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Epidemiology of self-limited epilepsy with centrotemporal spikes (SeLECTS): A population study using primary care records

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ABSTRACT

Background and objective: Information on self-limited epilepsy with centrotemporal spikes (SeLECTS) epidemiology is limited. We aimed to determine the incidence of SeLECTS in children, its association with socioeconomic deprivation and the prevalence of neurodevelopmental comorbidities.

Method: We performed a retrospective cohort study (2004–2017) using anonymised, linked, routinely collected, primary care and demographic data for children in Wales. We used primary care diagnosis codes to identify children (aged 0–16 years) with SeLECTS and other epilepsies and to record antiseizure medication (ASM) prescriptions and neurodevelopmental comorbidities. We used a mixed effects Poisson regression model to determine temporal trends of SeLECTS incidence and its association with socioeconomic deprivation.

Results: We identified 6,732 children with epilepsy, 186 (3%) with SeLECTS. In 2017, epilepsy and SeLECTS prevalence was 0.55% and 0.02% respectively with corresponding crude incidence of 51.2/100,000/year and 1.1/100,000/year. The incidence of epilepsy in children decreased with decreasing deprivation with an adjusted incidence rate ratio (AIRR) of 0.72 (95% CI 0.64–0.82) in the least deprived compared with the most deprived quintile. The corresponding AIRR for children with SeLECTS was 1.35 (95% CI 0.46–1.99). 34% of children with epilepsy, 18% of children with SeLECTS and 3% of all children in Wales had a neurodevelopmental disorder and or school problems. Half of children with SeLECTS were treated with ASM.

Conclusions: We identified a lower than previously reported incidence of SeLECTS, which may be due to under-recording of SeLECTS. There was no change in the incidence of SeLECTS over time, whilst the incidence of childhood epilepsy overall was decreasing. There was no significant association between incidence of SeLECTS and deprivation but the modest sample size needs to be considered. Children with SeLECTS should be screened for neurodevelopmental and or learning comorbidities. Treatment for SeLECTS remains debatable.

What This Study Adds

The incidence of SeLECTS in Wales is lower than reported in other studies. There may be under-reporting of SeLECTS in Electronic Healthcare Records. The incidence of SeLECTS is unchanged over time compared to a trend for decreasing incidence in childhood epilepsy overall. SeLECTS is not "benign" as 18% will have neurodevelopmental and or school problems. Treatment of children with SeLECTS remains debatable; half of children with SeLECTS are prescribed anti-seizure medication.

1. Introduction

Self-limited epilepsy with centrotemporal spikes (SeLECTS)

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[previously known as rolandic epilepsy or childhood epilepsy with centrotemporal spikes (CECTS)], is one of the most common, childhood onset, focal epilepsy syndromes [1,2]. SeLECTS has an incidence of around 5 per 100,000 and accounts for around 10–20% of childhood epilepsies [2,7]. Seizures typically consist of brief hemifacial seizures that can sometimes progress to focal to bilateral convulsive seizures [3]. Historically it was thought that SeLECTS was "benign" and did not need treatment with anti-seizure medications (ASMs) [4]. Recent evidence has challenged this view and shown that a significant proportion of children with SeLECTS can have cognitive and behavioral problems, and treatment with ASMs may improve some outcomes [5–9]. Although there is an association between epilepsy and deprivation there is little evidence that this relationship holds true in SeLECTS [10,11].

It is important for children with SeLECTS and their families, for healthcare professionals, and healthcare policy makers to have accurate information about SeLECTS relevant to the local population to optimise treatment and allocate healthcare resources appropriately. In this study we used routinely collected healthcare data to investigate the epidemiology of SeLECTS compared to all other epilepsies in children in Wales. Our aims were to examine temporal trends of incidence and influence of deprivation, estimate prevalence of neurodevelopmental disorders (with the general population as a further control group) and describe ASM treatment patterns.

2. Method

We performed a retrospective cohort study using anonymized, routinely collected Welsh healthcare data within the Secure Anonymised Information Linkage (SAIL) databank at Swansea University, Wales, UK [12–14]. SAIL contains anonymised healthcare data from a range of sources including hospital admission and demographic data for the complete Welsh population (3.1 million, 2021 population estimate) and primary care records for approximately 84% of the Welsh population. A minority of primary care (GP) practices do not supply data to SAIL however the primary care population covered within SAIL is representative of the Welsh population as a whole [15]. An established and validated split-file approach for anonymised data linkage is used within SAIL [12–14].

Our data source consisted of children aged 0–16, within the Welsh Longitudinal General Practice (WLGP) dataset, who were registered with a SAIL General Practitioner (GP) between 1/1/2004 and 31/12/2017, had at least one year of GP data before an epilepsy diagnosis and lived in Wales. For trends in incidence our study period was between 1/1/2006 and 31/12/2017 to have equal three-year epochs during this period. UK primary care systems use Read codes as a clinical coding system to record diagnoses, prescriptions, and symptoms [16]. We identified children with epilepsy using epilepsy diagnoses and anti-seizure medication prescription codes (Read code version 2 code starts with 'dn' or 'do') in primary care. We previously found that this method is 79% sensitive and 100% specific when identifying children with epilepsy within the SAIL databank [16]. The diagnosis date was set as either the first epilepsy diagnosis or the first anti-seizure medication (ASM) prescription code, whichever was earlier. Cases of SeLECTS were identified using the Read code F25y4 [7]. We did not directly validate SeLECTS diagnoses but took the view that it would have a similar sensitivity (83%) and specificity (93%) as epilepsy diagnosis codes only in children within the SAIL databank [16]. If multiple epilepsy codes were found in a patient's record, a SeLECTS code took priority and such patients were categorized as having SeLECTS. We used GP diagnosis (Read) codes to identify co-morbid neurodevelopmental diagnoses for each child as recorded in their GP records (Read Code V2 codes for these are in supplementary Table 1).

We recorded deprivation using the Welsh Index of Multiple Deprivation (WIMD) [17], 2014 version, in which Wales is divided into 1897 Lower Super Output Areas (LSOAs), each containing an average of 1600 people [16]. Weighted scores from eight domains, representing different types of deprivation, are aggregated to form a WIMD score for each LSOA. The following eight domains provide the weighted scores: income, employment, health, education, access to services, housing, community safety, and physical environment. Each LSOA in Wales has been ranked from most deprived to least deprived according to its WIMD score and then grouped into quintiles, with quintile 1 being the most deprived and quintile 5 being the least deprived. WIMD quintiles were obtained from the Welsh Demographic Service Dataset (WDSD) [18].

Crude incidence rates and 95% confidence intervals (CIs) for SeLECTS and all epilepsy were calculated by age group and year group. We calculated the incidence of SeLECTS and all epilepsy in 3-year epochs between 2006 and 2017 using a Poisson regression model including an offset for mid-year population. The model included potential confounders, including sex and socioeconomic deprivation status, quantified using WIMD quintiles. Adjusted incidence rate ratios (AIRRs) and 95% CIs were calculated for each 3-year epoch, adjusting for sex and WIMD quintiles. We determined the prevalence of comorbid neurodevelopmental diagnoses by finding the percentage of children with epilepsy, and all children without epilepsy and all children with SeLECTS who had relevant defined diagnosis codes (see Supplemental Table 1). We used R version 3.6.3 for statistical analysis.

2.1. Ethical approval

All studies using SAIL data need independent Information Governance Review Panel (IGRP) approval. This study obtained IGRP approval (ref 0895). This study used anonymised, routinely collected, data and therefore written informed consent was not required. The Research Ethics Service has previously confirmed that SAIL projects using anonymised, routinely collected data do not require specific NHS research ethics committee approval.

3. Results

In total we analysed 5,142,479 patient years of data, identifying 6732 children with epilepsy during the study period. 186 of these children (2.8% of all children with epilepsy) had SeLECTS (Table 1).

At the end of the study period, the crude incidence of epilepsy and SeLECTS was 51.2/100,000/year and 1.1/100,000/year respectively. The prevalence of epilepsy was 0.55% and prevalence of SeLECTS was 0.02%. The overall crude incidence between 1/1/2006 and 31/12/2017 was 79.7 and 2.7 per 100,000/year respectively.

Table 2 shows a breakdown of incidence by 3-year epochs and by age groups. There was no decrease in the incidence of SeLECTS compared to the trend for a small decrease in the incidence of all childhood epilepsies over time. The incidence of epilepsy in children decreased with decreasing deprivation with an adjusted incidence rate ratio (AIRR) of 0.72 (95% CI 0.64–0.82) in the least deprived compared with the most deprived quintile. The corresponding AIRR for children with SeLECTS was 1.35 (95% CI 0.46–1.99) (Table 3 and Fig. 1). Children with SeLECTS had a higher proportion of neurodevelopmental disorders (10.8%) and school problems (7%) when compared to all children in Wales (2% and 0.7% respectively), but a lower proportion than all children with epilepsy (21.0% and 12.6%) (Table 4). Analysis of neurodevelopmental subgroups was limited due to small numbers. Sodium valproate, carbamazepine and lamotrigine were the three most commonly prescribed initial ASMs for both the all epilepsy and SeLECTS groups — this did not change between the beginning and the end of the study (Table 5). Some children with SeLECTS (10–15%) initially prescribed carbamazepine and sodium valproate were changed to lamotrigine. A smaller proportion of children with SeLECTS were prescribed an ASM when compared to all children with epilepsy: 52% compared with 71% ($p < 0.001$).

Table 1
Characteristics of the prevalent cohort of children with Epilepsy and SeLECTS (Self-Limited Epilepsy with CentroTemporal Spikes). WIMD = Welsh Index of Multiple Deprivation (see method). ASM = Anti-Seizure Medication.

		SeLECTS			All epilepsy		
		All	Male	Female	All	Male	Female
	Number (%)	186	102 (55%)	84 (45%)	6732	3632 (54%)	3100 (46%)
Age at diagnosis (years)	**Mean (SD)**	8.5 (3.1)	9.0 (2.9)	8.3 (3.2)	8.1 (5.0)	8.0 (5.0)	8.3 (5.0)
Prescribed ASM?	**Yes (%)**	95 (52%)	47 (46%)	48 (57%)	4778 (71%)	2577 (71%)	2201 (70%)
	No (%)	91 (49%)	55 (54%)	36 (43%)	1954 (30%)	1055 (29%)	899 (29%)
Deprivation (WIMD) Quintile	**1 (most deprived)**	38 (20%)	18 (18%)	20 (24%)	1882 (28%)	1024 (28%)	858 (28%)
	2	42 (23%)	28 (28%)	14 (17%)	1459 (22%)	798 (22%)	661 (21%)
	3	41 (22%)	20 (20%)	21 (25%)	1283 (19%)	681 (19%)	602 (19%)
	4	27 (15%)	13 (13%)	14 (17%)	1046 (16%)	530 (15%)	516 (17%)
	5 (least deprived)	38 (20%)	23 (23%)	15 (18%)	1062 (16%)	599 (16%)	463 (15%)

Table 2
Crude incidence rates for SeLECTS (self-limited epilepsy with centrotemporal spikes) and All Epilepsy grouped by 3-year epochs and age groups. P-values are shown for all children when comparing epochs with 2006–2008 epoch (reference).

(a) Crude incidence rate of SeLECTS per 100,000 children per year with 95% confidence intervals by age group and 3-year epoch

Epoch	Age Groups (years)						
	0–3	**4–5**	**6–8**	**9–11**	**12–14**	**15–16**	**All children**
2006–2008	0.51 (0.01–1.74)	2.93 (0.01–6.78)	7.36 (0.37–14.3)	8.22 (0.68–15.8)	0.45 (0–1.5)	1.77 (0.01–4.34)	3.65 (2.10–5.19)
2009–2011	0.57 (0.01–1.74)	4.02 (0.01–8.64)	6.52 (0.15–12.9)	5.20 (0.01–10.5)	2.39 (0.01–5.31)	0.73 (0.01–2.23)	3.16 (1.65–4.68), $p = 0.69$
2012–2014	0.94 (0.01–2.17)	0.65 (0.01–1.78)	5.93 (1.20–10.7)	5.75 (1.09–10.4)	1.03 (0.01–2.37)	<0.01 (0 – <0.01)	2.61 (1.34–3.88), $p < 0.001$
2015–2017	0.57 (0.01–1.56)	2.41 (0.01–5.02)	3.50 (0.22–6.79)	0.919 (0.01–2.14)	0.48 (0.01–1.33)	<0.01 (0 – <0.01)	1.43 (0.55–2.31), $p < 0.001$

(b) Crude incidence rate of all types of epilepsy per 100,000 children per year with 95% confidence intervals by age group and 3-year epoch

Epoch	Age Groups						
	0–3	**4–5**	**6–8**	**9–11**	**12–14**	**15–16**	**All children**
2006–2008	88.3 (67.9–109.0)	67.1 (48.1–86.1)	83.7 (63.8–104.0)	102.0 (79.1–124.0)	101.0 (79.5–131.0)	97.3 (74.4–120.0)	94.3 (88.1–101.0)
2009–2011	76.1 (56.4–95.8)	71.1 (50.3–92.0)	81.9 (60.1–104.0)	105.0 (78.8–131.0)	105.0 (79.5–131.0)	89.3 (65.2–113.0)	92.9 (86.3–99.5), $p = 0.54$
2012–2014	71.3 (53.9–88.8)	67.6 (49.3–86.0)	78.5 (59.6–97.5)	66.9 (49.8–84.0)	69.3 (51.8–86.7)	68.1 (49.6–86.7)	73.4 (68.0–78.8), $p = 0.10$
2015–2017	70.8 (53.6–88.1)	58.0 (42.9–73.0)	57.2 (43.6–70.9)	52.7 (39.7–65.7)	46.2 (34.2–58.1)	56.8 (41.7–72.0)	58.1 (53.5–62.7), <0.001

Table 3
Adjusted incidence rate ratios (AIRR) with 95% confidence intervals (CI) for SeLECTS (self-limited epilepsy with centrotemporal spikes) and all epilepsies in terms of 3-year epochs, sex and deprivation (Welsh Index of Multiple Deprivation – WIMD) quintiles. These data are from a multivariable model including epoch, sex, deprivation.

		SeLECTS		All Epilepsy	
		AIRR (95% CI)	P-value	AIRR (95% CI)	P-value
Year Groups	2006–2008	Ref		Ref	
	2009–2011	0.86 (0.50–1.47)	0.6	0.98 (0.88–1.08)	0.07
	2012–2014	0.71 (0.41–1.22)	0.2	0.77 (0.70–0.86)	<0.001
	2015–2017	0.39 (0.20–0.74)	0.06	0.61 (0.55–0.69)	<0.001
Sex	Male	Ref		Ref	
	Female	0.96 (0.63–1.45)	0.8	0.91 (0.84–0.98)	<0.019
WIMD Quintiles	1 (most deprived)	Ref		Ref	
	2	1.41 (0.74–2.75)	0.30	0.94 (0.84–1.05)	0.03
	3	1.79 (0.96–3.43)	0.07	0.87 (0.77–0.97)	0.016
	4	1.22 (0.58–2.50)	0.60	0.86 (0.75–0.96)	0.009
	5 (least deprived)	1.35 (0.46–1.99)	0.90	0.72 (0.64–0.82)	<0.001

4. Discussion

In this large Welsh population study, our main findings are: (1) a lower crude incidence of SeLECTS (1.1/100,000/yr) than previously reported (see Table 5); (2) no change in SeLECTS incidence over time compared to the trend for a decrease in the incidence of all childhood epilepsies; (3) lack of an association of deprivation and SeLECTS incidence compared to decreasing incidence in childhood epilepsy with decreasing deprivation; (4) further evidence that SeLECTS is not "benign" with children with SeLECTS being six times more likely to have comorbid neurodevelopmental disorders and/or school problems compared to the general childhood population (5) half of children with SeLECTS will get treatment with some evidence that those treated are being switched from carbamazepine or valproate over to lamotrigine.

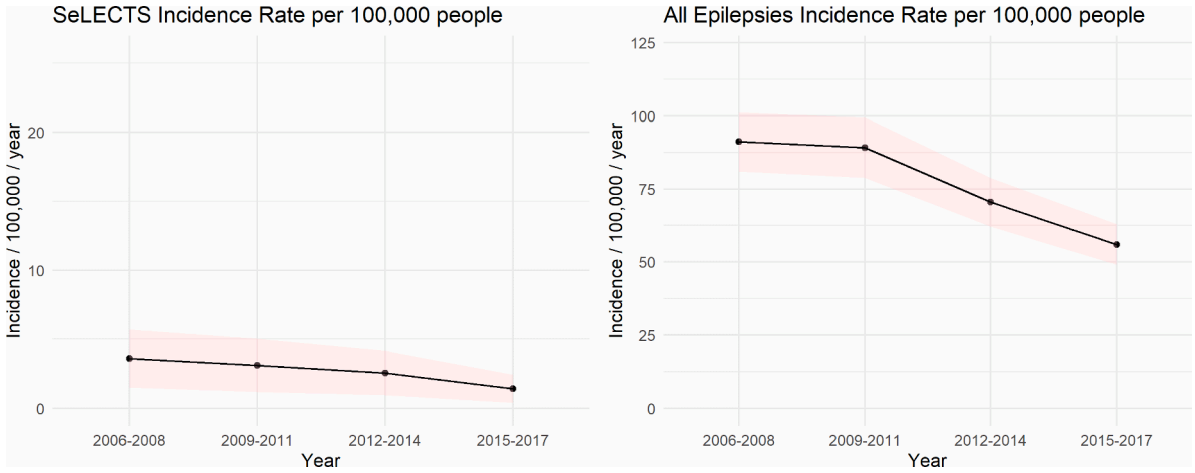

Fig. 1. Incidence rate (per 100,000 per year) and 95% confidence intervals for the incidence of (a) SeLECTS (self-limited epilepsy with centrotemporal spikes) and (b) all epilepsies in children between the years 2006 and 2017. The model has been adjusted for sex and deprivation (Welsh Index of Multiple Deprivation – WIMD) quintile.

Table 4
Percentage of children with a co-existing neurodevelopmental disorder as identified from primary care recorded diagnosis codes (see method). SeLECTS (self-limited epilepsy with centrotemporal spikes) *not presented due to potential reidentification and disclosure of small numbers. Numbers shown are the proportions(percentage) of children with the disorder in each cohort: either all children, all children with epilepsy or all children with SeLECTS.

	All epilepsy N (%)	Children with SeLECTS N (%)	All children N (%)
Any co-existing neurodevelopmental disorder	1422 (21.0)	20 (10.8)	10,159 (2.1)
Behavioural / emotional / social functioning / mental health	47 (0.7)	*	617 (0.1)
Developmental (unspecified)	311 (4.6)	*	1061 (0.2)
Motor function/hyperkinetic/tic	270 (4.0)	5 (2.7)	3737(0.8)
Pervasive developmental	347 (5.1)	*	2470 (0.5)
School problems	836 (12.6)	13 (7.0)	3622 (0.7)
Speech and language	30 (0.5)	*	351 (0.1)

There are a number of factors that may explain the low observed incidence in the current study. The highest reported is from a hospital-based study which is unlikely to reflect the general population. The Icelandic and two British studies are similar to the current in that they are all population-based, with study populations with similar socio-demographic composition and ready access to paediatricians with expertise in epilepsy [7,19,25]. It is possible that there may be a lower incidence of SeLECTS in Wales compared to other areas but given that the other study includes Welsh data, this is less likely [7]. It is more likely that not all diagnoses of SeLECTS made in secondary care are recorded in primary care records. GPs in the UK have increasing workload pressures with reducing number of GPs thereby making their work more challenging [27].

We have previously validated generic epilepsy Read codes for children as being 98% specific within the SAIL databank (Fonferko-Shadrach et al. [16]). However we agree that not having specific validation for the Read code F25y4 for SeLECTs is a weakness of this study. Based on our experience, we speculate that Read codes for SeLECTS are *specific* given that GPs are unlikely to record a SeLECTS diagnosis without confirmation from a specialist. However, it is probable that SeLECTS Read codes are less *sensitive* as SeLECTS cases may have a non-specific epilepsy diagnosis without a specific incentive to record an epilepsy sub-type, even after confirmation by a specialist. Given the growing value and importance of using routine health records for research, and the increasing recognition of specific epilepsies, there could be an argument that new or existing incentives such as the Quality of Outcomes Framework should be updated to address the disparity of coding of more specific epilepsy types. This would allow better representation of the full spectrum of epilepsy syndromes in further epidemiological studies.

The potential lack of recording of SeLECTS diagnoses in primary care records could also be an explanation for our findings on incidence trends. However, the lack of change in incidence of SLECTS over time is similar to a recent UK wide study on the subject [7], whilst the decreasing incidence of epilepsy over time is also consistent with other studies [26,28,30]. Together, these data suggest that the incidence of SeLECTS is not substantially related to changes in the diagnosis and management of epilepsy per se and confirm that the syndrome is not due to acquired causes. It cannot be ruled out that the stable incidence of

Table 5
Comparison of the epidemiology of SeLECTS from the current study to previous studies.

Study and year	Population	Study Type	SeLECT cases (% Male)	Incidence (/100,000.yr)	Developmental problems (Developmental disorder %; school problem) problem%)	% ASM
Heijbel et al., 1975 [24]	North Sweden	Hospital-based	11 (-)	21	=	–
Astradsson et al., 1998 [18]	Iceland	Population-based	17 (47)	4.7	=	47
Weir et al., 2018 [25]	North West England and North Wales	Population-based	51(-)	6	18 (no breakdown given)	–
Stephen et al. 2020 [7]	UK	Cohort	379 (61)	5.3	12 (school problems not reported)	50
Steinruecke et al., 2023 [26]	England	Multi-centre, hospital-based	124 (60)	=	23 (13;10)	–
Lacey et al.	Wales	Cohort	(55)	1.1	18 (11;7)	52

SeLECTS is due to lower diagnostic accuracy for SeLECTS in the last years of the study period. This is unlikely given that UK wide guidelines for children and young people with suspected epilepsy should be assessed by a paediatrician with expertise in diagnosing epilepsy [28], the International League Against Epilepsy's initiative for improvement in classification of the epilepsies [29] and the lack of change in diagnostic criteria for SeLECTS over time.

To our knowledge, this study is the first to report on the association between deprivation and SeLECTS. Several previous studies have found an association between epilepsy incidence and increasing socioeconomic deprivation in adults only [8], adults and children [19,20,27] and children only [10,31]. It is not clear why this association exists although it is likely to be multi-factorial, with factors including brain-injury, infections, access to care and treatment, and environmental exposures having a role. We used the Welsh Index of Multiple Deprivation (WIMD) which is an area-based measure of deprivation and so does not consider individual levels of deprivation. For example, two families living in the same small geographical area will have the same WIMD ranking but could have quite different individual levels of deprivation in terms of household income, education levels and housing standards. This may be a potential explanation for the observed lack of association between SeLECTS and deprivation although the modest sample size of the SeLECTS group needs to also be considered.

A recent prospective study of early onset epilepsy (less than 3 years old) in Scotland found that there was an association with deprivation and all early onset epilepsies, but this did not hold true for epilepsies with a known aetiology [10]. It is possible that factors associated with deprivation only increase the risk of developing certain types of epilepsy. Children in more deprived areas could have poorer access to specialist services as "access to services" is one of the indicators used to calculate the WIMD ranking. This could mean that children with SeLECTS in more deprived areas have a lower rate of specialist referral and a lower rate of SeLECTS diagnosis. This may reflect the possibility there may be health system issues that affect the more deprived. More research is needed to investigate the social determinants of health in people with epilepsy to address socioeconomic inequalities [32].

Our study adds evidence to SeLECTS not being "benign" given that 18% of children with SeLECTS had comorbid neurodevelopmental disorders and or school problems which was, significantly more than in the general childhood Welsh population. This may be related to changes in brain functional connectivity with centrotemporal spikes disrupting functional brain networks [21,22]. Emerging data in some studies suggest improvement in neurodevelopment and or cognition in SeLECTS patients treated with ASM, whilst others report worsening [23,33,34] These contribute to the challenging debate on whether patients with SeLECTS should be treated with ASMs, timings of such treatment and the agreed target outcomes for any treatment.

The current study finding that half of children with SeLECTS will be treated with ASM is similar to that reported (see Table 5) and reflects the debate mentioned above. The choice of initial ASM for children with SeLECTS did not change during the study period with the older ASMs, sodium valproate and carbamazepine, being prescribed initially in the vast majority (>95%) of cases, despite evidence that lamotrigine is a better initial choice for focal epilepsy and the known teratogenic effects of sodium valproate and its inferiority in focal epilepsy [35,36]. Our results suggest that there is a trend towards changing from valproate to lamotrigine. The Welsh prescribing trends were within UK National Institute for Health and Care Excellence (NICE) guidelines for epilepsy, published in 2012, during the study period. They recommended either Carbamazepine, Lamotrigine, Levetiracetam, Oxcarbazepine or Sodium Valproate as the first line treatment for focal epilepsy. Updated NICE guidelines, which recommended lamotrigine or levetiracetam as a first line ASM, were published after our study period [37]. Sulthiame, a first-line recommendation in Germany, Austria, Israel and Japan, is not licensed in the UK. Levetiracetam is the first-line drug in France and in China two retrospective studies found that, Oxcarbazepine and Levetiracetam were the first-line choices with both studies observing high use of Levetiracetam (37% OXC, 25% VPA and 19% LEV) and (19% OXC, 17% VPA and 56% LEV) respectively [38–40]. In the UK, as of the start of 2024, the Medicines and Healthcare products Regulatory Agency (MHRA) guidance on the use of sodium valproate states that no one under the age of 55 (male or female) should be initiated on sodium valproate unless two specialists independently consider and document that there is no other effective or tolerated treatment [35]. Given the observed trend of swapping over to lamotrigine from carbamazepine or valproate in SeLECTS patients, we anticipate that increasingly more SeLECTS patients will be given lamotrigine as initial first line ASM.

Despite its strengths, the current study has limitations. We did not directly validate the accuracy of the neurodevelopmental primary care diagnosis codes against the DSM V criteria. However a recent study has found diagnostic codes for the neurodevelopmental disorders attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) to be a valid method of identifying cases within routinely collected data in SAIL [41]. A previous study has found primary care diagnosis codes for ADHD to have a high positive predictive value in a similar databank (the English Clinical Practice Research Datalink) [42]. We relied on primary care ASM prescribing information and would have missed ASMs prescribed and dispensed in secondary care, although given the well-established shared-care agreements between primary and secondary care in Wales for the management of children with epilepsy, the number of secondary care-only prescriptions would be small.

As discussed above, the lack of validation of the specific Read codes for SeLECTS is also a weakness of this study. This can be addressed in the future by anonymously linking lists of confirmed SeLECTS cases, or detailed epilepsy information from secondary care clinic letters, with routinely-collected primary care within SAIL for case ascertainment validation.

5. Conclusions

In Wales, there was a lower than previously reported incidence of SeLECTS which may be due to under-recording of SeLECTS. Children with SeLECTS have a higher proportion of neurodevelopmental comorbidities than all children. There was no significant association between SeLECTS and deprivation however overall numbers of cases of SeLECTS studies were small.

Ethics approval statement

This study uses anonymised routinely collected data and does not require ethical approval for use in research. This study was approved at the SAIL Databank Information Governance Research Panel (IGRP) under project number 0895.

Patient consent statement

This study used anonymised routinely collected data and does not require patient consent for research purposes.

Permission to reproduce

Permission can be granted upon request to the SAIL Databank to access the data and scripts used to prepare the data and statistical analysis for reproducibility purposes.

Clinical trial registration

This study is not a clinical trial and is therefore not registered as such.

Declaration of competing interest

The authors do not note any conflict of interests.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.seizure.2024.09.008.

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