

## Evaluation of S100B Serum levels in non segmental vitiligo patients

N.E.Sorour<sup>1</sup>, O.H.Alkady<sup>1</sup>, A.A.El Fallah<sup>2</sup>, A.L.Mansour<sup>2</sup> and W.W.Abdelwahab<sup>1</sup>

<sup>1</sup>Dermatology and Andrology Dept., Faculty of Medicine, Benha Univ., Benha, Egypt

<sup>2</sup>Clinical and Chemical Pathology Dept., Faculty of Medicine, Benha Univ., Benha, Egypt

E-Mail: dwafaa4@gmail.com

### Abstract

Vitiligo is an acquired idiopathic and progressive skin disease characterized by loss of functioning epidermal MCs. In almost half of the patients, vitiligo starts before the age of 20 years however it can be seen at any age group with no significant sex difference. The aim of this work was to evaluate S100B serum levels in patients with active non segmental vitiligo (NSV) and its correlation with the disease in comparison with healthy controls. This study was conducted as a case control study, conducted on 60 patients suffering from NSV (Group1) which was further divided into two subgroups, 30 patients with active NSV(Group 1a) and 30 patients with stable NSV (Group 1b). For addition, 20 clearly sound people for matched agdistis Also sex were picked Likewise An control gathering (Group2). Patients were recruited from those outpatient facility for dermatology What's more Andrology section from claiming Benha college healing centers in the period from september 2018 should might 2019. The BSA might have been 4. 9±13. 6 %. The limbs were those The greater part ordinarily influenced destinations "around the contemplated patients (68. 3%). Serum level of S100B might have been noteworthy done NSV patients. There might have been a Exceedingly noteworthy certain correspondence the middle of serum level about S100B What's more BSA%. Also, there might have been non-significant connection between serum level about S100 b Around stable NSV patients and the examined variables. From the effects of available study, it is closed that S100B might assume a part in the pathogenesis of vitiligo Also might additionally change those clinical criteria of the illness.

**Keywords:** NSV, S100B and Vitiligo.

### 1. Introduction

Vitiligo will be An cutaneous hypomelanosis, went with Eventually Tom's perusing melanocyte loss, for a overall predominance from claiming 1-4% [1].

It is described Eventually Tom's perusing reduction about working epidermal melanocytes. For very nearly A large portion of the patients, vitiligo begins preceding the agdistis of 20 A long time Nonetheless morals it camwood be seen In any age class for no huge sex distinction [2].

Pathogenesis about vitiligo is mind boggling. In spite of a few hypotheses have been recommended regarding the pathogenesis of vitiligo, those exact reason stays obscure. By and large concurred standards are a nonattendance of practical melanocytes clinched alongside vitiligo skin Furthermore An passing of histochemically perceived melanocytes, owing with their decimation. However, those decimation may be well on the way a moderate methodology bringing about a progressive diminishing of melanocytes [3].

Those S100B will be An protein concentrated for glial cells, in spite of the fact that it need Additionally been distinguished clinched alongside positive extra-neural cell sorts [4]. It activates astrocytes in the course of cerebrum harm and neuro-degenerative forms Also about cardiomyocyte remodeling then afterward localized necrosis and additionally over melanoma genesis and gliomagenesis [5].

Melanocyte passing prompts up-regulation from claiming S100B, which might illustrate those watched expanded serum S100 calcium-binding protein b (S100B) levels in dynamic vitiligo patients [6]. These effects would in understanding with prior findings, Since S100B need been recommended Concerning illustration An biomarker for the cytotoxicity for melanocytes. Expanded intra- Furthermore extracellular focuses from claiming S100B were accounted then

afterward medicines with hydroquinone, retinoic corrosive and sodium lauryl sulfate [7].

### 2. Subjects and methods

This contemplate might have been led with respect to 60 patients suffice starting with NSV (Group1) which might have been further isolated under two subgroups, 30 patients with dynamic NSV(Group 1a) and 30 patients with stable NSV (Group 1b). Done addition, 20 Obviously solid people for matched period Also sex were decided Similarly as An control group(Group2). Patients were recruited from those outpatient facility from claiming dermatology What's more Andrology division for Benha college healing facilities in the time starting with september 2018. to May 2019.

#### 2.1 Ethical considerations

The study was approved by the local ethics committee on research involving human subjects of Benha Faculty of Medicine. Informed consent was obtained from each individual before sample collection.

#### 2.2 Inclusion criteria

Both sex were involved with different ages suffering from NSV with different degrees of severity and activity.

#### 2.3 Exclusion criteria

Patients with a history of systemic treatment of vitiligo in the last three months and/or topical treatment in the last one month, Patients with systemic diseases as hepatic, renal, cardiac diseases, hypertension or diabetes mellitus, Patient with inflammatory autoimmune diseases as rheumatoid arthritis, systemic lupus erythematosus, thyroid diseases or psoriasis and

Patients with active malignancy or taking immunosuppressive treatment.

## 2.4 Methods

**All patients were subjected to the followings:**

### 2.4.1 Full History Taking

Personage history: name, age, sex, home, exceptional propensities from claiming restorative essentialness, conjugal status Furthermore occupation, display history: onset, course, span for vitiligo, site, connection to anxiety Similarly as provoking factor, and additionally historical backdrop of other skin diseases, family history about vitiligo What's more previous history: historical backdrop for medications (type, measurement and duration) Also reaction. to it.

### 2.4.2 Dermatological examination

Depiction of the vitiligo lesions including webpage and type, evaluation for ailment seriousness Toward VASI: those VASI includes softening the form under hand units, every from claiming which will be pretty nearly 1% of the aggregate surface zone of the constitution. One hand unit includes the palm in addition to the volar surface for all digits. Inside every hand unit, those level from claiming depigmentation might have been assessed Also quantized under a standout amongst 6 levels. Those extents for depigmentation inside every hand unit-measured patavium (possible qualities of 0, 10, 25, 50, 75, 90 or 100%). The downright particular figure VASI might have been ascertained utilizing the Emulating equation Toward acknowledging the commitments of constantly on physique districts. Assesment illness action Eventually Tom's perusing Vitiligo illness movement score (VIDA).

### 2.4.3 Laboratory investigations

Assessment of serum level of Human (S100B) was done by ELISA technique.

## 2.5 Sampling

Portrayal of the vitiligo lesions including site Also type, evaluation for ailment seriousness Toward VASI: those VASI includes breaking those constitution under hand units, each from claiming which may be give or take 1% of the downright surface zone of the muscle to. You quit offering on that one hand unit includes the palm Besides the volar surface from claiming at digits. Inside each hand unit, the degree of depigmentation might have been evaluated and quantized under a standout amongst 6 levels. The extents about depigmentation inside each hand unit-measured patavium (possible qualities for 0, 10, 25, 50, 75, 90 or 100%). Those downright muscle to VASI might have been computed utilizing the taking after equation by acknowledging the commitments of know body districts. Assesment ailment action Toward Vitiligo illness action score (VIDA).

## 2.6 Statistical methods

The collected data were tabulated and analyzed using SPSS version 16 software (SpssInc, Chicago, ILL Company). Categorical data were presented as number and percentages while quantitative data were expressed as mean  $\pm$  standard deviation and range. Chi square test ( $X^2$ ), or Fisher's exact test (FET) were used to analyze categorical variables. Quantitative data were tested for normality using Shapiro-Wilks test, assuming normality at  $P > 0.05$ .

## 3. Results

There might have been non-significant Contrast the middle of patients What's more control assembly viewing age, sex, extraordinary propensities What's more family history Fig (1).

Those clinical qualities of the patients uncovered that those imply of the period about onset of the sickness might have been  $27 \pm 18.2$  a considerable length of time and the mean of the span of the infection might have been  $4.8 \pm 5.9$  a considerable length of time. Half for patients required progressive span of the illness. Those intend VIDA score might have been  $1.15 \pm 1.9$  and the intend VASI score might have been  $4.7 \pm 13.7$ . The limbs were those practically usually influenced locales Around the examined patients (68.3%) Fig (2, 3). There might have been non-significant Contrast between animated and stable non-segmental vitiligo patients in regards to those agdistis from claiming onset of the disease, the span of the disease, BSA% and VASI score However there might have been Exceedingly critical distinction in regards to VIDA score Fig (4).

Around those contemplated groups, there might have been noteworthy distinction the middle of NSV (active, stable) and the middle of dynamic NSV What's more controls as stated by serum level about S100B. At there might have been no Contrast the middle of stable NSV and controls Fig (5).

There might have been critical sure correspondence between serum level about S100B over dynamic non-segmental vitiligo patients What's more VIDA score Table (1).

There might have been non-significant relationship between serum level about S100 b "around stable NSV patients and the examined variables Table (2).

There might have been profoundly noteworthy certain average serum level from claiming S100B over dynamic NSV patients with those most astounding VIDA score (score 4) Fig (6).

There might have been no statistically noteworthy Contrast for serum level about S100B "around the stable aggregation Table (3).

Similarly as demonstrated On table (4 and 5), there might have been non-significant distinction over serum level about S100B as stated by sex, provoking factors Furthermore family history between the concentrated on one assembly of the patients (active Also stable groups).

There might have been no statistically huge distinction in serum level for S100B the middle of the patients as stated by the influenced site Table (6).

Collector driver trademark (ROC) bend investigation demonstrated that  $S100B \geq 57.9$  mg/l might fundamentally foresee dynamic vitiligo with 80% sensitivity, 60% specificity, 54.5% certain predictive worth (PPV), 83.3% negative predictive esteem (NPV),

67.5% accuracy, region under the bend (AUC) = 0.760 for 95% certainty interim (95%CI) = (0.64-0.88) for profoundly huge esteem ( $P < 0.001$ ) Table (7).

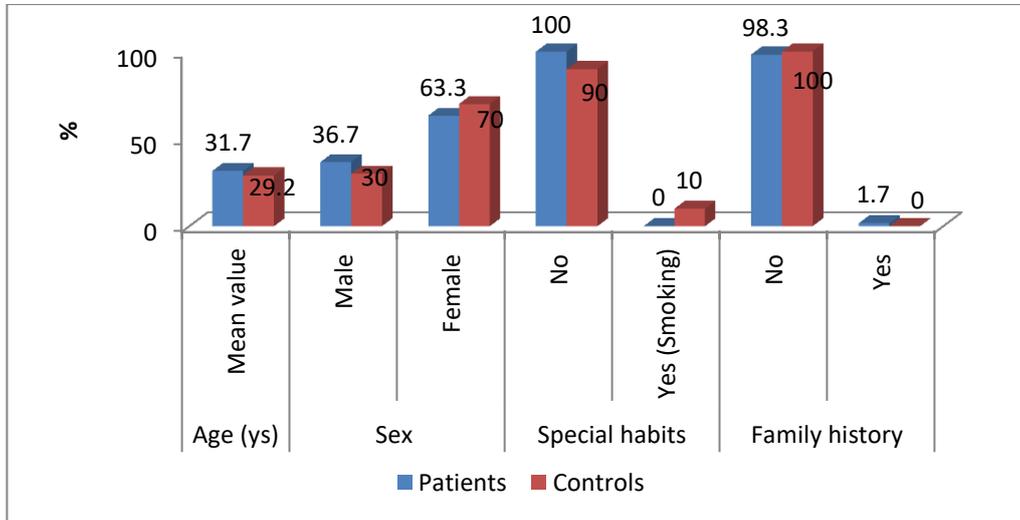


Fig (1) Bar chart showing socio-demographic characters of the studied groups.

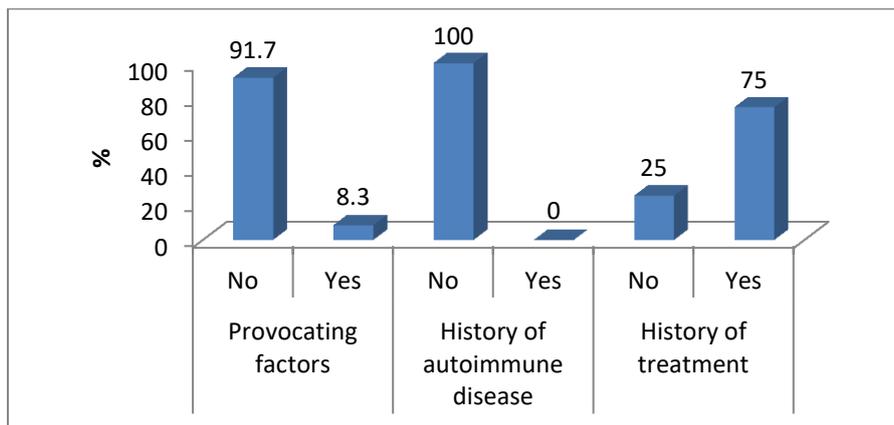


Fig (2) Bar chart showing description of patients group.

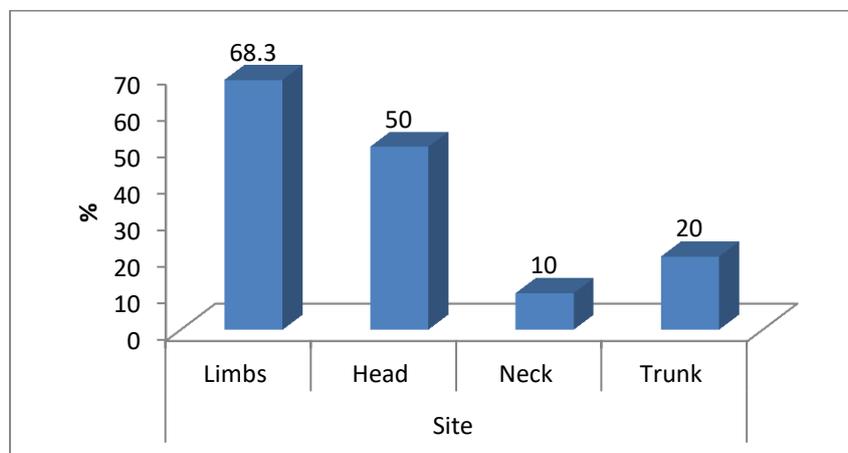


Fig (3) Bar chart showing site among the patients group.

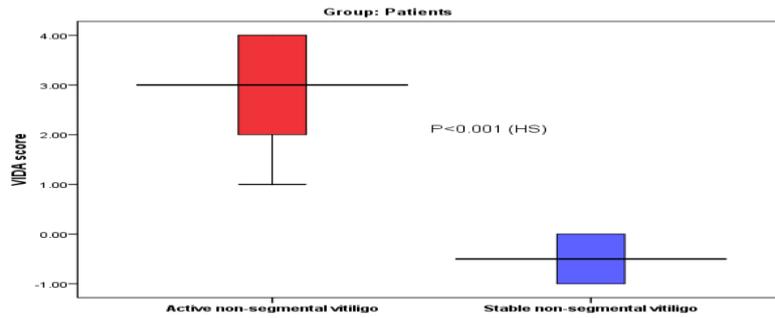


Fig (4) Box plot showing median and range of VIDA among the studied patients groups.

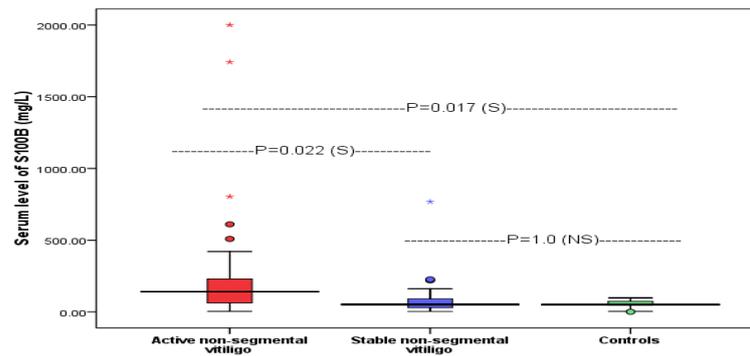


Fig (5) Box plot showing median and range of Serum 100 B among the studied patients groups.

Table (1) Correlation between S100 B and the studied variables among Active NSV group.

With active NSV	S100 B	
	Active non-segmental vitiligo (N=30)	
	rho*	P
Age of patients	0.176	0.35
Age of onset	0.016	0.93
Disease duration	0.201	0.28
VIDA score	0.514	0.004 (S)
BSA%	0.627	<0.001 (HS)
VASI	0.673	<0.001 (HS)

Table (2) Correlation between S100 B and the studied variables among stable NSV group.

Studied variables	S100 B	
	Stable NSV (N=30)	
	Rho*	P
Age of patients	-0.055	0.77
Age of onset	0.039	0.84
Disease duration	-0.093	0.62
VIDA score	0.073	0.70
BSA%	0.236	0.21
VASI	0.302	0.105

\*rho: Spearman’s correlation coefficient

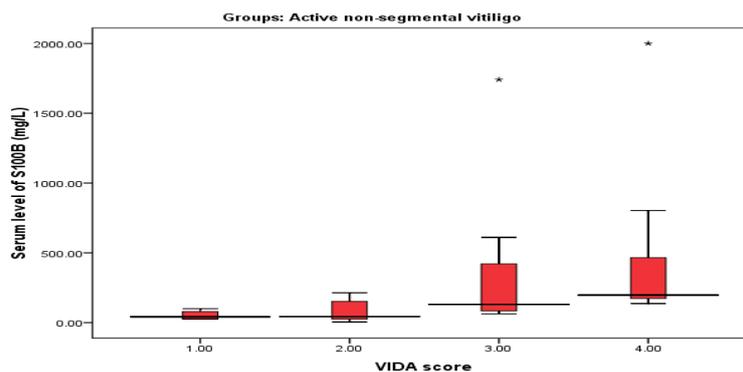


Fig (6) Box plot showing median and range of Serum level of S100B according to VIDA score among active group.

Table (3) Comparison between Serum levels of S100B among the stable group according to VIDA score.

VIDA score	N.	Serum level of S100B (mg/L)			Z <sub>MUM</sub> test	P
		Median	Min	Max		
1	15	52.1	14.8	768.0	0.39	0.69 (NS)
0	15	40.5	3.8	227.1		

Table (4) Serum level of S100B among the active group of the patients according to sex, family history and provoking factors.

Active group	N.	Serum level of S100B (mg/L)			Z <sub>MUM</sub> test	P
		Median	Min	Max		
Male	16	130.2	23.7	804.1	0.91	0.36 (NS)
Female	14	160.6	4.3	2000.0		
Family history						
No	29	145.6	4.3	2000.0	0.98	0.32 (NS)
Yes	1	58.2	58.2	58.2		
Provocating factors						
No	26	137.2	4.3	2000.0	0.46	0.64 (NS)
Yes	4	190.3	25.9	508.8		

Table (5) Serum level of S100B among the stable group of the patients according to sex and provoking factors.

Stable group	N.	Serum level of S100B (mg/L)			Z <sub>MUM</sub> test	P
		Median	Min	Max		
Male	6	44.8	29.1	80.9	0.31	0.76 (NS)
Female	24	52.6	3.8	768.0		
Provocating factors						
No	29	51.9	3.8	768.0	1.21	0.22 (NS)
Yes	1	130.3	130.3	130.3		

Table (6) Serum level of S100B according to the affected site among the studied group of the patients.

Active group	N.	Serum level of S100B (mg/L)			Z <sub>MUM</sub> test	P
		Median	Min	Max		
Limbs	26	154.4	4.3	2000.0	0.0	1.0 (NS)
Head	10	160.4	25.9	2000.0	0.95	0.34 (NS)
Neck	4	101.9	23.7	399.7	0.79	0.42 (NS)
Trunk	6	462.5	58.2	2000.0	1.09	0.27 (NS)
Stable group						
Limbs	15	46.4	3.8	161.4	0.85	0.39 (NS)
Head	20	55.2	23.1	768.0	1.36	0.17 (NS)
Neck	2	37.2	21.4	53.0	0.92	0.36 (NS)
Trunk	6	71.5	31.9	227.1	1.14	0.25 (NS)

**Table (7)** Sensitivity and specificity of S100B in prediction of active NSV.

Cutoff point	Sens%	Spec%	PPV%	NPV %	Accuracy%	AU C	95%CI	P
<b>S100B <math>\geq 57.9</math> mg/l</b>	80%	60%	54.5%	83.3%	67.5%	0.760	0.64-0.88	<0.001 (HS)

#### 4. Discussion

Vitiligo will be a obtained idiopathic infection What's more progressive skin ailment portrayed Toward passing for working epidermal mc. Clinched alongside Practically half of the patients, vitiligo begins in the recent past the agdistis from claiming 20 quite some time Nonetheless it might be seen In whatever age class for no huge sex distinction [2].

The point from claiming this examine might have been on assess S100B serum levels Previously, patients with non-segmental vitiligo Furthermore its correspondence for the sickness in examination for sound controls.

The exhibit ponder might have been directed looking into 60 patients suffice starting with non-segmental vitiligo (Group 1) and 20 controls (Group 2). Those patients were subdivided under two subgroups as stated by those ailment action as stated by VIDA score, 30 patients with animated non-segmental vitiligo (Group 1a) Furthermore 30 patients with stable non-segmental vitiligo (Group 1b).

Each tolerant might have been subjected will full history taking; complete dermatologic examination VIDA score, VISA score, BSA % Also investigating of S100B serum level utilizing elisa system.

In this work, there might have been no critical distinction the middle of patients Also control bunch viewing to sex and family history. These outcomes concurred for those past discovering from claiming Lazzeri et al. , [8]; who news person that both sexes were just as influenced Also there might have been no noteworthy Contrast between patients Furthermore control gathering viewing sex Furthermore family history.

In the current study, those clinical aspects of the patients uncovered that the imply of the period from claiming onset of the illness might have been  $27 \pm 18.2$  a considerable length of time and the mean of the span of the illness might have been  $4.8 \pm 5.9$  A long time.

In the current results, there were Around those 60 patients, main 8.3% accounted stress Likewise An provoking figure for those infection Furthermore every last bit patients accounted no historical backdrop for immune system sickness. Contrariwise of the exhibit effects viewing with anxiety factor, Cucchi et al. [9]; accounted that mental stress builds level for neuroendocrine hormones, which influence the safe framework Also change those level of neuropeptides. The increment in the level from claiming neuropeptides might make the initiating off chance to pathogenesis from claiming vitiligo.

As stated by the current data, the imply figure surface zone influenced (BSA) might have been 4.

$9 \pm 13.6$  %. The limbs were those practically usually influenced destinations "around the examined patients (68.3%). There were past investigations disagreed with these comes about for example, An investigation directed Toward Hu et al. [10]; who recommended that the starting locales for vitiligo were scalp, face, neck, abdomen, upper limbs and thighs.

In regards to of the display work, there might have been non-significant Contrast the middle of animated and stable NSV patients in regards the agdistis for onset of the disease, the span of the disease, BSA% What's more VASI score yet all the there might have been Exceedingly critical Contrast viewing VIDA score. There might have been An past study originated in understanding for these effects for example, Singh et al. [11]; who found that both Assemblies demonstrated An noteworthy decline clinched alongside VIDA from 4.0 should  $1.64 \pm 0.86$  ( $P < 0.001$ ) in aggregation i and starting with 4.0 on  $1.68 \pm 0.69$  ( $P < 0.001$ ) Previously, assembly ii. However, the Contrast the middle of those intend VIDA scores in the two gatherings might have been not statistically critical ( $P = 0.60$ ) In the end about medication period. Those same study went in contradiction for those available study in regards to VASI score as they uncovered that, those intend VASI declined from  $1.71 \pm 1.45$  to  $1.52 \pm 1.43$  aggregation i ( $P = 0.06$ ) What's more from  $1.39 \pm 1.31$  on  $1.17 \pm 1.34$  over aggregation ii ( $P = 0.05$ ). The Contrast between VASI for aggregation i Also ii might have been not noteworthy at the conclusion about 24 weeks of medication ( $P = 0.11$ ).

As stated by those current study, serum level from claiming S100B might have been essentially lifted On NSV. This originated in contradiction with An investigation directed Toward Speeckaert et al. [6]; who watched that S100B values were not altogether diverse in sound control subjects compared for NSV patients Yet were higher over segmental vitiligo patients compared for NSV patients. As a result The greater part segmental vitiligo patients required no ailment movement in the keep going 6 months (13/18 patients), in-depth dissection as stated by ailment action might have been not conceivable to this gathering.

Those outcomes of the display investigation consented with those effects for Speeckaert et al. [6]; who discovered an increment clinched alongside S100B serum level in vitiligo patients for Exceedingly animated vitiligo compared for patients for bring down movement statuses.

In the available study, there might have been a Exceedingly critical certain correspondence between serum level for S100B, BSA Also VIDA score. Also, there might have been non noteworthy correspondence

the middle of serum level about S100 b Around stable NSV patients and the examined variables. Also will these results, there were past investigations done Toward Speeckaert et al. , [6]; who exhibited that S100B serum level done vitiligo patients with dynamic depigmentation might have been higher over its level Previously, patients with stable ailment. Also over their studies, they indicated that the clear relationship about S100B serum levels with those influenced BSA, particularly clinched alongside patients for constrained disease, confirms that is An marker for dynamic depigmentation.

Serum levels about S100B associated determinedly with those influenced BSA over vitiligo patients undergoing animated depigmentation, while this might have been not those instance over patients for stable malady [6].

In the present study, there might have been non-significant distinction done serum level of S100B as stated by sex, provoking elements Also family history between those contemplated aggregation of the patients (active What's more stable groups). Unexpectedly will these results, a past study directed by Cheong, [7]; who news person that when cryogenic anxiety prompted done vitiligo Furthermore typical mankind's mc societies by freeze-thaw cycles brought on far reaching discharge about S100B starting with mc (that might have been proportional for the number of solidify cycles), beginning Throughout those early phases about mc passing. This discovering recommended that harmed mc camwood arrival S100B In lesional outskirts of animated vitiligo, which will be concordant with perceptions accounted in a past contemplate [7].

This further helps commitment about S100B in vitiligo animated phase, Along these lines it Might be a possibility target for therapies about vitiligo. In monobenzene-induced depigmentation example, it will be could be allowed will clarify that, animals that didn't create grayness of hair, gained monobenzene joined with pentamidine (inhibitor for S100B). In the contrary, animals approached with monobenzene just created hair graying. These information suggested that S100B Might a chance to be An target to future restorative exploration.

From those comes about from claiming introduce study, it may be closed that S100B might assume a part in the pathogenesis about vitiligo What's more might additionally change the clinical criteria of the sickness.

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