-hippurate clearance, ^{99m}Tc-MAG3 clearance may be useful to estimate effective renal plasma flow. Russell's algorithm and Bubeck's algorithm are widely used for calculation of ^{99m}Tc-MAG3 clearance with a single blood sample. The calculation of the ^{99m}Tc-MAG3 clearance using these algorithms is not very complex, but tedious and time-consuming.

Objective: The goal of this work is to develop a computing facility to automatically calculate ^{99m}Tc-MAG3 clearance, using Russell's algorithm and Bubeck's algorithm.

Materials and methods: For developing a software incorporating these calculations we have used Visual Basic 6.0 and Visual Studio Installer.

Results: We have developed a form for automatic calculation of ^{99m}Tc-MAG3 clearance using Russell's method and Bubeck's method. This form relies on a database to store, manage and retrieve the data of ^{99m}Tc-MAG3 clearance studies. Moreover, the form offers the possibility of print a detailed report of each study. This form is included in a software called Nucleolab, which is freely available at <http://www.radiofarmacia.org/nucleolab-english>

Conclusion: The software we have developed has an easy-to-use interface, that makes the calculation complexity of ^{99m}Tc-MAG3 clearance 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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