

# Lithium Monitoring in Patients Over 65 in NHS Greater Glasgow and Clyde

Dr Karli Dempsey (NHS Lanarkshire), Dr Catriona Ingram (NHS Greater Glasgow and Clyde), Dr Gillian Scott (NHS Ayrshire and Arran), Dr Joe Sharkey (NHS Greater Glasgow and Clyde)

## Introduction

Lithium is an effective treatment with a narrow therapeutic index. Given its potential for toxicity and side effects, appropriate monitoring is vital.

Within Greater Glasgow and Clyde (GGC) Lithium Good Practice Standards are in place (Figure 1). However, our individual experience suggested that there is wide variation as to how monitoring is conducted across different services.

Our aim was to measure whether patients within Old Age Psychiatry Services in GGC were being monitored in accordance with these standards and which methods of monitoring demonstrated the highest level of compliance.

In our second analysis we expanded our aim to include patients aged >65 who were not open to any mental health service, in order to establish whether this patient group was being monitored in accordance with these standards.

## Method

We carried out two retrospective audits to establish if patients were being monitored in accordance with the GGC Lithium Good Practice Standards. For both analyses we obtained Caldicott Guardian approval.

In the first analysis we approached Older Adult Psychiatry Community Mental Health Teams (CMHTs) to obtain a list of patients on Lithium. We recorded demographic details such as age, sex and diagnosis.

We assessed whether each patient, on a specific date, had bloods tests that were up to date in terms of the local standards. This included whether the patient had had a Lithium level in the last 3 months and renal function, thyroid function and calcium level in the last 6 months.

This information was obtained using the electronic records systems of *Clinical Portal* and *Emis*. Results were recorded in a *Microsoft Excel* spreadsheet.

The methods used by various CMHTs to monitor patients on Lithium was also recorded so this could be compared.

We were unable to measure certain parameters (e.g. ECG compliance) due to computer system limitations and time constraints.

In the second analysis, pharmacy data on Lithium prescriptions in >65s was obtained in order to assess whether there were patients being dispensed Lithium not open to CMHTs.

The same information as noted above was recorded for each patient and again the methods of monitoring were compared.

Figure 1: Lithium Good Practice Standards (NHS GGC)

Baseline	3 Monthly	6 Monthly
Drug interactions	Lithium level	BMI
Body Mass Index (BMI)	Side effect monitoring	Renal function (U+Es)
Electrocardiogram (ECG)		Thyroid function (TFTs)
Renal function (U+Es)		Calcium (bone profile)
Thyroid function (TFTs)		
Calcium (bone profile)		

## Results

The first audit cycle took place in November 2018 and 157 patients were identified. Compliance to the GGC Lithium Good Practice Standards varied between:

- CMHTs who actively conducted their own Lithium monitoring (compliance 65%)
- CMHTs who held a register and actively prompted GPs to monitor (compliance 71%)
- CMHTs who passively prompted GPs via clinic letters (compliance 54%)
- CMHTs who used a mixture of these approaches (overall compliance 29%)

Compliance with having a Lithium level taken within 3 months from the date of the audit was >85% for all groups. Overall compliance to the Lithium Good Practice Standards was significantly reduced however due to calcium levels often not being checked.

The second audit cycle took place in November 2019. A total of 508 patients aged >65 were identified as having received a Lithium prescription from January to June 2019. Of these 322 were included in the audit; 225 were open to Old Age Psychiatry CMHTs and 97 were not open to any Mental Health Service.

Comparisons were made as to whether compliance was impacted by being open to an Old Age Psychiatry CMHT (Figure 2).

Comparisons were also made *between* individual CMHTs (Figure 3).

- 6 CMHTs took bloods within their own clinic and chased these results (Group 1)
- 5 CMHTs prompted the GP to take bloods through a combination of clinic letters or use of a register (Group 2)
- 2 CMHTs took the approach of lithium monitoring being primary care led (Group 3).

Figure 2: Lithium monitoring in OA CMHT v. GP

Monitoring	Open to OA CMHT	Open to GP Only
Lithium (3m)	85%	61%
U+Es (6m)	83%	79%
TFTs (6m)	83%	57%
Bone (6m)	73%	37%
Overall	61%	23%

Figure 3: Lithium monitoring between OA CMHTs

Monitoring	Group 1 (OACMHT) n=6 CMHTs	Group 2 (Joint) n=5 CMHTs	Group 3 (Primary Care) n=2 CMHTs
Lithium (3m)	92%	78%	86%
U+Es (6m)	96%	85%	93%
TFTs (6m)	87%	72%	43%
Bone (6m)	84%	55%	86%
Overall	69%	40%	29%

## Discussion

It appears patients who are open to Older Adult Psychiatry CMHTs have a better level of Lithium monitoring versus GP monitoring alone. We recommended providing guidance to local GP surgeries as well as offering referral to CMHTs if the patient is willing to be referred. We also recommended establishing a Short Life Working Group to develop a standardized approach to Lithium monitoring within GGC Mental Health Services; this has now been established.

## Conclusion

Variation in Lithium monitoring is likely to exist across many services and sharing of information about the efficacy of these methods is helpful in improving monitoring compliance, and by extension, patient safety.