

The Digitizer

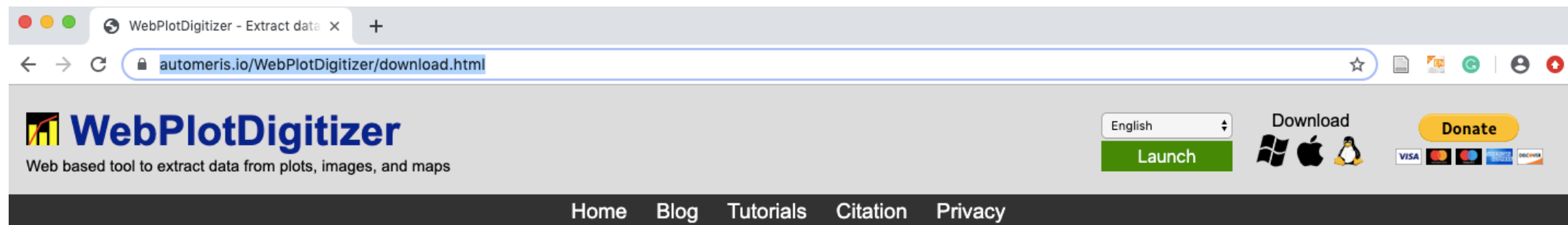
and what we can get
from the KM curve



Brought to you by Amarit Tansawet

link to download

<https://automeris.io/WebPlotDigitizer/download.html>



Download Desktop Versions

WebPlotDigitizer is entirely funded by user donations



Package	MD5 sum
Windows 64-bit	dfce4e4ec99e60400a66d63d8c9b5d30
Windows 32-bit	4533bb6f1c074290b0aed40e2a7d93a2
MacOS 64-bit	1e70b8e12c827532f5b1a4c52fbf3f81
Linux 64-bit	0a903a3ed00cf2d3729d09f13d86101c
NodeJS Module	c8ce13711aac11db50dc0c0a0ad2525d

Outline

- How to use digitizer
- How to recalculate HR and person-time
- How to perform One-stage IPD meta-analysis of survival outcome
- Another use of digitizer

Why we need to extract data from KM curve

- Number of event
- Person-time
- HR
- median survival time

DMA meta set **InHR**
SEInHR
`esvar sevar [if] [in] [, options]`

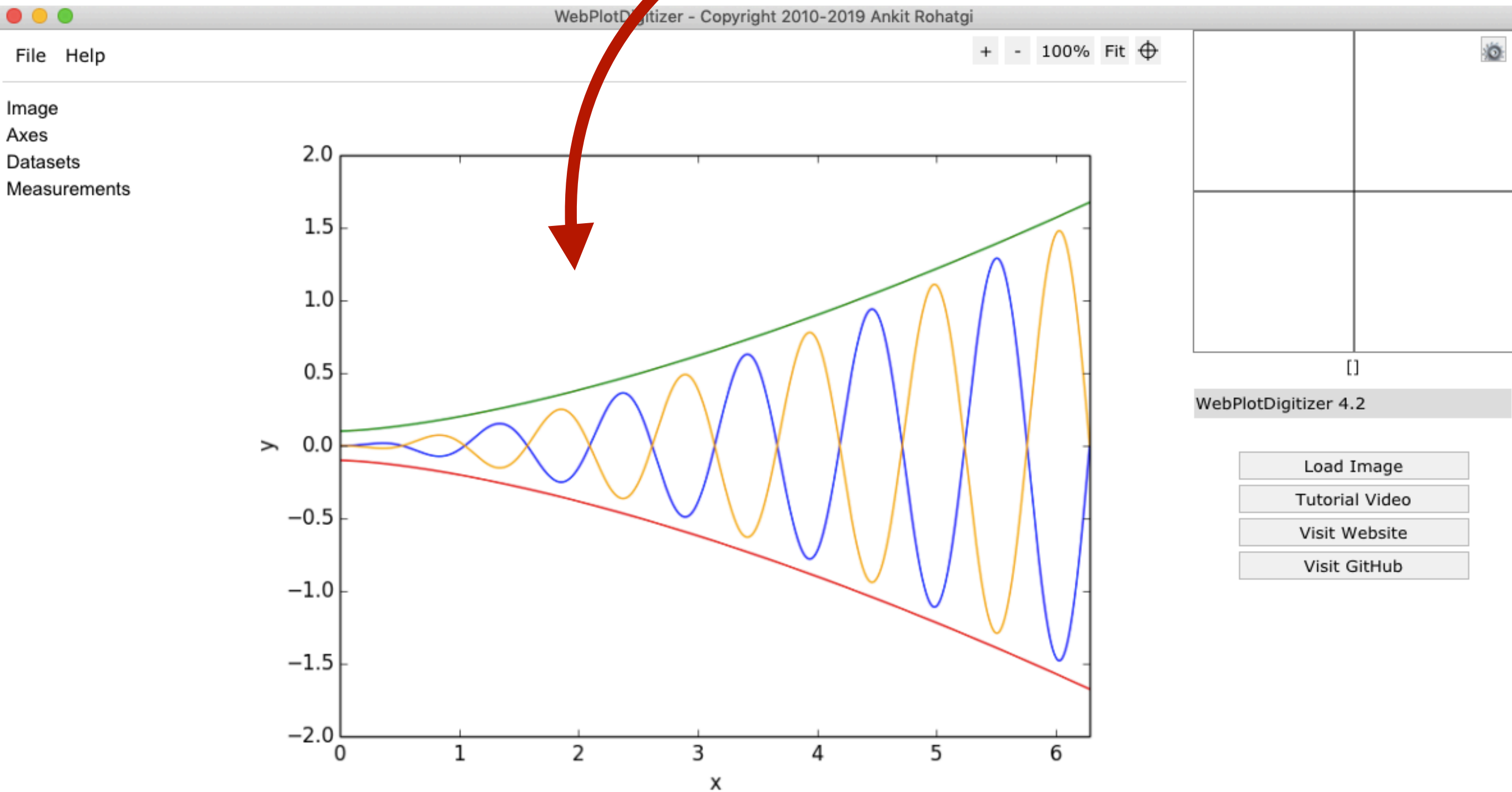
The diagram illustrates the relationship between input variables and command arguments for the DMA meta set command. Two arrows point from 'InHR' and 'SEInHR' to the 'esvar' and 'sevar' arguments respectively, which are circled in red in the command line.

NMA network setup `eventvar nvar [if] [in], studyvar(varname) [or|rr|rd|hr] zeroadd(#) common_options]`

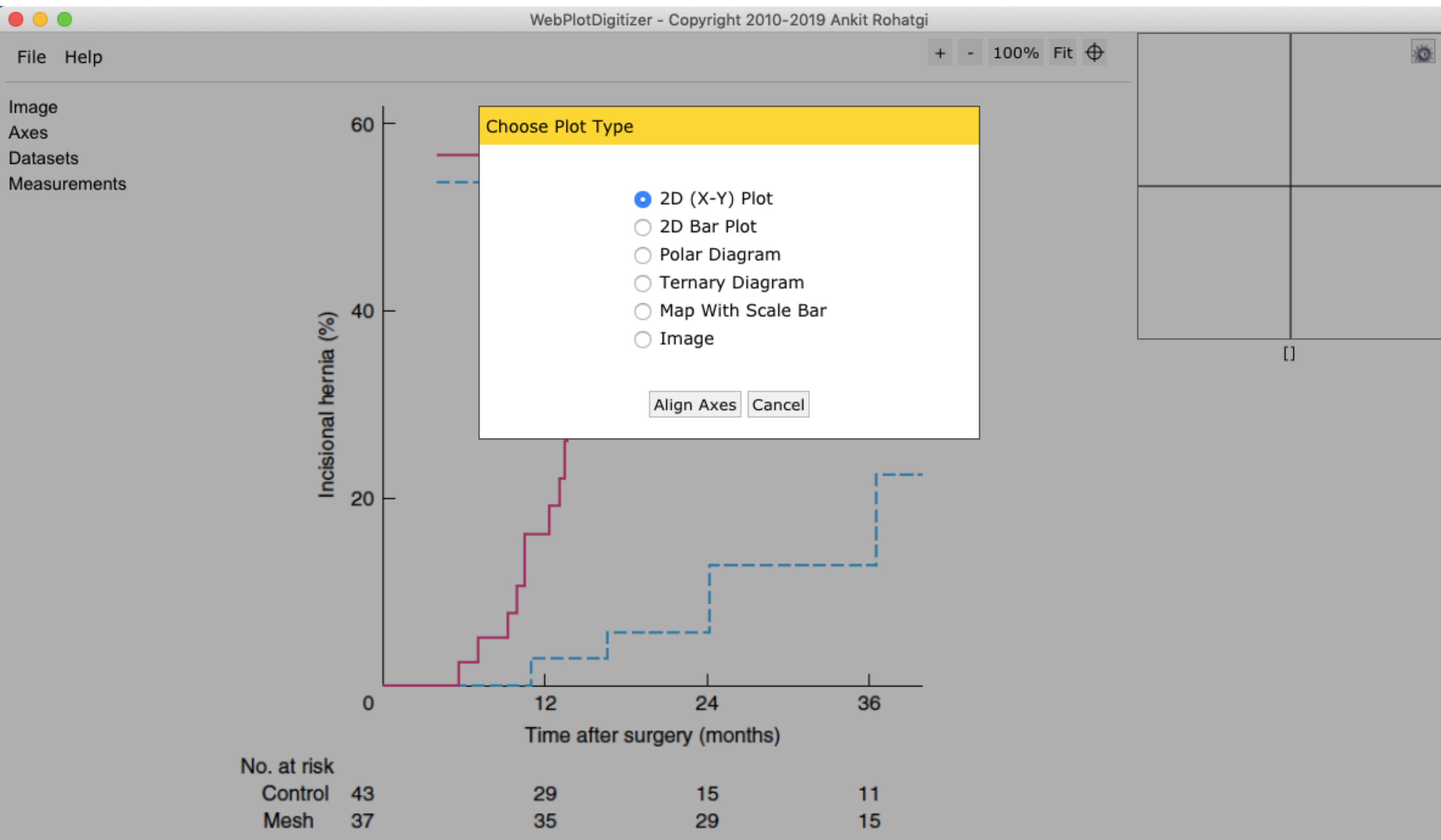
The diagram illustrates the relationship between input variables and command arguments for the NMA network setup command. Two arrows point from 'event' and 'person-time' to the 'eventvar' and 'nvar' arguments respectively, which are circled in red in the command line. Additionally, the 'hr' argument in the options list is also circled in red.

Let's start WebPlotDigitizer

drop your graph over this area

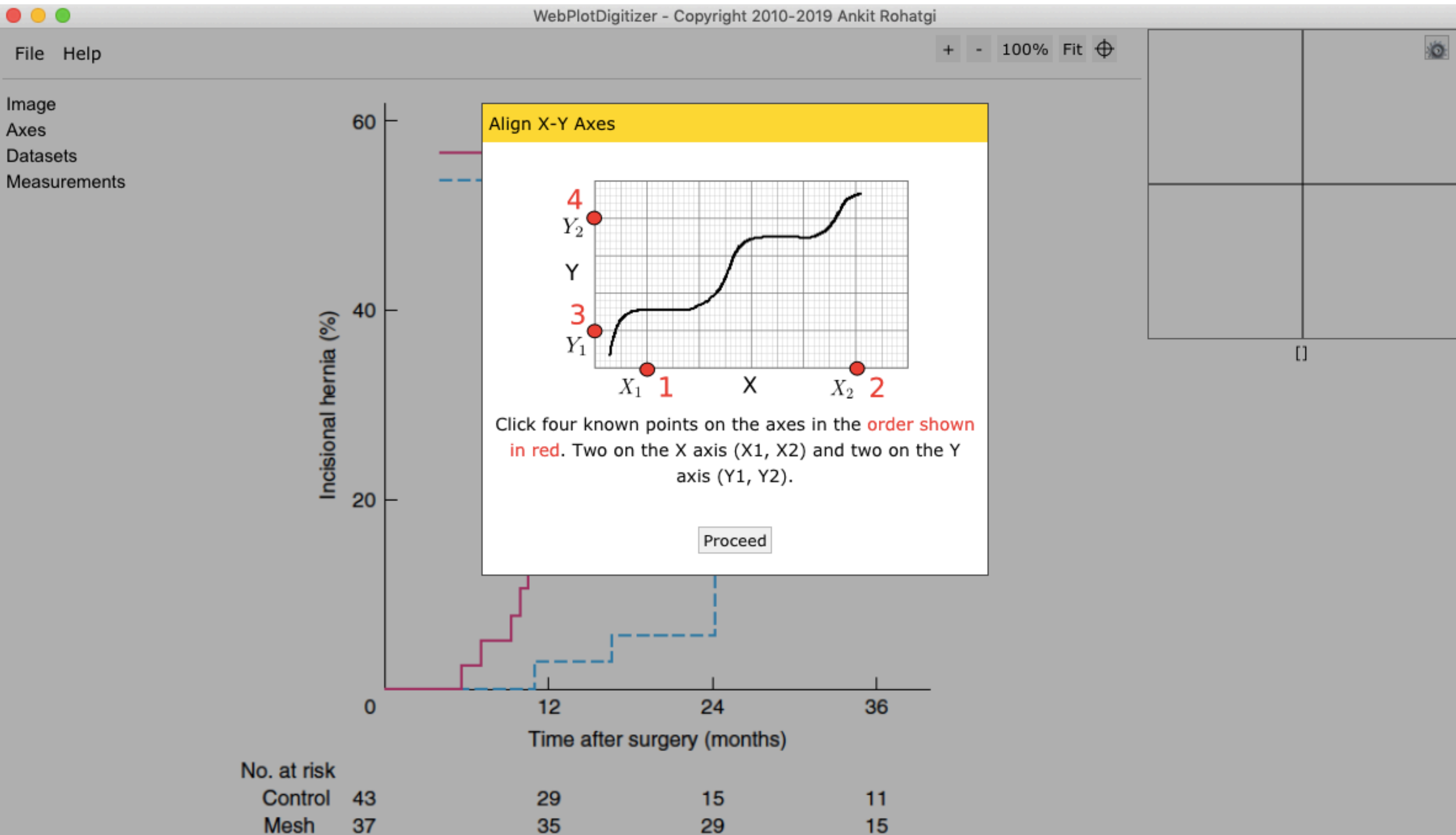


select type of the graph

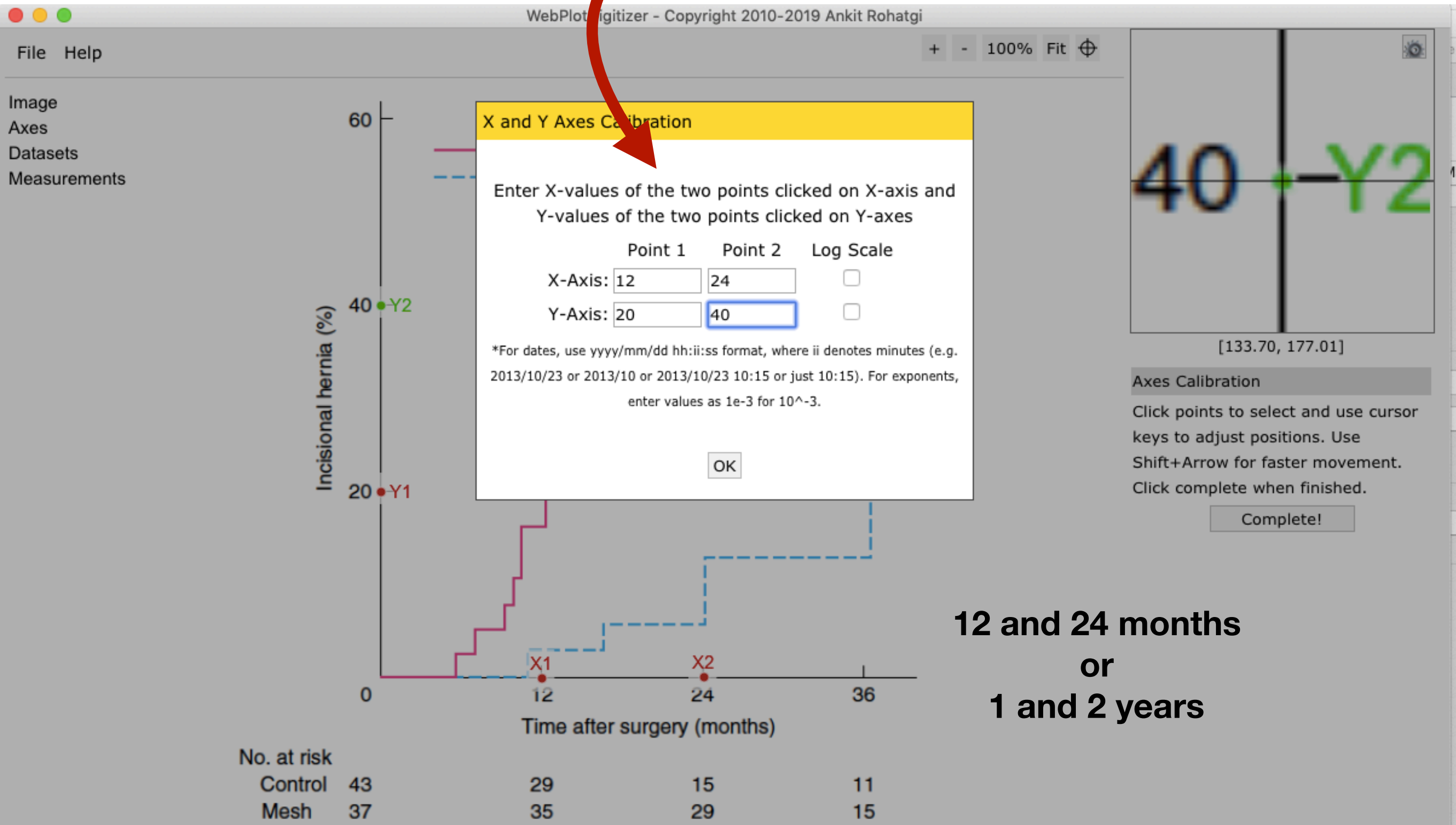


align axis

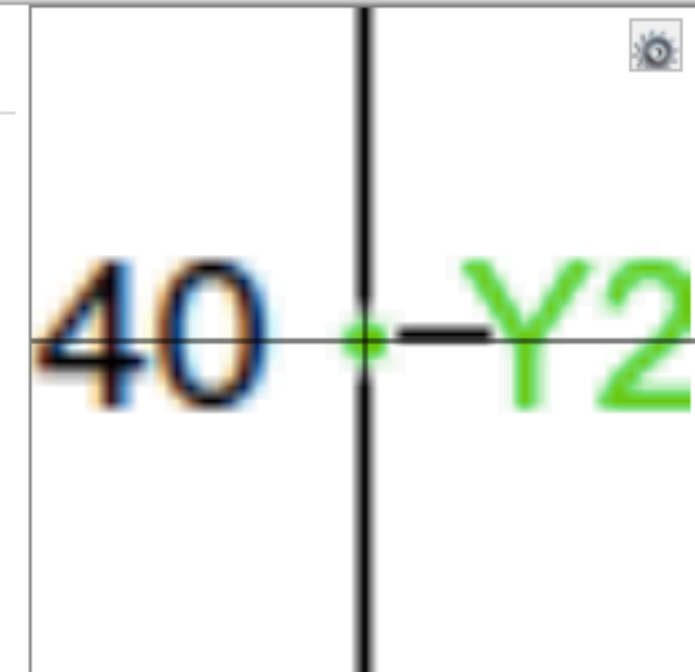
$x_1 \rightarrow x_2 \rightarrow y_1 \rightarrow y_2$
then adjust by arrow key



calibration



+ - 100% Fit



[133.70, 177.01]

Manual Extraction

Add Point (A)

Adjust Point (S)

Delete Point (D)

Automatic Extraction

Mask Box Pen Erase View

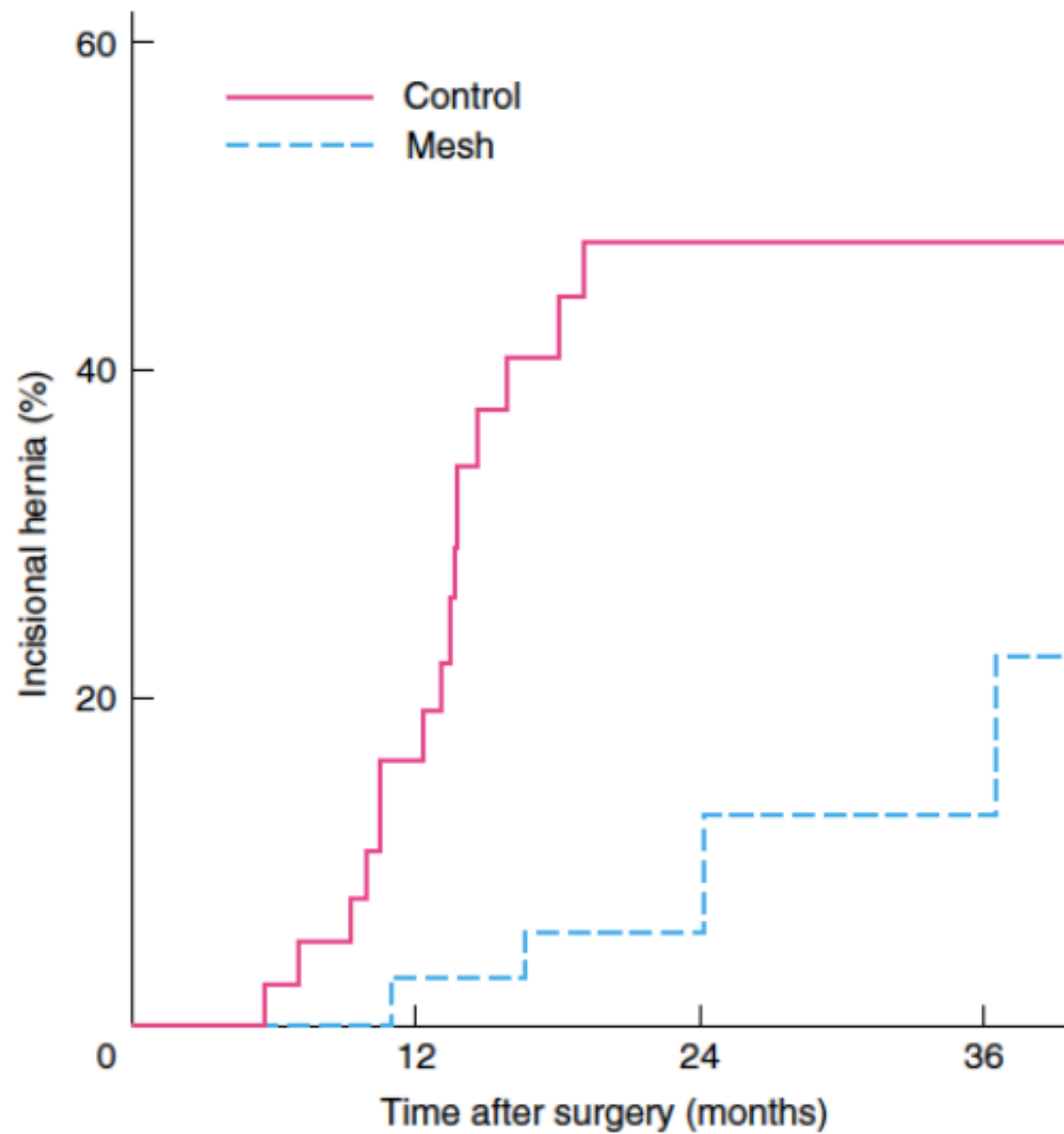
Color Foreground Color

Distance 120 Filter Colors

Algorithm Averaging Window

 ΔX 10 Px ΔY 10 Px

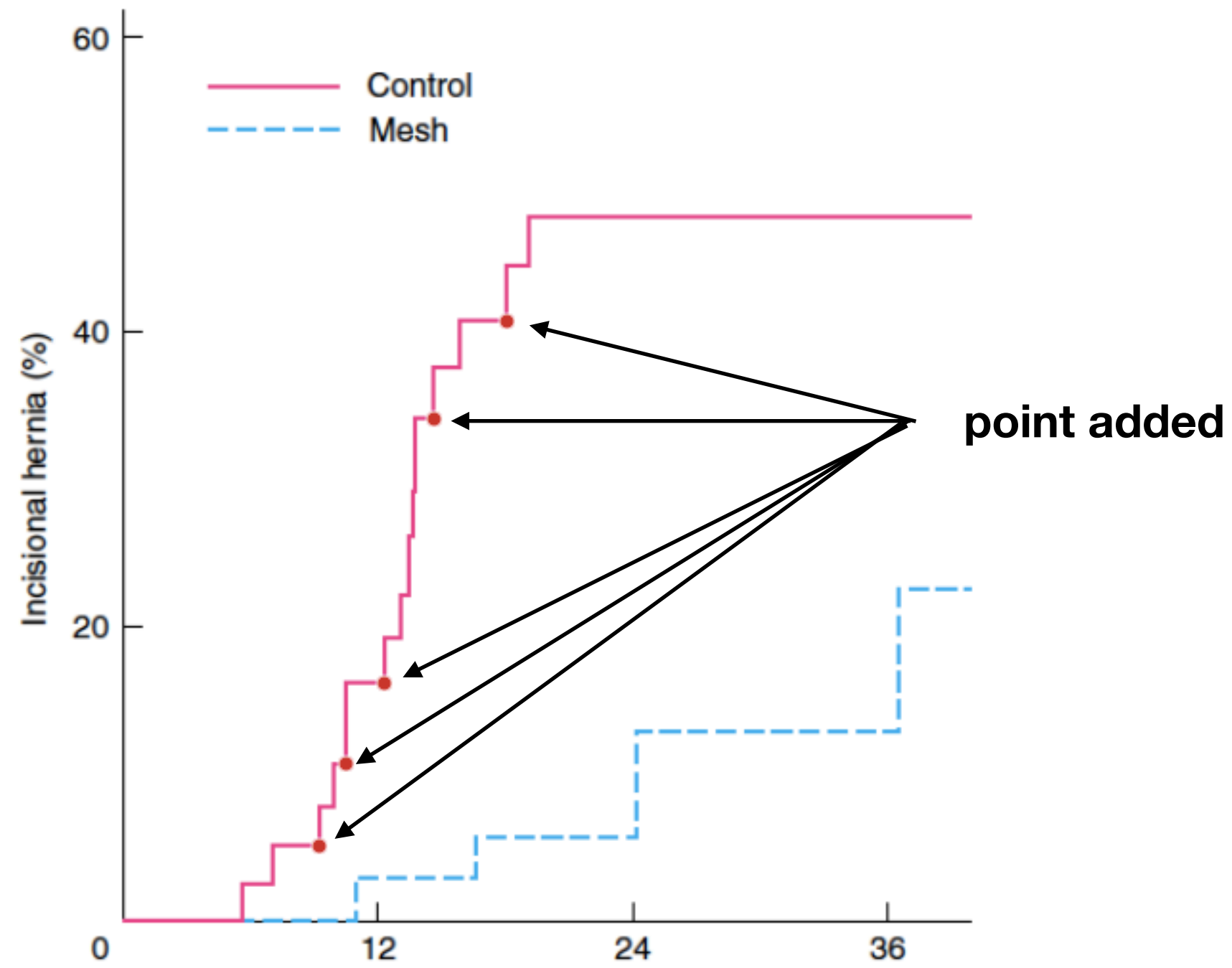
Run

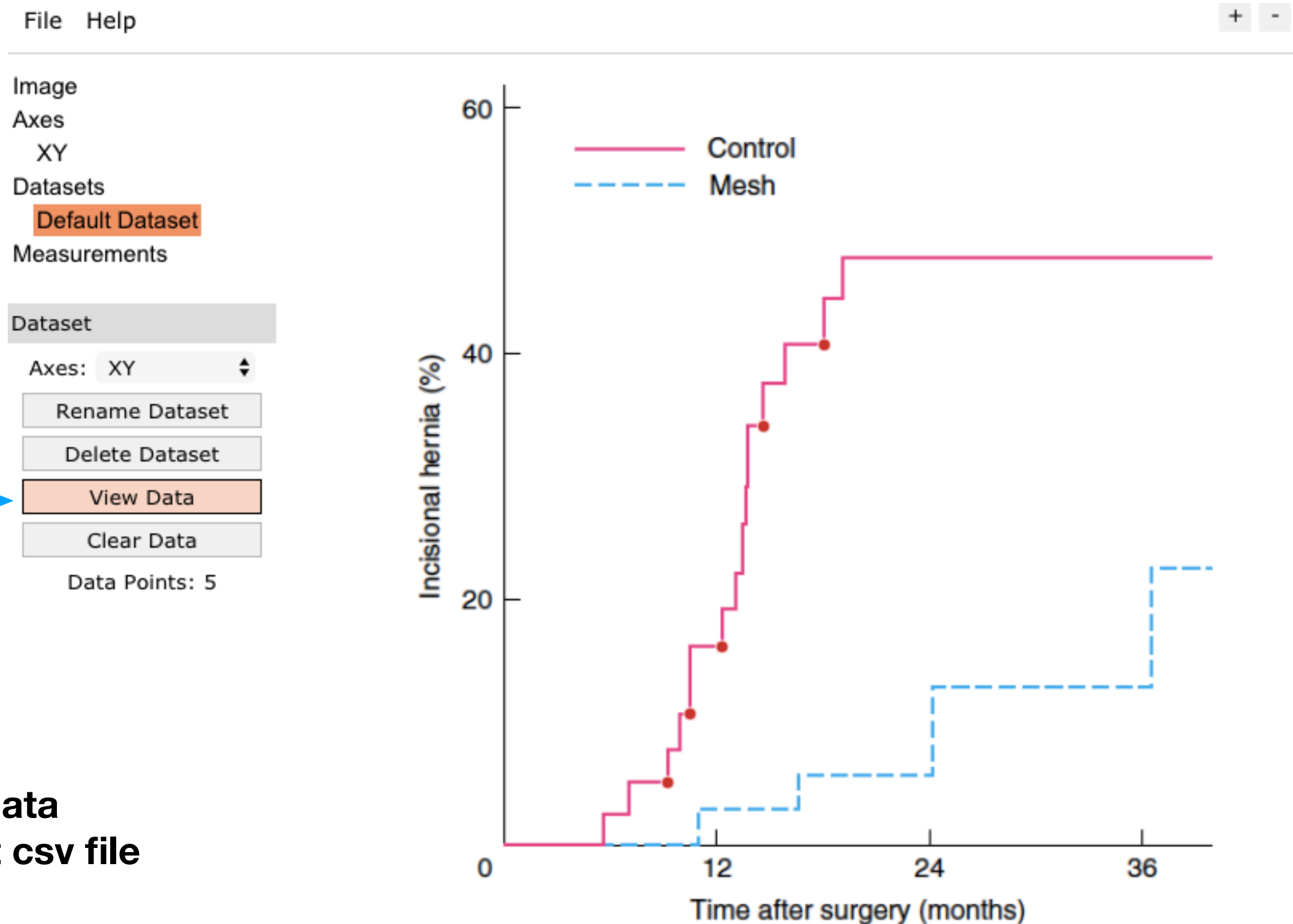


manual
add
adjust
delete

No. at risk	
Control	43
Mesh	37

29	15	11
35	29	15





**view data
and export csv file**

File Help

+ - 100% Fit

Image

Axes

XY

Datasets

Default Dataset

Measurements

Dataset

Axes: XY

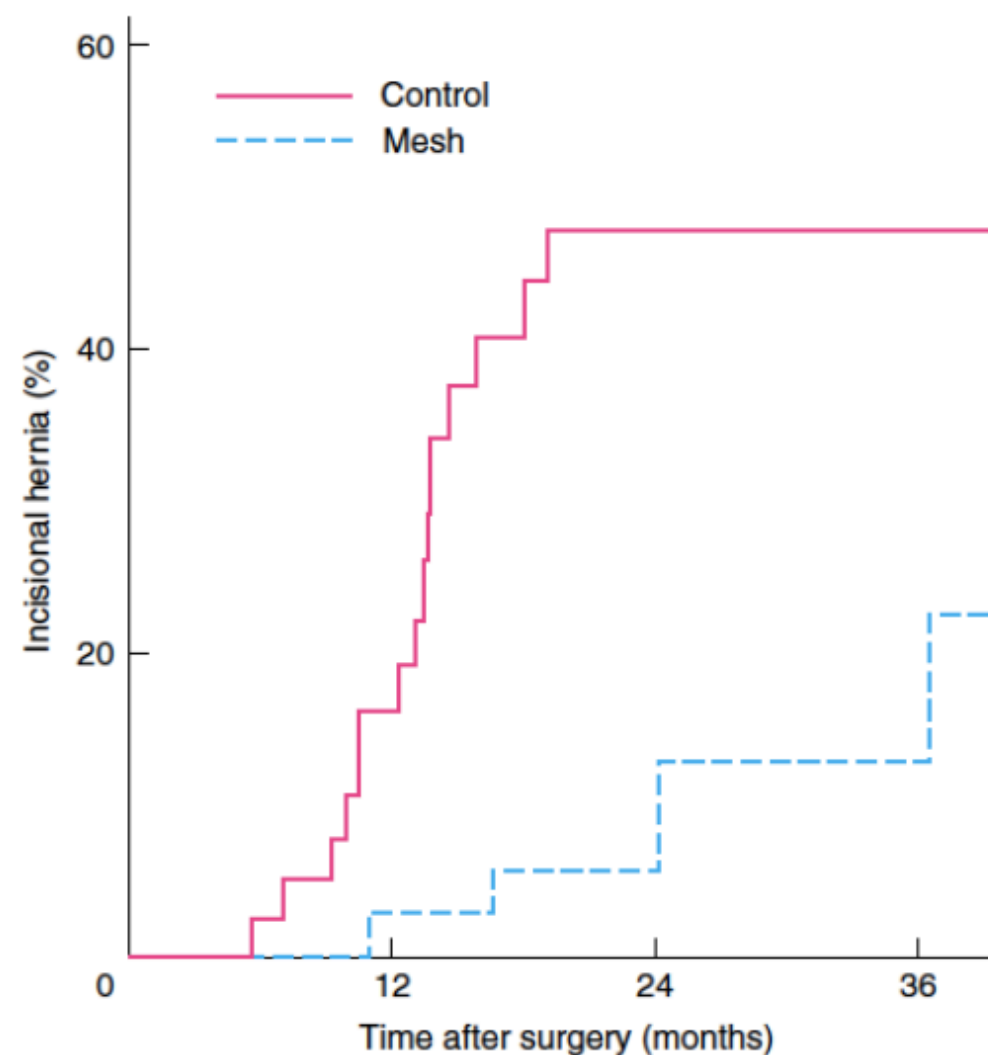
Rename Dataset

Delete Dataset

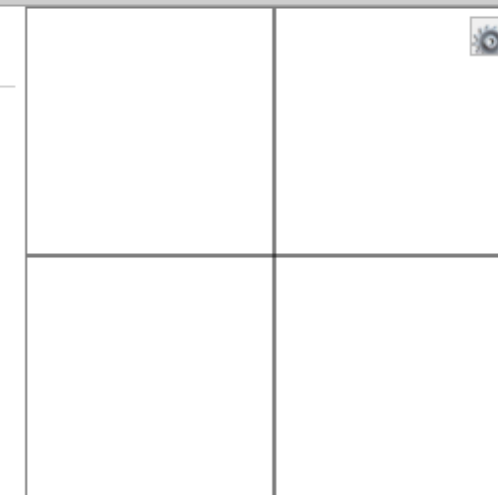
View Data

Clear Data

Data Points: 0



No. at risk				
Control	43	29	15	11
Mesh	37	35	29	15



[4.8000e+1, 2.1559e+1]

Manual Extraction

Add Point (A)

Adjust Point (S)

Delete Point (D)

Automatic Extraction

Mask Box Pen Erase View

Color Foreground Color

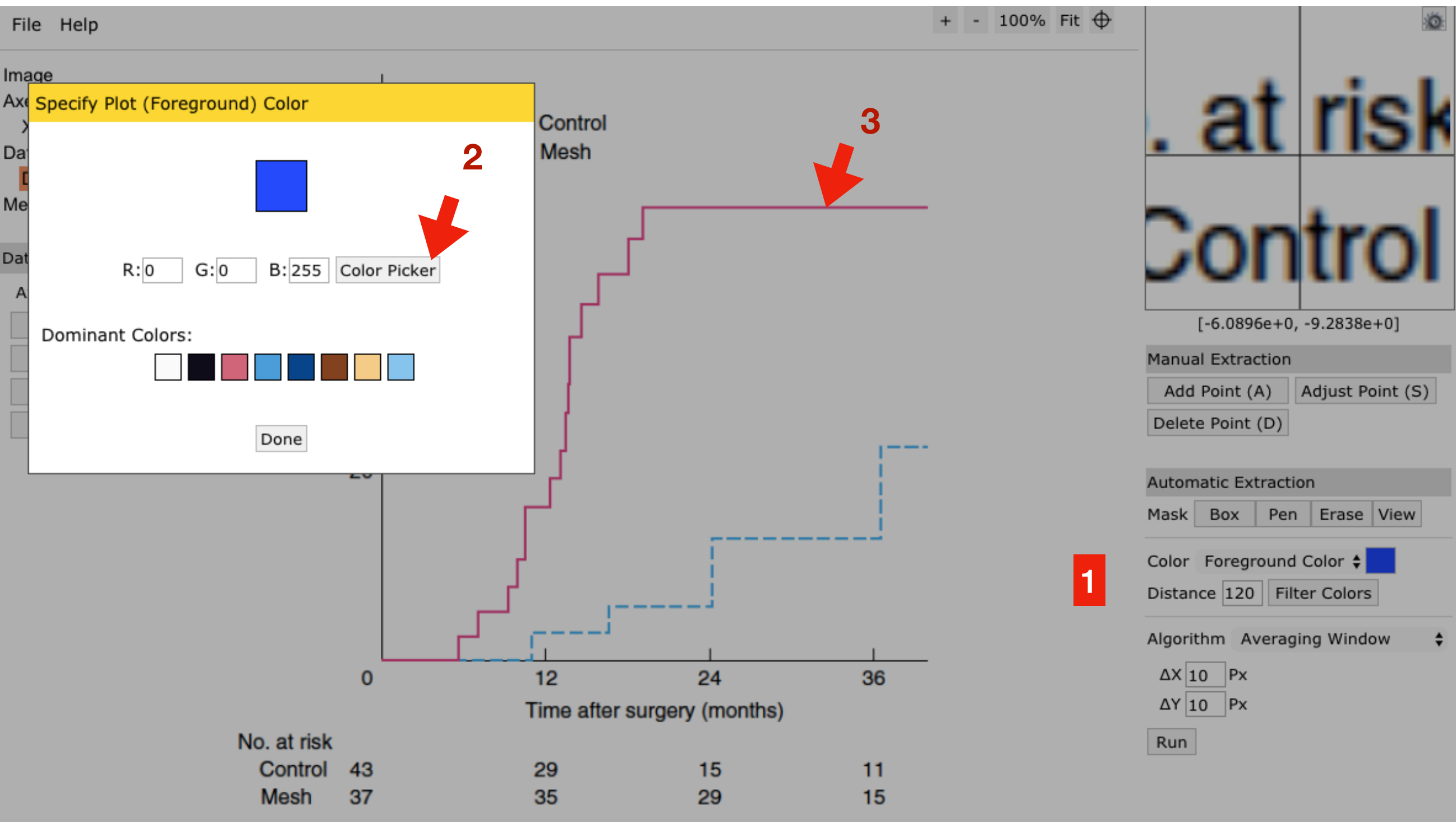
Distance 120 Filter Colors

Algorithm Averaging Window

ΔX 10 Px

ΔY 10 Px

Run



File Help

+ - 100% Fit

Image

Axes

XY

Datasets

Default Dataset

Measurements

Dataset

Axes: XY

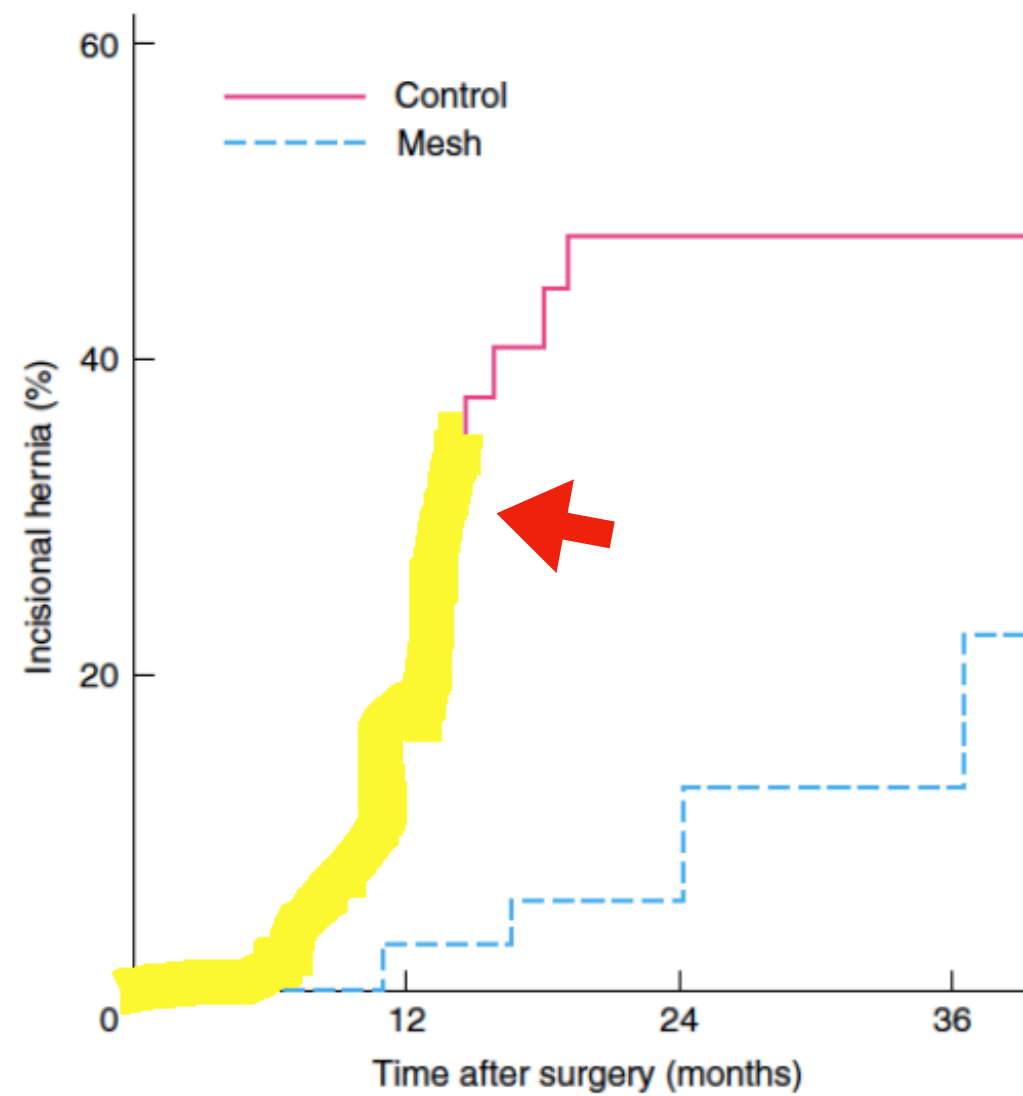
Rename Dataset

Delete Dataset

View Data

Clear Data

Data Points: 0



No. at risk

Control 43

Mesh 37

29

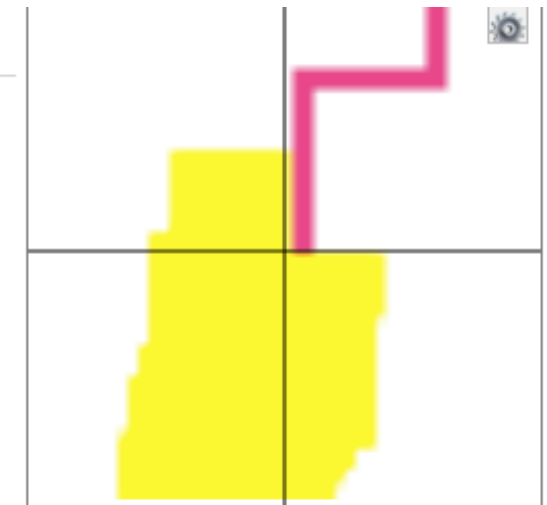
15

11

35

29

15



Manual Extraction

Add Point (A)

Adjust Point (S)

Delete Point (D)

Automatic Extraction

Mask

Box

Pen

Erase

View

Width

Color Foreground Color

Distance 120

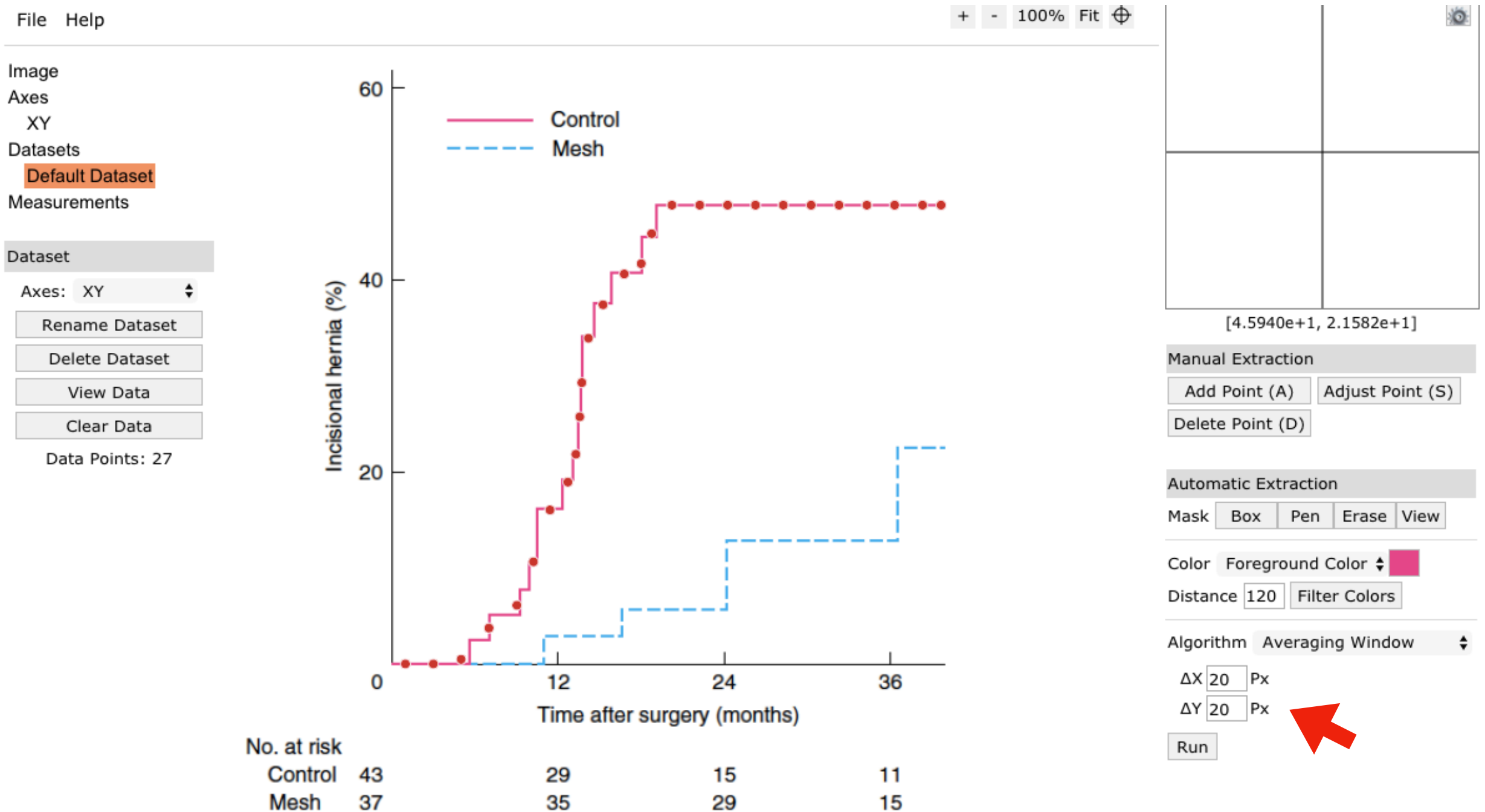
Filter Colors

Algorithm Averaging Window

ΔX 10 Px

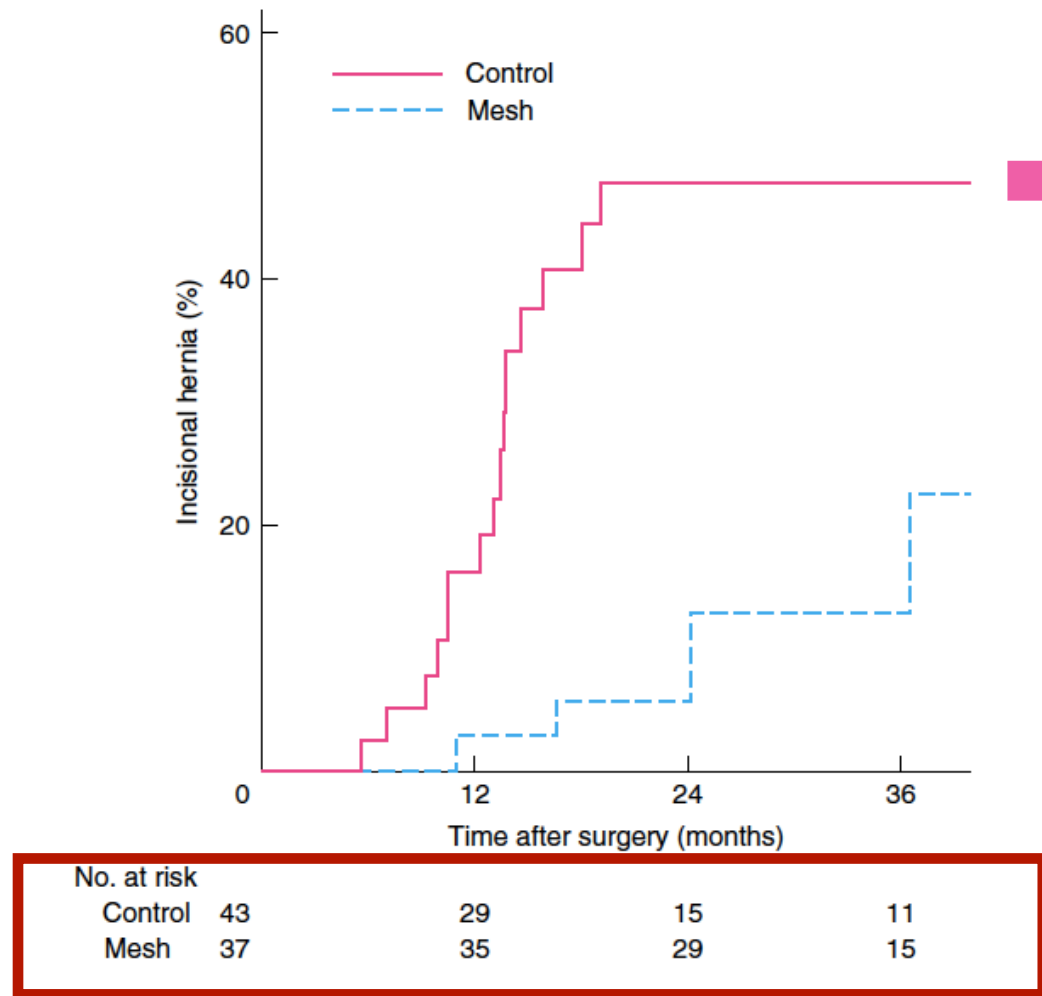
ΔY 10 Px

Run



adjust distance between points

manual adjustment can be performed at each point



Risk table

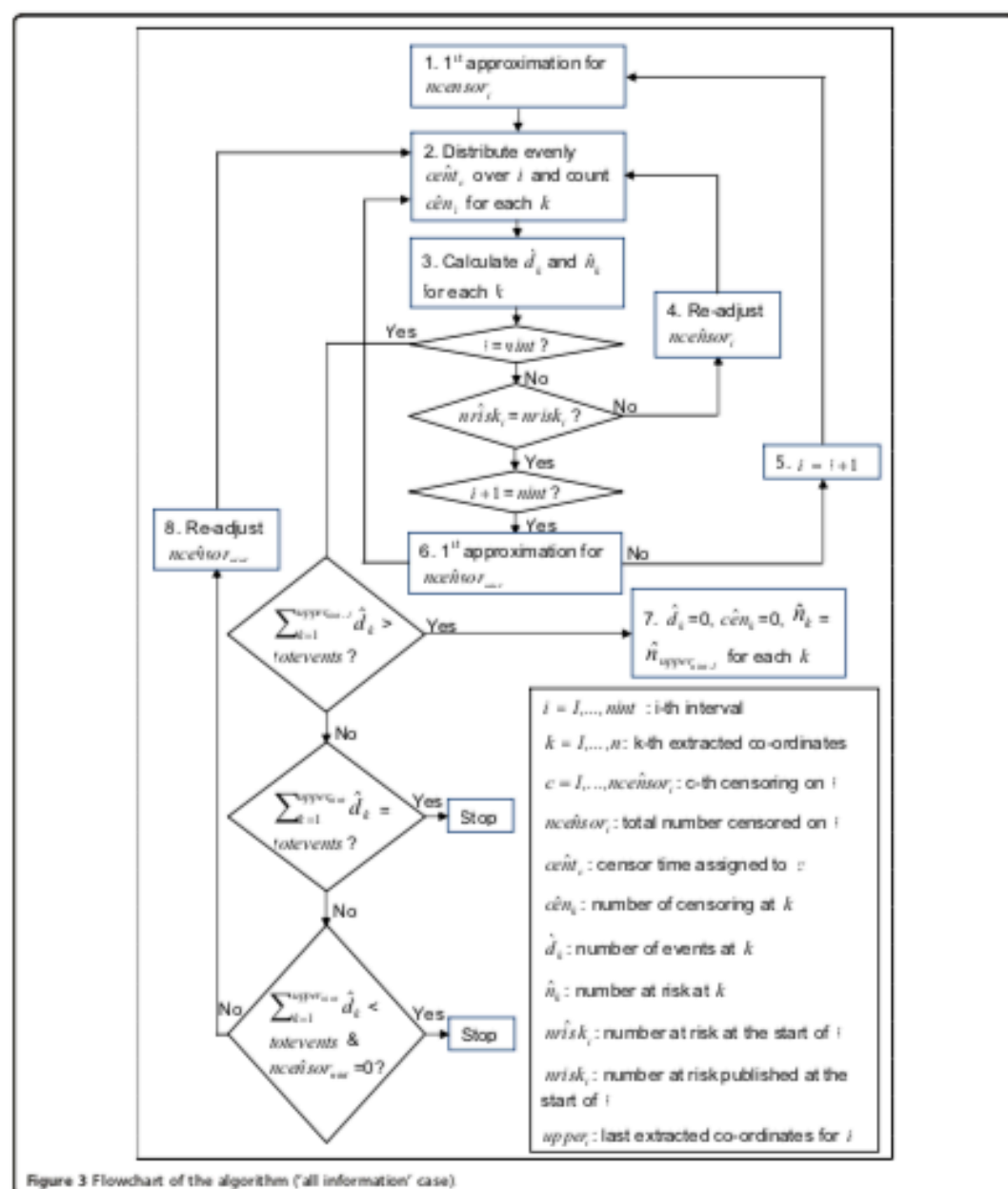
CURVE		RISK TABLE		
	A	B	C	D
1	ts0	f0	trisk0	nrisk0
2	0	0	0	43
3	5.65	2.53	12	29
4	7.09	5.13	24	15
5	9.3	7.73	36	11
6	9.97	10.71		
7	10.51	16.17		
8	12.32	19.16		
9	13.13	22.14		
10	13.49	26.17		
11	13.67	29.16		
12	13.8	34.09		
13	14.66	37.6		
14	15.92	40.71		
15	18.08	44.48		
16	19.16	47.73		
17	24	47.73		
18	36	47.73		

to simulate time-to-event data from KM curve

**Guyot
2012
R**



**Wei
2017
STATA**



failure curve
(default = survival curve)

prob

if y axis = probability
(default = percentage)

- `ipdfc, surv(f0) failure tstart(ts0) trisk(trisk0) nrisk(nrisk0)`

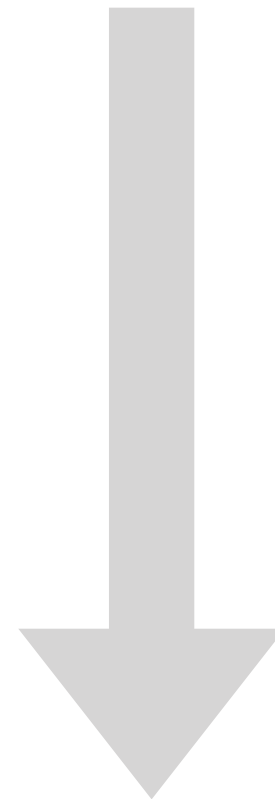
`isotonic gen(time event) saving(nomesh, replace)`

New var

- use nomesh,clear

time[1] 5.65000			
	time	event	
1	5.65	1	
2	7.09	1	
3	9.3	1	
4	9.97	1	
5	10.51	1	
6	10.51	1	
7	12.32	1	
8	13.13	1	
9	13.49	1	
10	13.67	1	
11	13.8	1	
12	13.8	1	
13	14.66	1	
14	15.92	1	
15	18.08	1	
16	18.08	1	
17	19.16	1	
18	2.825	0	
19	2.825	0	
20	2.825	0	
21	2.825	0	
22	6.37	0	
23	8.195	0	
24	9.635	0	
25	11.415	0	
26	15.29	0	
27	18.62	0	
28	21.58	0	
29	30	0	
30	30	0	

← IPD data



One-stage meta-analysis

```
stset time, fail(event=1)
mestreg i.rx || study :, distribution(..)
```


Repeat for other line

- ipdfc, surv(f1) failure tstart(ts1) trisk(trisk1) nrisk(nrisk1)
isotonic gen(time event) saving(mesh, replace)
- use mesh,clear
- stset t, fail(event =1) stsum
- sts graph, fail

Append 2 files together

- use **mesh**, clear
- gen rx=1
- append using **nomesh**
- replace rx=0 if rx==.
- lab define rx 0 "nomesh" 1 "mesh"
- lab value rx rx
- tab rx event
- stset time, fail(event=1)
- sts graph, fail by(rx)
- stcox rx, nohr // to get lnHR and SElnHR

Risk table not available

`trisk(varname)` specifies the times corresponding to the numbers of patients at risk in `nrisk()`. Set `trisk()` as `0` only if the total number of patients in the sample is known. `trisk()` is required.

`nrisk(varname)` supplies the number of patients at risk for each time in `trisk()`. Both `nrisk()` and `trisk()` are often found in a risk table displayed beneath published Kaplan-Meier curves. If no risk table is available, specify `nrisk()` as the number of patients in the sample, and specify `trisk()` as `0`. `nrisk()` is required.

	A	B	C	D
1	ts0	f0	trisk0	nrisk0
2	0	0	0	43
3	5.65	2.53		
4	7.09	5.13		
5	9.3	7.73		
6	9.97	10.71		
7	10.51	16.17		
8	12.32	19.16		
9	13.13	22.14		
10	13.49	26.17		
11	13.67	29.16		
12	13.8	34.09		
13	14.66	37.6		
14	15.92	40.71		
15	18.08	44.48		
16	19.16	47.73		
17	24	47.73		
18	36	47.73		

```
. stset t, fail(event == 1)

      failure event:  event == 1
obs. time interval:  (0, time]
exit on or before:  failure
```

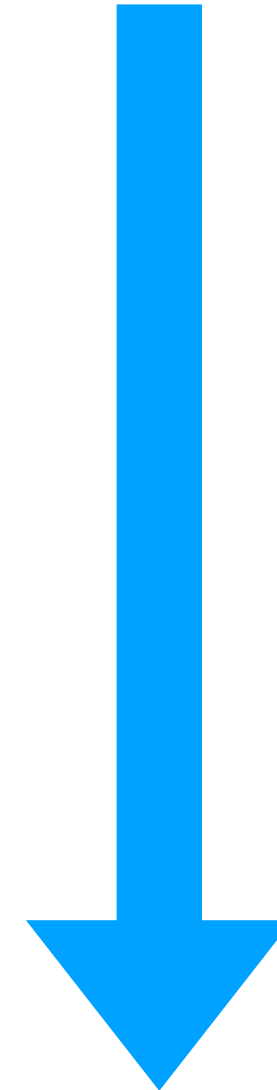
```
43  total observations
0   exclusions
```

```
43  observations remaining, representing
21  failures in single-record/single-failure data
1,064.91 total analysis time at risk and under observation
               at risk from t =           0
               earliest observed entry t =       0
               last observed exit t =          36
```

One-stage meta-analysis

time[1] 5.65000			
	time	event	
1	5.65	1	
2	7.09	1	
3	9.3	1	
4	9.97	1	
5	10.51	1	
6	10.51	1	
7	12.32	1	
8	13.13	1	
9	13.49	1	
10	13.67	1	
11	13.8	1	
12	13.8	1	
13	14.66	1	
14	15.92	1	
15	18.08	1	
16	18.08	1	
17	19.16	1	
18	2.825	0	
19	2.825	0	
20	2.825	0	
21	2.825	0	
22	6.37	0	
23	8.195	0	
24	9.635	0	
25	11.415	0	
26	15.29	0	
27	18.62	0	
28	21.58	0	
29	30	0	
30	30	0	

By appending
IPD data
from each curve



```
stset time, fail(event=1)  
mestreg i.rx || study :, distribution(..)
```

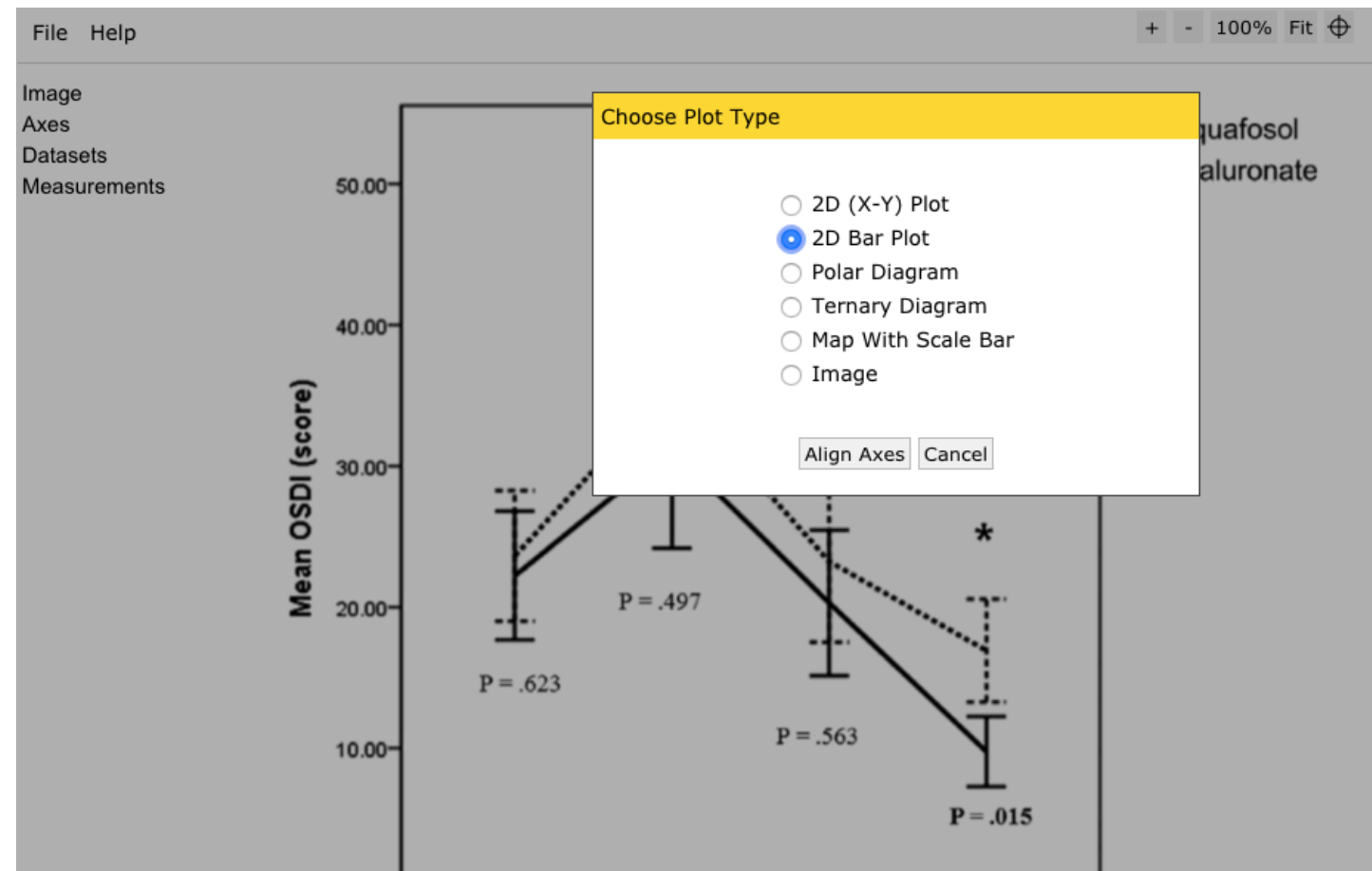
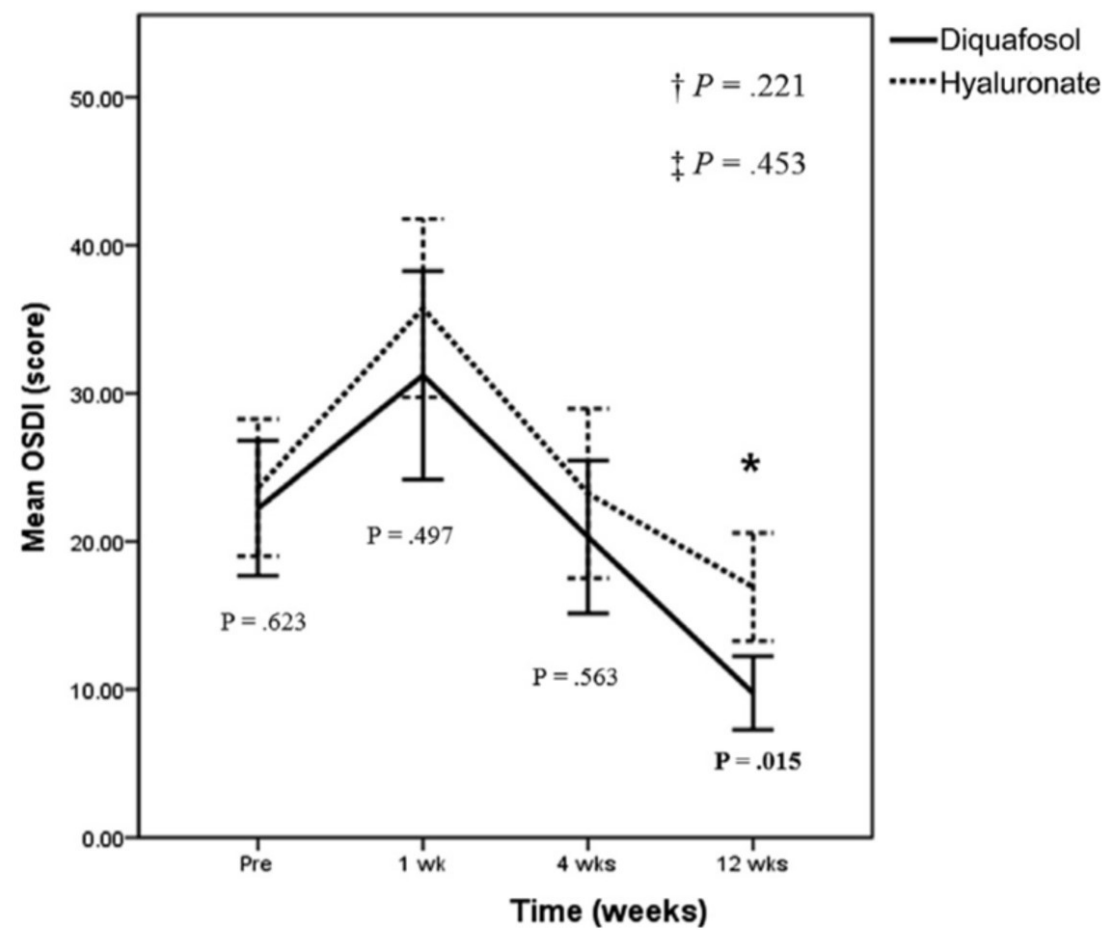

- mestreg i.rx || study :, distribution(weibull)
- margins, by(rx) pr(median)
- margins, by(rx) pr(median) pwcompare

	Delta-method					
	Margin	Std. Err.	z	P> z	[95% Conf. Interval]	
rx						
0	41.50581	6.002355	6.91	0.000	29.74141	53.27021
1	97.73993	35.15709	2.78	0.005	28.8333	166.6466
2	139.6976	52.21318	2.68	0.007	37.36168	242.0336

	Delta-method		Unadjusted	
	Contrast	Std. Err.	[95% Conf. Interval]	
rx				
1 vs 0	56.23411	34.89333	-12.15555	124.6238
2 vs 0	98.19182	51.6246	-2.990544	199.3742
2 vs 1	41.9577	57.71412	-71.15989	155.0753

Other applications

Mean and SD



proportion

File Help

Image

Axes

Bar

Datasets

Default Dataset

Measurements

Dataset

Axes: Bar

Rename Dataset

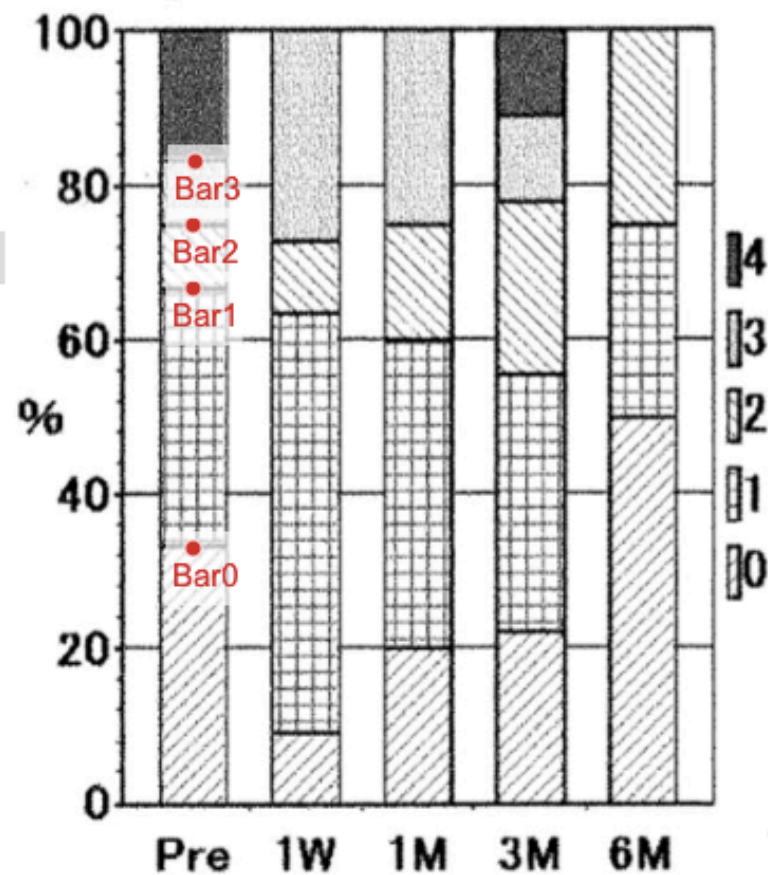
Delete Dataset

View Data

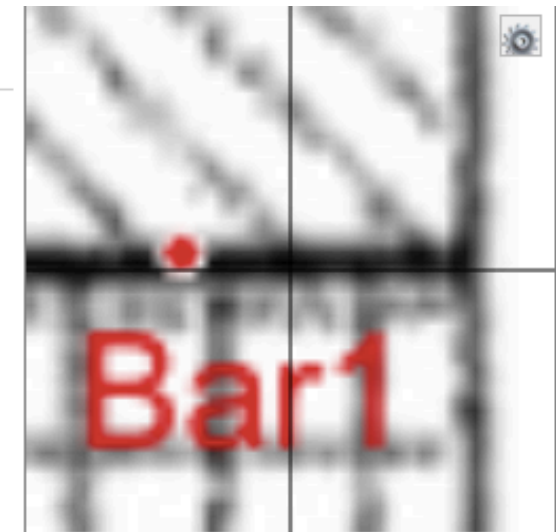
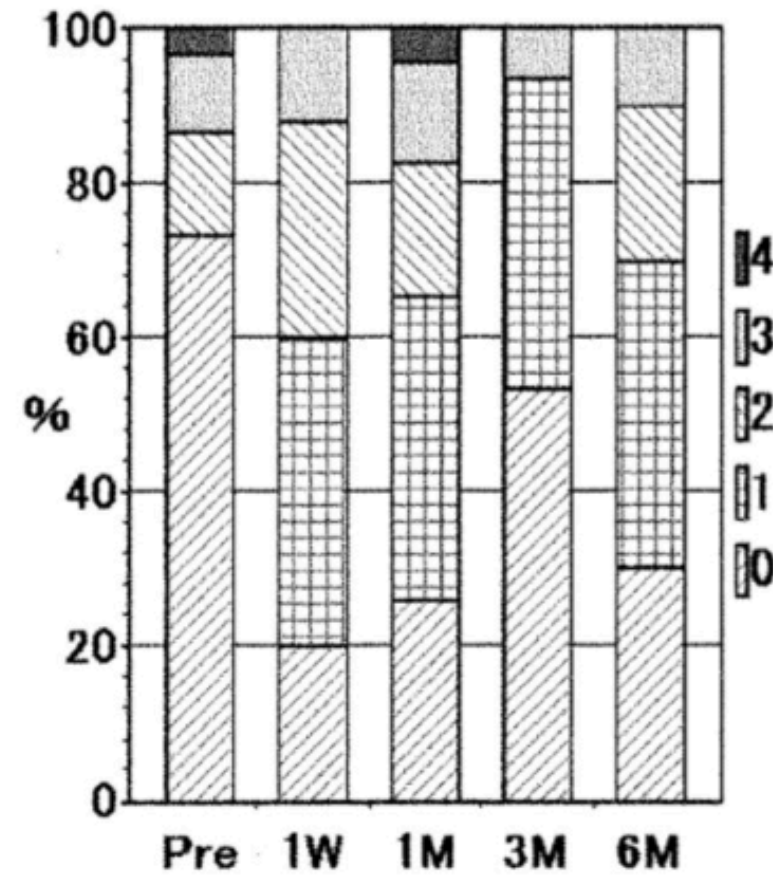
Clear Data

Data Points: 4

Subjective Score (ASE)



Subjective Score (AT)



[6.6575e+1]

Manual Extraction

Add Point (A)

Adjust Point (S)

Delete Point (D)

Edit Labels (E)

Automatic Extraction

Mask

Box

Pen

Erase

View

Color Foreground Color

Distance 120

Filter Colors

Algorithm Bar Extraction

ΔX 30 Px

ΔVal 10 Px

Run



“If you torture the data long enough, it will confess to anything”

– Ronald Coase