

MR neuroimaging in first episode psychosis: Indications and findings in a large clinical cohort

L Baxter^{1,2}, M Butler², A Abdelsamie^{1,2}, A Waqar^{1,2}, S Barai^{1,2}, I Awatli^{1,2}, T Boardman-Pretty^{1,2}, R Phelps^{1,2}, A Jewell¹, T Reilly^{2, 3}

1. South London and Maudsley NHS Foundation Trust, 2. King's College London 3. University of Oxford

Introduction

In certain cases, psychosis may have underlying causes that are identifiable by neuroimaging. However, due to uncertain estimates of the prevalence of treatable lesions in psychotic populations, NICE does not recommend the routine use of neuroimaging to assess patients presenting with first episode psychosis, or to screen for an organic cause.¹

Nevertheless, selective imaging to exclude organic causes of psychosis based on history or examination findings which suggest possible organic aetiology is commonly undertaken.²

In this study, we examined the indications for structural imaging using MRI in a clinical cohort presenting with psychosis.

Aim

There were two aims of the study:

1. To explore, describe and classify the indications for MR neuroimaging in a large clinical cohort presenting with a first primary diagnosis of a psychotic disorder.
2. To determine the proportion of individuals whose scan results led to a change in management, for those in the cohort who received a scan

Method

Using a database (Clinical Record Interactive Search) of anonymised patient records for the South London and Maudsley NHS Trust, we identified all records of individuals with a first primary diagnosis of a psychotic disorder between 2007 – 2021 who were referred for an MRI scan within 18 months of the diagnosis.

Two psychiatrists screened these records for the indication for each MRI scan and, when indications were found, grouped them into one of ten categories. Any discrepancies between the two assessors' classification were checked by a third assessor to resolve them.

Descriptive statistics were obtained.

The ten categories of indication for MRI were:

- Cognitive impairment
- Head injury
- Headache
- Other presentation with neurological features (e.g., seizure, movement disorder, weakness etc.)
- Suspected encephalitis
- Suspected space-occupying lesion (SOL)
- Hyperprolactinaemia
- Atypical psychotic presentation (e.g., unusual age of onset)
- Routine screening for organic cause of psychosis, no other concerning feature mentioned
- No indication identified

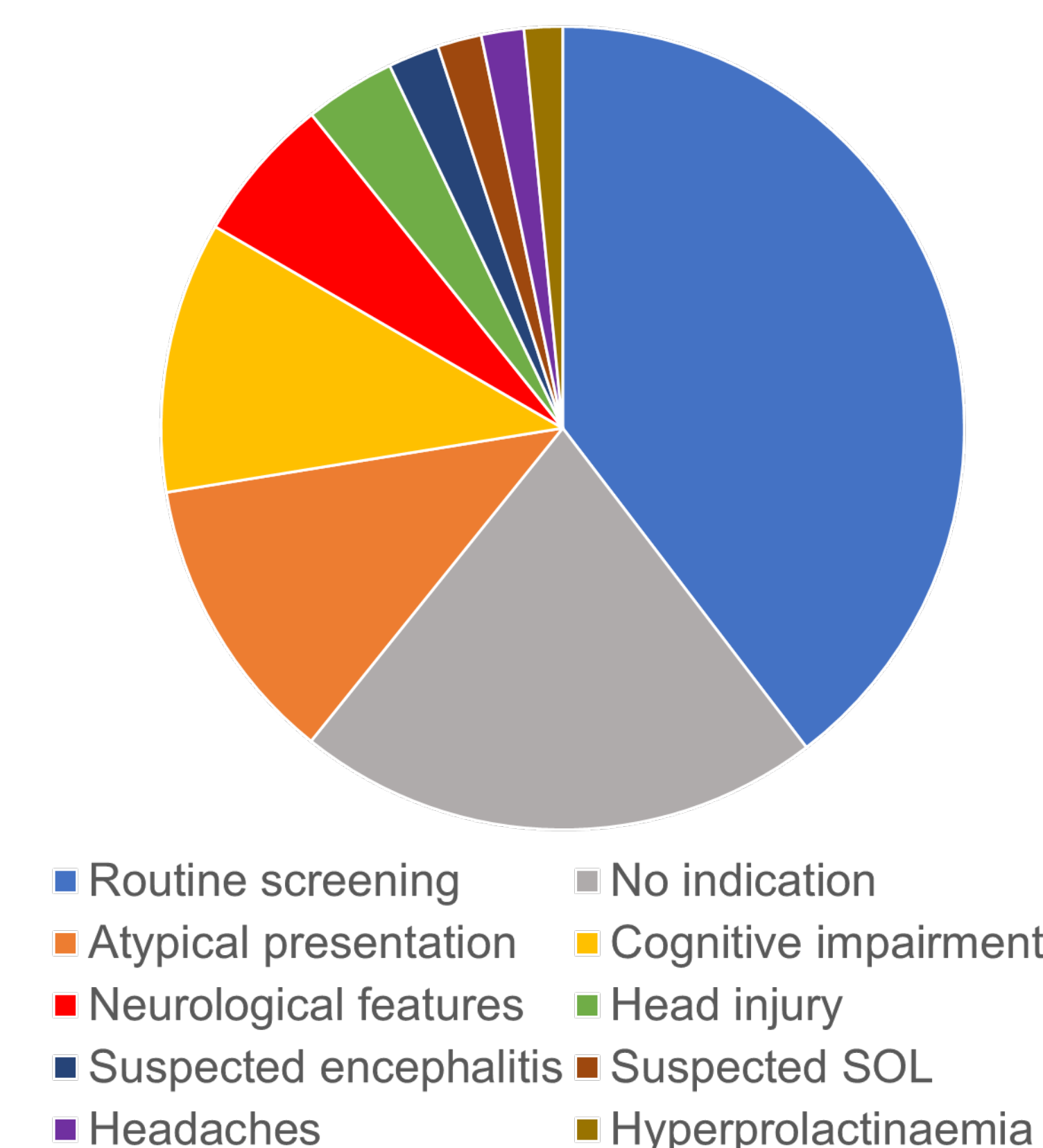
Results

Records for 1,749 patients were included in the analysis. Within this sample, 942 (53.9%) were male, 675 (38.6%) were white, 680 (38.9%) were black, 137 (7.8%) were Asian, 51 (2.9%) were mixed race, and 106 (6.1%) were of another ethnic background. The average age was 37 (s.d. 18.06).

The number of patients receiving an MRI within each indication category were:

- 693 (39.6%) for routine screening
- 370 (21.2%) for no indication identified
- 204 (11.7%) for atypical psychotic presentation
- 191 (10.9%) for cognitive impairment
- 103 (5.9%) for neurological features
- 64 (3.7%) for head injury
- 36 (2.1%) for suspected encephalitis
- 31 (1.8%) for a suspected SOL
- 30 (1.7%) for headaches
- 27 (1.5%) for hyperprolactinaemia

Indications for MRI

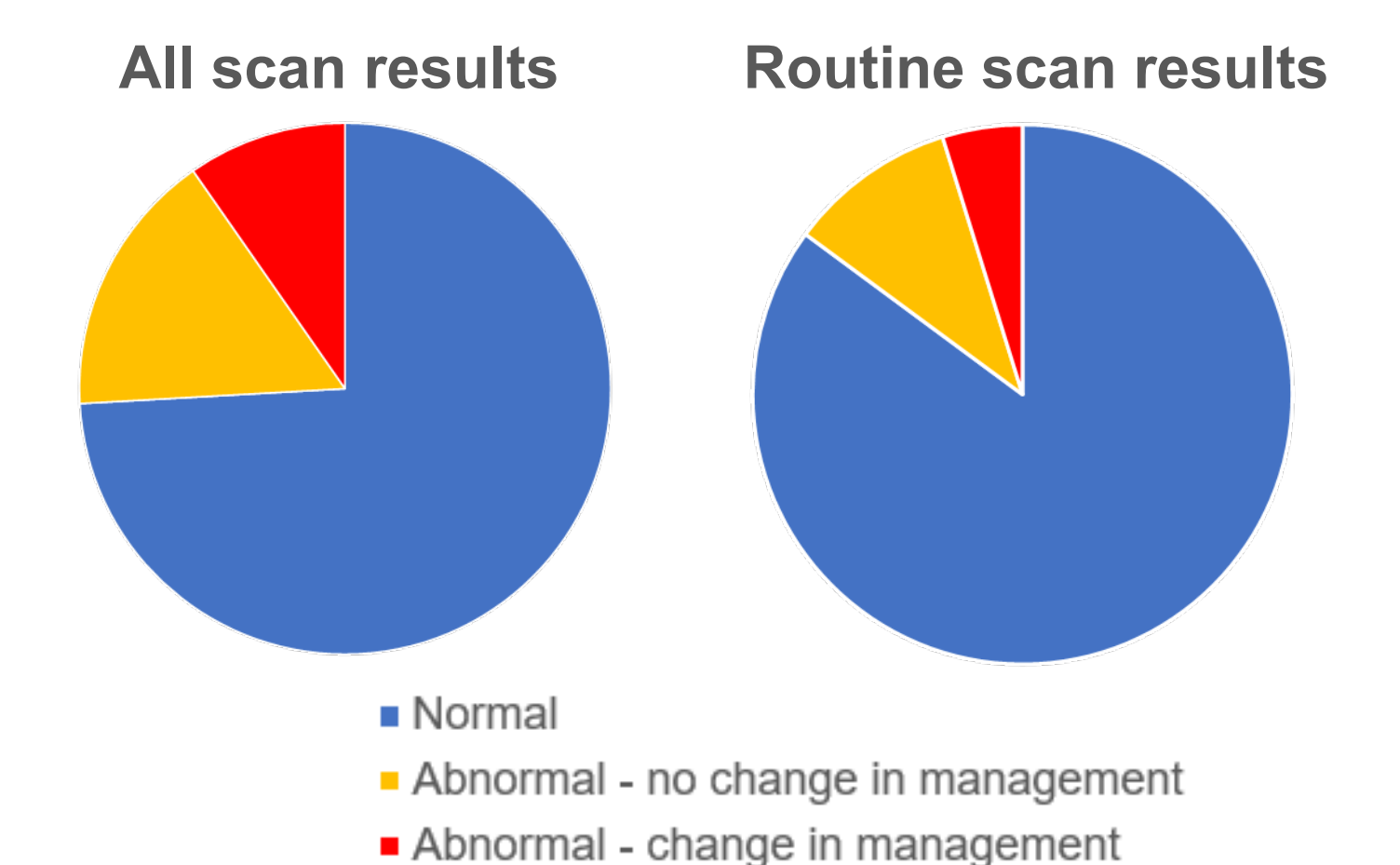


Of the 1537 individuals with available scan results:

- 1139 (74.1%) had a normal result
- 149 (9.7%) led to a change in management.

Of the 625 scans that were done as part of routine screening:

- 532 (85.1%) were normal
- 30 (4.8%) led to a change in management.



Conclusion

In this real-world clinical sample, more than one-third of MRI scans performed in patients with psychosis were carried out as part of routine screening, in contrast to NICE recommendations. Nevertheless, almost one in twenty routine scans led to a change in management.

These findings highlight that it is important for clinicians to remain attuned to concerning aspects of patients' presentations, which may be associated with scan abnormalities.

Contact: Luke Baxter

Email: luke.baxter@slam.nhs.uk

References

1. <https://www.nice.org.uk/guidance/ta136/chapter/4-Evidence-and-interpretation>
2. Blackman G et al. Prevalence of Neuroradiological Abnormalities in First-Episode Psychosis: A Systematic Review and Meta-analysis. JAMA Psychiatry. 2023 Oct 1;80(10):1047-1054